Training & Evaluation Material for School Health & Nutrition Supervisors

Contents

Acronyms

ADL	Activities of Daily Living
AFHS	Adolescent Friendly Health Services
ANC	Antenatal Care
ASRH	Adolescent Sexual and Reproductive Health
BHU	Basic Health Unit
BMI	Body Mass Index
CCHF	Congo Crimean Hemorrhagic Fever
CDC	Communicable Disease Control
CMW	Community Mid-Wife
COC	Combined Oral Contraception
CVD	Cardiovascular Disease
DGHS	Director General Health Services
DHIS	District Health Information System
DHQ	District Head Quarter
DLI	Disbursement Linked Indicator
DOTS	Directly Observed Therapy Short-course
DTL	Drug Testing Labs
EC	Emergency Contraception
ECP	Emergency Contraception Pill
ENT	Ear, Nose and Throat
EmONC	Emergency Obstetric and Newborn Care

EMRO	Eastern Mediterranean Regional Office
EPI	Expanded Program for Immunization
FP	Family Planning
GoPb	Government of Punjab
GRD	Government Rural Dispensary
HIV	Human Immunodeficiency Virus
IDU	Injection Drug User
IHR	International Health Regulations
IRMNCH	Integrated Reproductive Maternal Neonatal and Child Health
IYCF	Infant and Young Child Feeding
KMU	Knowledge Management Unit
LHS	Lady Health Supervisor
LHW	Lady Health Worker
LHWP	Lady Health Workers Programme
MARP	Most at Risk Population
MCH	Mother Child Health
MDGs	Millennium Development Goals
MMS	Multi-micronutrient Sachet
MNCH	Maternal and Newborn Child Health
NCD	Non-communicable disease
NGO	Non-Government Organisation
NID	National Immunization Day

OTPs	Oral Therapeutic Programmes
PHC	Primary Health Care
PHNP	Provincial Health and Nutrition Programme
PHSRP	Punjab Health Sector Reform Programme
PLHIV	People Living with HIV/AIDS
PLW	Pregnant and Lactating women
PNC	Post Natal Care
PPTCT	Prevention of Parent to Child Transmission
P&SH	Primary & Secondary Health Care
PSPU	Policy & Strategic Planning Unit
RDT	Rapid Diagnostic Test
RHC	Rural Health Centre
RUTF	Ready to Use Therapeutic Food
SBA	Skilled Birth Attendant
SDGs	Sustainable Development Goals
SHC	Secondary Health Care
SIAs	Supplemental Immunization Activities
SNID	Supplementary National Immunization Day
ST	Stabilization Centre
STIs	Sexually Transmitted Infections
THQ	Tehsil Head Quarters
TT	Tetanus Toxoid

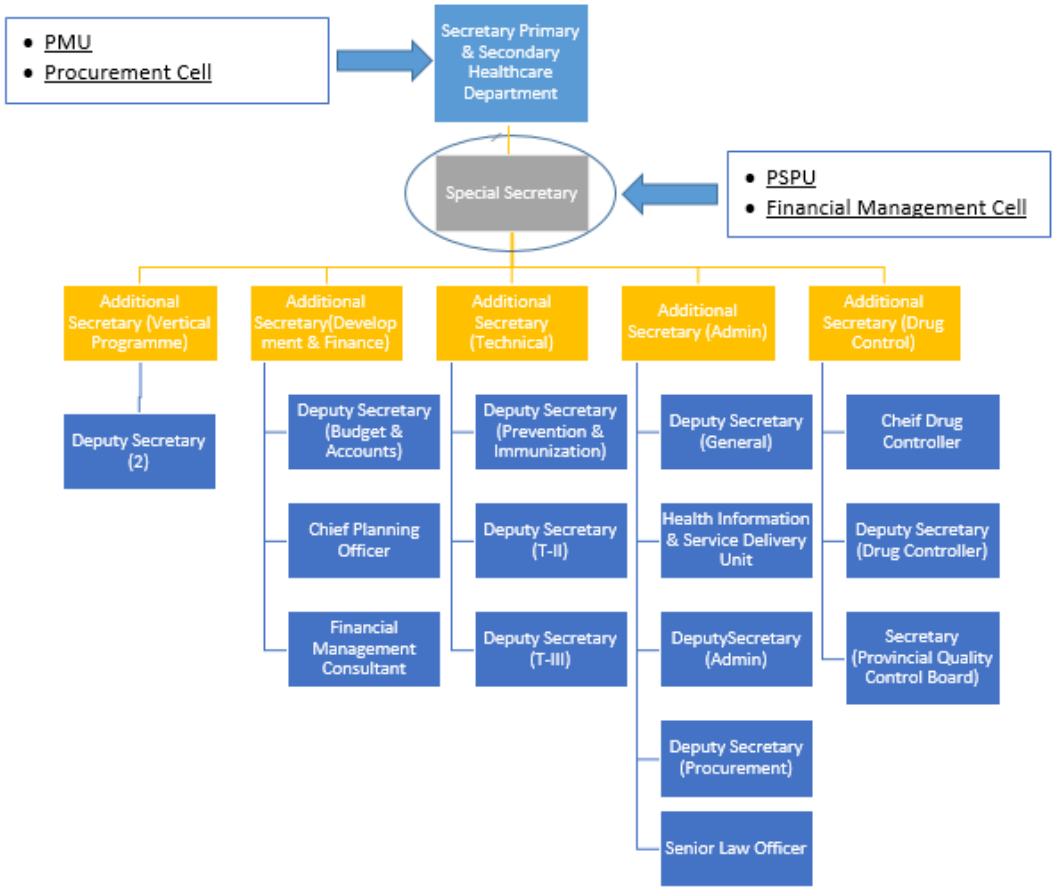
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
VCT	Voluntary Counseling and Testing
VPD	Vaccine Preventable Disease
WACPUs	Women and Children Protection Units
WCBA	Women of Childbearing Age
WHO	World Health Organization

Primary & Secondary Healthcare Department and Related Programmes

Primary and Secondary Healthcare Department

The Government of Punjab, in line with the vision of Chief Minister to make Health Department a dynamic and efficient organization, has bifurcated Health Department into two departments vis-à-vis Specialized Health Care & Medical Education Department and Primary & Secondary Health Care (P&SH) Department. The principal reason for bifurcation has been to improve governance and service delivery in the spheres of health care across the province. Primary and Secondary Health Care Department has been entrusted the responsibility of primary and secondary level health facilities including preventive health services and Vertical Programs. P&SH Department accordingly has its functional responsibility in respect of 25 District Headquarter Hospitals (DHQs), 123 Tehsil Headquarter Hospitals (THQs), 313 Rural Health Centers (RHCs) and 2,502 Basic Health Units (BHUs). Moreover, specialized programs like Expanded Programme for Immunization (EPI), TB Control (DOTS), Hepatitis Control Programmes as well as special campaigns such as Dengue Campaign, Polio Eradication Campaigns also fall in purview of the department. The establishments like Director General Health Services (DGHS), Drug Testing Labs (DTLs) and Bio-medical Engineering Workshops also assist the department in discharging of its functions efficiently.

Administrative Structure



Directorate General of Health Services

Directorate General of Health Services is the main programmatic coordination, implementation and monitoring arm of the provincial Health Department of the Government of Punjab and is headed by the Director General Health Services (DGHS). The Directorate is responsible for overseeing provision of Primary and Secondary Health Care services throughout the province and liaises with all 36 district health offices in the province. It also provides support and leadership in responding to emergency health and medical issues in the province, especially for communicable disease prevention and control. Collection and dissemination of information, advice to the provincial health department and working with development partners on their approved agendas with the Department of Health, Government of the Punjab, are also included in the functions of the DGHS.

Service Delivery Structure

In Punjab, health services are provided through a tiered referral system of health care facilities; with increasing levels of complexity and coverage from primary, to secondary and tertiary health facilities. Primary care facilities include basic health units (BHUs), rural health centers (RHCs), government rural dispensaries (GRDs), mother and child health (MCH) centers and TB centers. All of these provide OPD services for preventive and a limited number of curative services. RHCs provide a broader range of curative services, 24/7. Primary care facilities also provide outreach preventive services to the communities, through vaccinators, sanitary inspectors and the sanitary patrol. Tehsil and district headquarter hospitals provide increasingly specialized secondary health care, while teaching hospitals form the tertiary level tier.

Outreach and Community Based Activities

These focus on immunization by vaccinator, sanitation through sanitary inspectors, malaria control through communicable disease controller, maternal and child health and family planning through Lady Health Workers and community midwives. The outreach workers are connected with their vertical programmes. In Punjab, there are twelve vertical programmes conducting their activities.

Primary Healthcare

The primary care facilities include Basic Health Units (BHUs) and Rural Health Centers (RHCs) mainly preventive, outpatient and basic inpatient care. Following health facilities are mainly working to provide Primary Health Care (PHC).

Basic Health Unit (BHU)

The BHU is located at a Union Council and serves a catchment population of up to 25,000. Services provided at BHU are promotive, preventive, curative and referral. Outreach/community based services are part of package provided by the BHU. BHU provides all PHC services along with integral services that

include basic medical and surgical care. MCH services are also part of the services package being provided at BHU. BHU provides first level referral to patients referred by LHWs. BHU refers patients to higher level facilities as and when necessary.

The BHU also provides clinical, logistical and managerial support to the LHWs. It also serves as a focal point, where community and the public sector health functionaries may come together to resolve issues concerning health.

Rural Health Centre (RHC)

The RHCs have 10-20 inpatients beds and each serves a catchment population of up to 100,000 people. The RHC provides promotive, preventive, curative, diagnostics and referral services along with inpatient services. The RHC also provides clinical, logistical and managerial support to the BHUs, LHWs, MCH Centers, and Dispensaries that fall within its geographical limits. RHC also provides medico-legal, basic surgical, dental and ambulance services.

Secondary Healthcare

Secondary Health Care is an intermediate level of health care that is concerned with the provision of specific technical, therapeutic or diagnostic services. It is the first referral level serving a district or a tehsil. Specialist consultation procedures and hospital admissions fall into this category of care. The role of a district hospital in primary health care has been expanded beyond being dominantly curative and rehabilitative to include promotional, preventive and educational roles as part of a primary health care approach.

Following health facilities are working to provide Secondary Health Care (SHC)

Tehsil Head Quarter (THQ)

Tehsil Head Quarter (THQ) hospital is located at each THQ and serves a population of 0.5 to 1.0 million. At present majority of THQ hospitals have 40 to 60 beds. The THQ hospital provides promotive, preventive, curative, diagnostics, indoor patients' care, referral services and also specialist care. THQ hospitals are supposed to provide basic and comprehensive Emergency Obstetric and New Born Care (EmONC). THQ hospital provides referral care to the patients including those referred by the Rural Health Centers, Basic Health Units, Lady Health Workers and other primary care facilities.

District Head Quarter (DHQ)

The District Head Quarters (DHQ) Hospital is located at District headquarters level and serves a population of 1 to 3 million, depending upon the category of the hospital. The DHQ hospital provides promotive, preventive, curative, advance diagnostics, inpatient services, advance specialist and referral services. All DHQ hospitals are supposed to provide basic and comprehensive EmONC.

DHQH provides referral care to the patients including those referred by the Basic Health Units, Rural Health Centers, Tehsil Head Quarter hospitals along with Lady Health Workers and other primary care facilities.

The Punjab Health Sector Strategy

Punjab has taken the lead in developing a health sector strategy (2012-2017) that is organized around a patient centered system and is based on a thorough situational analysis of the present status of the health sector of the province. The detailed strategy document is available on the PSPU website, www.pspu.punjab.gov.pk

The context for developing a health sector strategy is the realization at high levels of management and administration that in the post devolution setup fundamental responsibility for delivery of health services lies with the province. While the health department of Punjab is working zealously towards providing increased access and coverage of services to the people of the province is still behind in achieving the MDGs. The multitude of challenges facing the department requires a reforms agenda that can identify the issues, highlight the priorities, define the actions, provide a plan for implementation and monitor the progress. The process for strategy development has been participatory and consultative and the document has been notified by the Department.

Following this, the Punjab health department has developed a detailed Operational plan that lays down the modalities for implementing the strategy. The focus of the HD is system strengthening and promoting primary health care. There is a significant shift towards monitoring and accountability with the recognition that these are the key elements that will steer the sector towards delivery of quality health services to the population.

The Donors and development partners have also aligned their activities with the health sector strategic priorities.

The Policy and Strategic Planning Unit

The PSPU has evolved from the PMU-PHSRP (Project management Unit – Punjab Health Sector Reform Programme and has been operational since 1st July 2013. The PSPU is the focal Unit of Primary and Secondary Healthcare Department, steering the reforms agenda in the Province. The need for such a Unit was identified mutually by the Department as well as donors and development partners.

The main functions of PSPU are as:

- Provide support to the stakeholders and decision-makers in the health sector through health policy analysis and strategic planning
- Coordinate technical assistance for developing and designing new initiatives Data analysis to meet the objectives
- Analyse health financing issues and work closely with the Financial Management Cell for advising the Department on annual development planning and budgeting with a strategic vision

- Develop a culture for participatory and evidence based decision making and needs based data collection in the health sector through Knowledge Management Unit (KMU) www.kmu.pspupunjab.com

The Punjab Health Road Map

The Roadmap is an initiative of the Chief Minister of Punjab, which aims to improve health outcomes for the province through a set priority reforms. The Roadmap effort was launched in February 2014 and modeled on the approach used in the education sector in Punjab, which has resulted in an additional 1.5 million children enrolled in school.

Five areas identified as high priorities by the team are immunization, safe deliveries, primary healthcare, district effectiveness and family planning. By focusing on this set of priorities, the Roadmap aims to achieve dramatic and fast improvements in the health system. The Health Department drives the Roadmap, with support of the Roadmap team and the CM's Special Monitoring Unit. The CM meets with the Health Department, politicians, donors and key stakeholders every two months to review progress on the Roadmap in a Stocktake meeting. These Stocktake meetings provide a platform to monitor implementation and trouble shoot any obstacles to implementation.

Specialized Programmes:

1.IRMNCH (Integrated Reproductive Maternal Newborn Child and Nutrition) Program

Development of this Programme is a way forward not only to continue existing interventions through an integrated approach but to expand their scope and introduce new interventions. Some of the interventions which will be integrated and implemented through this Programme are as following:

a. The National Programme for Family Planning and Primary Health Care

The National Programme for Family Planning and Primary Health Care, also known as the Lady Health Workers Programme (LHWP), was launched in 1994. The Programme objectives contribute to the overall health sector goals of improvement in maternal and newborn child health and provision of Family Planning services. This country wide initiative extended outreach health services to rural populations and urban slum communities through deployment of over 45,000 Lady Health Workers (LHWs) and 1850 Lady Health Supervisors (LHSs) in all over the Punjab are working with 70% coverage (37% in Urban and 85% in Rural area) and contribute to bridge the gap between health facilities and communities.

Features of the Programme

- Access to Reproductive Health and Nutrition services.
- Improving Maternal, New-born and Child health.

- Providing Family Planning services.

Scope of work of LHWs:

- To register all family members in the catchment area especially the eligible couples (married women age 15-49 years) in their respective area.
- To organize community by developing women groups and health committees in her area and to discuss with the community, issues related to better health, hygiene, nutrition, sanitation and family planning emphasizing their benefits towards improved quality of life.
- To coordinate with local Community midwives or other skilled birth attendants and local health facilities for appropriate antenatal, natal and postnatal services.
- The LHWs also participate in various campaigns for immunization against EPI target diseases e.g. polio, MNT, measles etc. in her catchment area.
- To motivate and counsel clients for adoption and continuation of family planning methods. She provides condoms, oral pills and administer injectable contraceptives, as per defined protocols, to eligible couples in the community.

b. National Maternal and Newborn Child Health (MNCH) Program

National Maternal and Newborn Child Health (MNCH) Programme (2006-2012) was launched nationwide with a goal to improve maternal, newborn and child health of the population, particularly among its poor, marginalized and disadvantaged segments. The Programme is contributing to strengthen Emergency Obstetric care services at DHQ, THQ hospitals and RHCs. Further, this Programme has introduced a new cadre of Community-Midwives (CMWs) for skilled deliveries at community level.

Community Midwife (CMW):

CMWs are internationally recognized as frontline workers that can reduce maternal mortality. The National MNCH Programme introduced a new cadre of skilled birth attendants called "Community Midwives" (CMW). Training of CMWs started in 2007/08. Candidates were trained by at least 3 tutors both for theoretical and clinical supervision in designated midwifery schools, after which they received 6 months of practical training (on ANC, normal domiciliary deliveries, PNC and new born care) at practice sites in communities or health facilities with at least one instructor (WMO/Nursing Instructor). On completion of training course and Passing of examination from PNC, CMWs receive diploma certificates from PNC and permission from District Evaluation Committee they are being deployed in the community around 5,000/10,000 people (Rural area and urban slums). Currently 6500 CMWs have been trained dto provide MNCH services in the community. CMWs have been linked with BHUs and RHCs through LHWs meeting in the Health Facility & in the DMUs.

24/7 Basic EmONC Services:

Initially 24/7 Basic EmONC services were started in 2010 in the selected BHUs of 7 flood effected districts (D.G. Khan, Layyah, Muzafargarh, Rajanpur, Mianwali, Bhakkar and R.Y.Khan). By achieving the good results of this initiative, the Government of the Punjab had decided to implement it all over the Punjab in 3 phases. 150 BHUs in Phase-1 were upgraded in 16 districts in 2013-14. 550 BHUs (Including

150 Remaining BHU of Phase-1, 200 BHUs of Phase-2 & 200 BHUs of Phase-3) were upgraded in 32 districts in 2014-15 as per direction of Chief Minister all 550 BHUs have to be functional in 2014-15. Overall 302 RHCs and 803 BHUs are providing MNCH services 24 hours and 7 days of week in all over the Punjab.

c. Nutrition Program

Preventive services are being provided in 36 districts of Punjab through LHWs which include screening of under 5 children, PLWs, IYCF counseling, Provision of IRON, Vitamin-A and MMS to mother and child. Curative Nutrition services were initially started in 2010 in the selected BHUs of 7 flood affected districts (D.G. Khan, Layyah, Muzafargarh, Rajanpur, Mianwali, Bhakkar and R.Y.Khan). By achieving the good results of this initiative, the Government of the Punjab decided to implement it all over the Punjab in 3 phases. Now a total of 803 Outdoor Therapeutic Programmes (OTPs) in 29 Districts at RHC/BHU level and 42 Stabilization Centers (SCs) in all Districts at DHQ/THQ level. Treatment of Severely Acute Malnourished Children without medical complication by provision of Ready to Use Therapeutic Food (RUTF) is carried out at OTPs. Treatment of Severely Acute Malnourished Children with medical complication by provision of medical treatment and therapeutic formulas F75 and F100 carried out at SCs.

2.Hepatitis Control Program

This Programme was launched in the year 2009. Its main task is prevention and control of Hepatitis in Punjab. Spread of Hepatitis has reached alarming proportions in the province with an estimated 2.4% prevalence of Hepatitis B and 6.7% prevalence of Hepatitis C. The overall goal of the project is to reduce morbidity and mortality due to Hepatitis B&C by improvements in hospital waste management, infection control and injection safety practices in public sector health facilities. The Programme aims to improve access to quality diagnostic services and effective hepatitis B&C case management in the public sector health facilities. Furthermore, efficient and effective implementation of Preventive Programme requires strengthening of the existing infrastructure and support system at Provincial and District level.

Features of Programme

- Control the transmission of Hepatitis B and C.
- Reduce the mortality caused by the disease.
- Provide free treatment to the poor and deserving patients.
- Educate and create awareness about the mode of transmission of disease.
- Capacity building through orientation and training of health professionals.
- Consolidate the Hospital Waste Management Systems in all Sentinel Sites / District Headquarter Hospitals in the Punjab.
- Strengthen laboratory and screening facilities in the Punjab.
- Provide free Hepatitis B vaccination to the high risk groups in the Punjab

3. Punjab AIDS Control Program

According to UN estimates there are 97,000 to 1, 25,000 HIV Positive persons in Pakistan. n Punjab, as in the rest of the country, there is a concentrated epidemic. Thus there is an estimated 50,000 PLHIV in Punjab. However the total number of reported HIV Positive cases in Punjab is 2926.

In most cases, HIV prevalence cannot be accurately determined from reported cases because many infections are undiagnosed or unreported. The best estimates are mainly based on the results of surveys of large groups of people.

The Punjab AIDS Control Programme is leading the Provincial AIDS response in Punjab. The Programme is providing preventive, diagnostic and treatment services to the People Living with HIV/AIDS (PLHIV) and Most at Risk Population (MARP).

All the diagnostic and treatment services are available free of cost at 09 Voluntary Counseling and Testing (VCT) Centres, 12 Surveillance Centres, 09 Treatment Centres (Special Clinics) and 06 Prevention of Parent to Child Transmission (PPTCT) Centres.

4. Expanded Programme on Immunization

The Expanded Programme on Immunization (EPI) is a disease prevention activity aiming at reducing illness, disability and mortality from childhood diseases preventable by immunization.

These diseases cause disabilities & deaths among millions of children each year. The diseases are preventable and can be eradicated like Smallpox, as very safe & effective vaccines are available.

The overall objective of the EPI is reduction of mortality and morbidity from the EPI diseases by offering immunization services. With this objective, the Programme started in Pakistan in 1978 and is still continuing. The Programme is evaluated at intervals of 2-3 years.

Following are the EPI diseases:

- Poliomyelitis
- Diphtheria
- Pertussis (Whooping cough)
- Childhood Tuberculosis
- Neonatal Tetanus
- Measles
- Hepatitis-B
- Hib Pneumonia
- Meningitis
- Rota virus disease

Routine Immunization

- Children 0-23 months (Measles II can be given anytime between 12 – 23 months)
- Pregnant ladies by TT.

Supplemental Immunization Activities

- Routine immunization does not ensure 100% coverage of the mobile population i.e. nomads, NAs, hard to reach areas / missed areas. So SIAs are scheduled to ensure coverage of this population / areas.
- NIDs / SNIDs: children < 5 years receive polio drops (3-days campaign)

Disease Surveillance

- To detect every case of targeted diseases, the suspected cases of VPDs are reported by health facilities to the district health authorities for immediate launching of the control measures.

Mopping Up

- Special campaigns 5-8 km around the infected locality to localize the disease and stop its transmission.

5. TB Control Program

Punjab contributes 63% of the total TB case load of the country. One fourth of the total disease burden of EMRO region is borne by Punjab. The goal of the Programme is to reduce the prevalence of TB by 50% in the general population by 2025 in comparison to 2012.

Features of Programme

- Free of cost treatment of TB available at all health facilities
- Free provision of diagnostic facilities at all RHC, THQ, DHQ, Tertiary Care Hospitals
- The free provision of drugs and diagnostic facilities at private and public private setups
- Capacity building of private practitioners under the DOTS (Directly Observed Therapy Short-course) Strategy through a structured modular training
- Advocacy Communication and Social Mobilization through media workshops and quarterly news letter
- Engaging stakeholders outside the government through Public private partnership
- Strengthen programmatic and operational management capacity of the TB Control Programme while enhancing public sector support for TB control by 2018.

6. Malaria Control Program

Malaria control has always been a priority in Pakistan. National Malaria Control Programme was started in 1950. In 1961, Malaria Control Programme was converted into Malaria Eradication Programme under the auspices of WHO with the financial and technical support from WHO, UNICEF and USAID. In 1977 Malaria Control Programme was integrated into health services as part of Communicable Disease Control in Punjab Province. This programme forges consensus among key actors in malaria control, harmonizes action and mobilizes resources to fight malaria in endemic areas. Its aim is to reduce the

malaria associated morbidity and mortality by keeping malaria under effective control. The programme has also been involved in Dengue prevention and control activities. As a result of concerted efforts, the incidence of malaria has reached its lowest level in the province. Moreover, the same staff is working for prevention and control of avian pandemic influenza (AH1N1), Congo Crimean Hemorrhagic Fever (CCHF), Leishmaniasis.

Features of Programme

- Provision of Rapid Diagnostic Test (RDT) kits to the health facilities where malaria microscopy services are not possible.
- Provision of Radical Treatment to all the confirmed cases of malaria in accordance with National treatment policy within 24-hours of diagnosis.
- All Entomologists and Communicable Disease Control (CDC) Officers in the province were trained as master trainers on integrated Vector Control Measures and Spray Operations regarding Dengue and Malaria fever.
- Trainings of master trainers on Malaria Microscopy techniques were conducted at DGHS office to improve the performance in diagnosis of malaria. The master trainers trained laboratory staff at district level.
- The master trainers trained the CDC Inspector and CDC Supervisors working in the districts.
- Monthly review meetings regarding CDC activities at provincial level held in DGHS office under the supervision of Director Health Services in FY 2014-15. In these meetings, the performance of districts was evaluated and best performing districts were awarded appreciation certificates. The best performing certificates were awarded to the districts Okara, Sahiwal, Pakpattan, Faisalabad, Jhang, Rahim Yar Khan, Muzaffargarh, Sargodha and Bahawalpur. This practice promoted CDC activities at district level and a healthy competition was observed.
- Supervisory visits were conducted by the CDC staff at provincial level to various districts to check out the performance.

7. District Health Information System (DHIS) Program

District Health Information System (DHIS) is a mechanism of data collection, transmission, processing, analysis and information feedback to the first level care facilities & secondary level health care facilities. DHIS provides a baseline data for district planning implementation and monitoring on major indicators of disease pattern, preventive services and physical resources.

The revised system, unlike the previous system, would gather and collate information from Secondary level hospitals (District Headquarter Hospitals (DHQs) and Tehsil Headquarter Hospitals (THQs).

Features of DHIS:

- DHIS is a district – based Routine Health Information System
- Responds to the information need of the District health system's performance monitoring function both at district and province levels
- DHIS provides minimum set of indicators
- Promotes / Supports evidence based decision- making at local level & provincial level

- Cater to the important routine health information needs of the federal & provincial levels for monitoring policy implementation
- DHIS is an improved version of HMIS as it incorporates many indicators from HMIS.

8. Epidemics Prevention and Control Program

To combat unprecedented Dengue Epidemic in 2011, although Government started multipronged activities but there was lack of a comprehensive plan with clearly defined roles and responsibilities. To meet this deficiency, Department of Health developed a Plan under the title of Prevention and Control Programme of Epidemics in Punjab spanning on one year.

This Programme initiated its activities from January 2012 and was supposed to end on 06th January 2013 but now it will continue its operations as has been shifted from developmental to non-developmental funds. It is the result of effective and efficient implementation of Dengue prevention and control activities that in year 2012, only few hundred cases were reported while one death occurred because of Dengue Syndrome and in 2013 there has been around 3000 confirmed cases 17 deaths mainly due to more rainfalls and dengue epidemics in Karachi and Swat.

The main components of the Programme are Disease and Vector Surveillance, Health Education, Communication, Social Mobilization and Advocacy, Institutional & Capacity Building, Research & Development for five high-risk cities in particular and generally for all the districts of Punjab.

Features of Programme:

- Make institutionalized and sustainable arrangements to combat Dengue and other Epidemics
- Protect the population of Punjab from Dengue fever and other infectious diseases.
- Introduce comprehensive health including preventive, promotive, curative and rehabilitative components.
- Enhance coverage and quality of health care at all levels including districts, tehsils/towns and union councils.
- Maintain preparedness all the time to combat Dengue and other epidemics.
- Ensure involvement of community, civil society and community leaders in controlling Dengue and other epidemics in the Punjab.

Punjab School Health Programme

Punjab School Health Programme

With a population of over 100 million, Punjab is the most populous province of Pakistan and required a programme that not only focused on healthy lifestyle and nutrition but also promoted hygiene education among the school culture. With the motivation of linking primary health facilities with elementary schools in Punjab, Government of Punjab (GoP) launched its Punjab School Health Programme (PSHP) in 2007-08 with assistance from UNICEF. According to PSHP, a group of School Health & Nutrition Supervisors (SH&NS) will be hired to bridge the gap between primary health facilities and elementary schools thereby promoting a health friendly environment in schools across Punjab. Almost 2,456 SH&NS positions were sanctioned and recruitment was completed in 20 districts in March 2009 which marks the formal launch of the SH&NS program.

Roles and responsibility of School Health and Nutrition Supervisor

Following is the set of roles and responsibilities of School Health & Nutrition Supervisor (SH&NS):

- School Health & Nutrition Supervisor (SH & NS) will be an outreach person with base in the BHU.
- He / she would be working under the supervision & guidance of Health Officer I/C BHU.
- He/she will implement the School Health & Nutrition Programme in the catchment area of the BHU.
- He/she should have complete list and record of Primary & Elementary schools in the area of jurisdiction.
- He/she will be responsible to train the school teacher for health screening of the students. SH & NS along with teachers, will also be conducting health screening in the schools regularly.
- SH&NS will also train the LHVs / female paramedics of the BHU, for health screening of the girls' students. They will accompany the male SH & NS for girls' school at the time of half yearly screening of students.
- The SH & NS should be working in the field, at least three days a week. All office work will be completed in the remaining days, including the management of referred patients/students. He/she would try to arrange appointments of the students with the doctors in his/her presence.
- Schools falling in the catchment area and the visit programme of SH & NS duly approved by the Health Officer I/C should be displayed in the BHU.
- SH&NS will establish communication channels with the schools, coordinating his/her activities with them and duly informing in advance the visit schedule.

- SH&NS should be present in each school at the time of screening. The time table should be prepared in a manner that screening is not done in two schools on the same day.
- SH&NS will submit monthly report and post screening report on prescribed format to the Health Officers for comments and signature. The screening report should be submitted not later than two months after screening.
- After signature of Health Officer, SH&NS will submit these reports to the Programme Director, DHDC. Where there is no PD DHDC, the report will be submitted to DO(H).
- In coordination with the schools, SH & NS would impart health education, to create awareness amongst teachers & students about common health problems.
- He/she would ensure that the students referred for medical attention by the teachers are seen by concerned health professionals.
- He/she would provide the feedback to the concerned teachers about the outcome of referral.
- SH&NS will collect the referred slip from the teachers after Medical Officer has given the advice and the slip is signed by the parents.
- The SH&NS will be responsible for keeping the record of all the students referred to the medical facility i.e. BHU / RHC.
- The SH & NS will also keep a close liaison with parents of the referred children and inform them of the doctor's advice.
- In case of referral to the RHC he/she will coordinate the visit of students with the doctors in the health facility and ensure treatment at RHCs.
- SH & NS will attend the meetings of School Councils and brief the members about his / her activities.
- These responsibilities of SH & NS are only with respect to the School Health Program. They will be assigned roles and responsibilities separately for other activities as per their job description.

Health & Concept of Disease

Health

According to the constitution of World health organization and a revision of its definition, health is a state of complete physical, mental and social well – being and ability to function, not merely absence of disease or infirmity. The function here refers to optimum level function and emphasizes an ability to live an economically productive life.

Health is NOT mainly an issue of doctors, social services and hospitals. It is an issue of social justice.

Health is a fundamental human right and a worldwide social goal; that it is essential to the satisfaction of basic human needs and to an improved quality of life; and that it is to be attained by all people.

Health is a state of Physical, Mental and Social well being and is not merely absence of Disease.

New Philosophy of Health

In recent years, we have acquired a new philosophy of health, which may be stated as below:

- Health is the essence of productive life and not the result of ever increasing expenditure on medical care.
- Health is a fundamental human right.
- Health is inter-sectoral.
- Health is an integral part of development.
- Health is central to the concept of quality of life.
- Health involves individuals, state and international responsibility.
- Health and its maintenance is a major social investment.
- Health is world- wide social goal.

Disease

Disease is defined as a condition in which body health is impaired. Disease is not a static entity but a process which begins before man is actually affected by a living or non-living agent in the environment in which he lives, leading to a battle between the agent and man's defensive forces. The battle on the part of man's defensive forces is an attempt, to maintain a positive balance against injurious forces leading to disturb his health equilibrium.

Illness

Illness is a phenomenon in which one or more natural functions of the body are so disturbed that the affected individual cannot meet the natural requirements of everyday life. It is a state in which the equilibrium of the body and its functions are disturbed. If the disturbance is severe and its duration is not long, the person is said to be acutely ill. If on the other hand illness continues for a long duration without disability, the affected person is said to be chronically ill.

Health Indicators

Health Indicators

Health indicators are useful tools for monitoring the health of the population and communicating with multiple audiences about opportunities to improve health. Health indicators are quantifiable characteristics of a population which researchers use as supporting evidence for describing the health of a population. Typically, researchers will use a survey methodology to gather information about certain people, use statistics in an attempt to generalize the information collected to the entire population, then use the statistical analysis to make a statement about the health of the population.

These indicators are designed to reflect the broad contributors to health—social and physical environments, behaviors, and health conditions. Most importantly, health indicators are often used by governments to guide health care policy. The conditions represented by these indicators point to real opportunities for action. History has shown the high rate of "return" on public health investments. In fact, investments in prevention during the past century are estimated to account for 25 of the 30 years gained in average life expectancy in the U.S for example, vaccines to protect children from polio and other infectious diseases, improvements in motor vehicle safety, safer and healthier foods, and clean drinking water, have saved lives and prevented disability.

List of Health Indicators

The Global Reference List of 100 Core Health Indicators is a standard set of 100 indicators prioritized by the global community under the auspices of WHO to provide concise information on the health situation and trends, including responses at national and global levels. It will be reviewed and updated periodically as global and country priorities evolve and measurement methods improve.

A table of list of health indicators is shown in the next page:

100 Core Health Indicators 2015

Health status

Mortality by age and sex
- Life expectancy at birth
- Adult mortality rate between 15 and 60 years of age
- Under-five mortality rate
- Infant mortality rate
- Neonatal mortality rate
- Stillbirth rate

Mortality by cause
- Maternal mortality ratio
- TB mortality rate
- AIDS-related mortality rate
- Malaria mortality rate
- Mortality between 30 and 70 years of age from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases
- Suicide rate
- Mortality rate from road traffic injuries

Fertility
- Adolescent fertility rate
- Total fertility rate

Morbidity
- New cases of vaccine-preventable diseases
- New cases of IHR-notifiable diseases and other notifiable diseases
- HIV incidence rate
- HIV prevalence rate
- Hepatitis B surface antigen prevalence
- Sexually transmitted infections (STIs) incidence rate
- TB incidence rate
- TB notification rate
- TB prevalence rate
- Malaria parasite prevalence among children aged 6–59 months
- Malaria incidence rate
- Cancer incidence, by type of cancer

Risk factors

Nutrition
- Exclusive breastfeeding rate 0–5 months of age
- Early initiation of breastfeeding
- Incidence of low birth weight among newborns
- Children under 5 years who are stunted
- Children under 5 years who are wasted
- Anaemia prevalence in children
- Anaemia prevalence in women of reproductive age

Infections
- Condom use at last sex with high-risk partner

Environmental risk factors
- Population using safely managed drinking-water services
- Population using safely managed sanitation services
- Population using modern fuels for cooking/heating/lighting
- Air pollution level in cities

Noncommunicable diseases
- Total alcohol per capita (age 15+ years) consumption
- Tobacco use among persons aged 18+ years
- Children aged under 5 years who are overweight
- Overweight and obesity in adults *(Also: adolescents)*
- Raised blood pressure among adults
- Raised blood glucose/diabetes among adults
- Salt intake
- Insufficient physical activity in adults *(Also: adolescents)*

Injuries
- Intimate partner violence prevalence

Service coverage

Reproductive, maternal, newborn, child and adolescent
- Demand for family planning satisfied with modern methods
- Contraceptive prevalence rate
- Antenatal care coverage
- Births attended by skilled health personnel
- Postpartum care coverage
- Care-seeking for symptoms of pneumonia
- Children with diarrhoea receiving oral rehydration solution (ORS)
- Vitamin A supplementation coverage

Immunization
- Immunization coverage rate by vaccine for each vaccine in the national schedule

HIV
- People living with HIV who have been diagnosed
- Prevention of mother-to-child transmission
- HIV care coverage
- Antiretroviral therapy (ART) coverage
- HIV viral load suppression

HIV/TB
- TB preventive therapy for HIV-positive people newly enrolled in HIV care
- HIV test results for registered new and relapse TB patients
- HIV-positive new and relapse TB patients on ART during TB treatment

Tuberculosis
- TB patients with results for drug susceptibility testing
- TB case detection rate
- Second-line treatment coverage among multidrug-resistant tuberculosis (MDR-TB) cases

Malaria
- Intermittent preventive therapy for malaria during pregnancy (IPTp)
- Use of insecticide treated nets (ITNs)
- Treatment of confirmed malaria cases
- Indoor residual spraying (IRS) coverage

Neglected tropical diseases
- Coverage of preventive chemotherapy for selected neglected tropical diseases

Screening and preventive care
- Cervical cancer screening

Mental Health
- Coverage of services for severe mental health disorders

Health systems

Quality and safety of care
- Perioperative mortality rate
- Obstetric and gynaecological admissions owing to abortion
- Institutional maternal mortality ratio
- Maternal death reviews
- ART retention rate
- TB treatment success rate
- Service-specific availability and readiness

Access
- Service utilization
- Health service access
- Hospital bed density
- Availability of essential medicines and commodities

Health workforce
- Health worker density and distribution
- Output training institutions

Health information
- Birth registration coverage
- Death registration coverage
- Completeness of reporting by facilities

Health financing
- Total current expenditure on health (% of gross domestic product)
- Current expenditure on health by general government and compulsory schemes (% of current expenditure on health)
- Out-of-pocket payment for health (% of current expenditure on health)
- Externally sourced funding (% of current expenditure on health)
- Total capital expenditure on health (% current + capital expenditure on health)
- Headcount ratio of catastrophic health expenditure
- Headcount ratio of impoverishing health expenditure

Health security
- International Health Regulations (IHR) core capacity index

World Health Organization

Millennium Development Goals

&

Sustainable Development Goals

Millennium Development Goals

In September 2000, building upon a decade of major United Nations conferences and summits, world leaders came together at the United Nations Headquarters in New York to adopt the United Nations Millennium Declaration.

The Declaration committed nations to a new global partnership to reduce extreme poverty, and set out a series of eight time-bound targets - with a deadline of 2015 - that have become known as the Millennium Development Goals (MDGs).

The 8 MDG Goals:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

The final MDG Report found that the 15-year effort has produced the most successful anti-poverty movement in history:

- Since 1990, the number of people living in extreme poverty has declined by more than half.
- The proportion of undernourished people in the developing regions has fallen by almost half.
- The primary school enrolment rate in the developing regions has reached 91 percent, and many more girls are now in school compared to 15 years ago.
- Remarkable gains have also been made in the fight against HIV/AIDS, malaria and tuberculosis.
- The under-five mortality rate has declined by more than half, and maternal mortality is down 45 percent worldwide.
- The target of halving the proportion of people who lack access to improved sources of water was also met.

The concerted efforts of national governments, the international community, civil society and the private sector have helped expand hope and opportunity for people around the world.

Sustainable Development Goals

The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. “Supporting the 2030 Agenda is a top priority for UNDP,” said UNDP Administrator Helen Clark. “The SDGs provide us with a common plan and agenda to tackle some of the pressing challenges facing our world such as poverty, climate change and conflict. UNDP has the experience and expertise to drive progress and help support countries on the path to sustainable development.”

The Goals:

1. No Poverty - End poverty in all its forms everywhere
2. Zero Hunger - End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Good Health and Well-being - Ensure healthy lives and promote well-being for all at all ages
4. Quality Education - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Gender Equality - Achieve gender equality and empower all women and girls
6. Clean Water and Sanitation - Ensure availability and sustainable management of water and sanitation for all
7. Affordable and Clean Energy - Ensure access to affordable, reliable, sustainable and modern energy for all
8. Decent Work and Economic Growth - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Industry, Innovation and Infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduced Inequalities - Reduce income inequality within and among countries
11. Sustainable Cities and Communities - Make cities and human settlements inclusive, safe, resilient and sustainable
12. Responsible Consumption and Production - Ensure sustainable consumption and production patterns
13. Climate Action - Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy

14. Life Below Water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Life on Land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Peace, Justice and Strong Institutions - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Partnerships for the Goals - Strengthen the means of implementation and revitalize the global partnership for sustainable development

As of August 2015, there were 169 proposed targets for these goals and 304 proposed indicators to show compliance.

Health Promotion & Behavior

Health promotion is the process of enabling people to increase control over, and to improve health. It is not directed against any particular disease, but is indented to strengthen the host to the variety of approaches (interventions). The well known interventions in this area are

1. Health education
2. Environmental modification
3. Nutritional interventions
4. Life style and behavioral changes

Health Education

This is one of the most cost effective interventions. A large number of diseases could be prevented with little or no medical intervention if people were adequately informed and if they were encouraged to take necessary precautions in time. The target for educational efforts may include the general public, patients' priority group, health providers, community leaders and discussion makers.

Environmental Modification

The comprehensive approach to health promotion requires environmental modification such as prevention of safe water, installing of sanitary latrines, control of insects and rodents, improvement to housing etc. Environmental interventions are non clinical and do not involve the physicians.

Nutritional Interventions

These comprise food distribution and nutrition improvement of vulnerable groups, child feeding programs, food fortifications, nutrition education etc.

Lifestyle and Behavioral Changes

Health education is a basic element of all health activity. It is of paramount importance in changing the views, behavior and habits of people.
Since health promotion comprises a broad spectrum of activities a well conceived health promotion programme would first attempt to identify to "target groups" or at risk individuals in a population and then direct more appropriate to them. Goals must be defined, means and alternatives means to accomplishing them must be explored. It involves "organizational, political, social and economic interventions designed to facilitate environmental and behavioral adaptation that will improve or protect health".

Behavior Change is an integral component of a comprehensive health promotion, care and support program. Behavior change Communication (BCC) has a number of different but interrelated roles. Effective BCC can:

- **Increase knowledge**: BCC can ensure that people are given the basic facts about an issue in a language or visual medium (or any other medium that they can understand and relate to).

- **Stimulate community dialogue**: BCC can encourage community and national discussions on the basic facts on diseases and the underlying factors that contribute to the epidemic; It can also stimulate discussion of healthcare-seeking behaviors for prevention, care and support.
- **Promote essential attitude change**: BCC can lead to appropriate attitudinal changes Create a demand for information and services. BCC can spur individuals and communities to demand information on different health problems and appropriate services.
- **Advocate**: BCC can lead policymakers and opinion leaders toward effective approaches to address health problems.
- **Promote services for prevention, care and support**: BCC can promote services for health.
- **Improve skills and sense of self-efficacy**: BCC programs can focus on teaching or reinforcing new skills and behaviors, it can contribute to development of a sense of confidence in making and acting on decisions.

Strategies

Health promotion is to be carried out with multiple strategic dimensions:

1. Involving political leadership
2. Social mobilization
3. Advocacy at various levels
4. Involvement of NGOs and General Physicians
5. Use of institutional framework
6. Training / continuing education
7. Involvement of Education Department
8. Networking
9. Coalition building
10. Research studies
11. Consultancy and Advisory
12. Dissemination of Education Material
13. Celebration of International Days

Priority Areas

Taking into consideration of the results of different epidemiological studies, and the strategic direction provided by the federal and provincial governments, the following priority areas have been identified to attack:

Health Promotion

- Exercise
- Diet
- Personal Hygiene
- Environmental Hygiene / Cleanliness
- Safe Water
- Antismoking
- School Health

- Genetic Counseling

Health Protection

- Prevention of accidents
- Environmental Health
- Food Safety
- Oral Health
- Safe Water
- Rapid population growth
- Promotion of effective health input into social, economic, environmental, and development policies
- Safe Drugs

Disease Prevention

- Malnutrition
- Skin diseases
- Prevention, control, and reduction of communicable diseases
- Prevention and control of non-communicable diseases
- Cardiovascular diseases
- Diabetes
- Cancer
- Drug Abuse
- Mental Health
- Asthma
- Kidney Diseases
- Eye Care
- Ear Nose and Throat Diseases
- Typhoid

In these efforts, human relationship plays an important role. Communication is a part of human relationship. One can communicate ideas, information, norms, attitudes, values. This serves to stimulate new thoughts, new feelings and in turn this helps people to choose the behavior which they feel is best for them.

Health communication does not necessarily mean immediate agreement, but it does signify an exchange aimed at encouraging consensus and positive action. An effective communicator must, therefore, ensure an ongoing dialogue which will bring this consensus to fruition.

Communication Skills

We are continuously communicating with others throughout our life. We communicate by talking, writing and acting etc. We even communicate by touch, smile, frown or gesture. We communicate through silence too.

Even though we are experts in communication but sometimes we fail to communicate our ideas effectively and successfully. This session would help people to understand the meaning of communication, different ways to communication, obstacles to effective communication and skills of effective communication.

Communication

It is also understood as the exchanging of understanding. Use of this process is developmental and transfers to all areas of life: home, school, community, work and beyond.

Elements of Communication

There are four elements involved in Communication process:

- Sender
- Message
- Medium
- Receiver

There is a message sent by sender to a receiver with use of a medium in which message is understood by both sender and receiver.

Need to Communicate

People communicate with others :

- To give and take information
- To express feelings
- To create awareness
- To discuss ideas
- To solve problems
- To develop public opinion
- To discuss things
- For understanding
- For entertainment

It is important to remember that both persons gain in a communication.

Methods of Communication

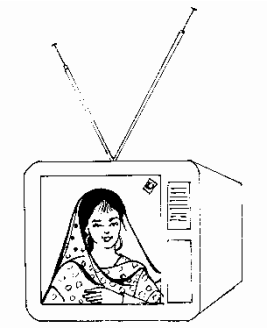
There are four methods of communication:

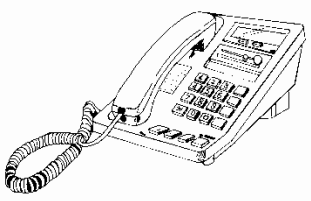
- Verbal (language)
- Non-verbal (body language, emotion)
- Pictorial (image)
- Written (alphabet)

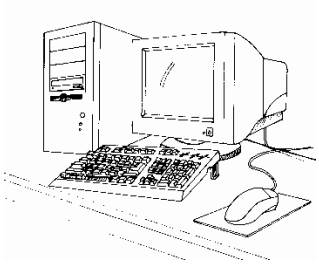
Channels of Communication

Through:

- Words/language
- Body language
- Mail
- T.V/Film
- Video
- Radio
- Telephone
- News papers
- Books, magazine
- Leaflets
- Posters
- Wall chalking
- Banner
- Puppetry
- Street dramas
- Computer
- Fax machine







These channels could be divided in two categories:

1. **Direct channels**
   These channels come under the direct control of the sender and could be easily recognized by the receiver. This category comprises of verbal and non-verbal channels of communication. Verbal communication channels are that use words in some manner such as spoken communication. Non-verbal communication channels are those that don't require words, such as facial and body movements.

2. **Indirect channels**
   These channels are not under the direct control of the sender.

On the basis of communication channels communication is divided into two types.

- Direct communication
- Indirect communication

Direct Communication

In this type of communication, the sender could send the message directly to the receiver without using any other channel. It is also known as interpersonal communication.

Indirect Communication

In this type of communication, the sender uses some indirect channel such as T.V / radio or computer to send message to the receiver.

Different Types of Communication

There are two types of Communication:

1. One way Communication
2. Two-way Communication / interpersonal communication

One Way Communication

In this type of communication, only one person talks and other only listens. The receiver does not allow asking questions. This type of situation is commonly seen in the life e.g. during the lecture, in a class room and in a T.V program.

Two Way Communication/ Interpersonal Communication

This type is also known as interpersonal or two-way communication. In this kind of communication sender and receiver both contribute to the communication process. In this communication, they both send and receive messages. It is a better way to understand ideas and views as people could ask questions for clarification.

Non-verbal communication is an important part of it. But two-way communication takes more time and effort than one way communication. It's a better way to communication because:

- It is very effective way to convey message.
- It helps both persons to talk and listen to each other.
- It helps to make sure both persons understand each other.
- Can ask questions to clarify what other means.
- It creates condition of equality between both participants of the communication.

- Does not get bored, as might happen in a long lecture.

Non-Verbal Communication

Non-verbal aspects of communication are as important as verbal. Non-verbal communication is focused on face to face interaction.

"Nonverbal communication is the process of communicating through sending and receiving wordless messages."

Such messages can be communicated through gesture, body language/ posture, facial expression, eye contact, voice quality, voice tone, emotion and speaking style.

People communicate to another through our words (verbal) and also through their gestures, facial expressions and tone of their voice.

The way of standing, sitting, looking at or looking away are all methods of non-verbal communication.

What is said is as important as how it is said. A person might have come across situations where someone asks him/her 'How are you?' in a tone that convinces him/her that the person is not interested in knowing about the other person.

One has to ensure that his/her non-verbal communication matches his/ her verbal communication. If a community worker tells a village woman that she is intelligent then through her expression she should not be conveying that the woman is really dumb.

In communicating with others, it is useful to be sensitive to their non-verbal expressions in order to understand that one is being understand by them or not.

Interaction of Verbal and Non-Verbal Communication

When communicating, non-verbal messages can interact with verbal messages in six ways:

1. **Repeating**
   "Repeating" consists of using gestures to strengthen a verbal message, such as pointing to the object of discussion.

2. **Conflicting**
   Verbal and non-verbal messages within the same interaction can sometimes send opposing or conflicting messages. A person verbally expressing truth while simultaneously avoiding eye contact may convey mixed message to the receiver in the interaction. When mixed messages occur, nonverbal communication becomes the primary tool people use to attain additional information to clarify the situation.

3. **Complementing**
   Accurate interpretation of messages is made easier when nonverbal and verbal communication complementing each other.

4. **Substituting**
   Nonverbal behavior is sometimes used as the sole channel for communication of a message. People learn to identify facial expressions, body movements and body positioning corresponding with certain feelings and intentions. Nonverbal signals can be used without verbal communication to convey massages.

5. **Regulating**
   Nonverbal behavior also regulates our conversations. For example, touching someone's arm can signal that you want to talk next or interrupt.

6. **Accenting/ Moderating**
   Nonverbal signals are used to accent or amplify the message. Nonverbal behavior can also be used to moderate or tone down aspects of verbal messages as well. For example, a person who is verbally expressing anger may accent the verbal message by shaking a fist.

Barriers to Effective Communication

Sometimes people are unable to communicate effectively with another person. Some things act as obstacles to successful communication.

- People filter and screen what they say and hear through their values and attitudes. Thus, they talk and listen to each other selectively. Sometimes these valves and attitudes act as hurdles in the process of communication.
- Beliefs People's beliefs also affect what they communicate to other people. If a person believes that another person is intelligent then this would affect what he / she communicate to and how he/ she communicate with another person. Similarly, when the other person tells the 1st person something, the 1st person would hear in a way that confirms his/her belief that the other person is intelligent.
- Communication is also affected by the moods of people involved in it. If a person has received a bad news, it is natural that if someone gives him or her information about a community meeting then he/ she would not be able to understand the message.
- Pressures of work, the atmosphere in the family, what happened recently, one's own physical well being affect people and consequently communication.
- Because people are different, they have different concepts. People need to understand these differences to communicate with each other. If they fail to understand the concepts, they would not able to communicate successfully with others.
- People have different meanings for same word or expression. It could be a barrier in communication if one may not be sensitive to this. For example, in a certain community the word **"bekar"** is used for thief, bad and quarrelsome etc.
- Language could be another obstacle to effective communication. Apart from Urdu there are so many local languages. While communicating with a community one should use local language. Otherwise people would not understand what is being said to them. People are used to some certain terms and jargons themselves. Common people may not understand that. If someone

says BHU or RHC, common person would not understand that. There are so many words and phrases people use out of habit which other people may not understand at all.

- Too long message is also an obstacle in communication as people may get bored and stop listening.
- Too much technical, complicated or to simple information is a hindrance in the process of communication.
- Ejecting an idea or opinion immediately as unrealistic may destroy communication. If that happens, the person who gave opinion may shut up and not speak later.
- Different people perceive things differently. Sometime we are right but afraid of giving arguments. People should acknowledge other people right to see things differently.
- Give arguments but avoid proving others wrong or directly criticizing them. As it would discourage them to participate in communicate any more.
- Listening with preconceived ideas stop communication.
- Culture, class, education, gender, experience, age and religion etc. affect communication.
- Ambiguous message creates misunderstanding and may affect communication.
- Laugh at or dismiss is destructive in communication.
- Non-verbal communication conflicting with verbal communication may create confusion and affect communication.

Aids to Effective Communication

Communication could become more effective by adopting following features:

- Communication should take place in comfortable environment
- Treat people with respect.
- Use local, simple and easy to understand language.
- Use suitable and effective communication method considering the community.
- Information should be delivered in a certain pattern.
- Message should be comprehensive and concise.
- Choose correct and effective words according to local traditions.
- Message should be according to receiver's metal, awareness and educational level.
- Message should not be too complicated or too simple.
- Respect other people' opinion.
- Listen to them and pay attention to them.

- Take feedback.
- **Be Patient**. Patience helps in effective communication. In order to understand, the listener may ask several questions. The speaker should be patient with him/ her. If ask him/her opinion, he/she may not know how to answer quickly and directly.
- Some people are shy to speak while others speak freely. If communicating in a group, encourage everyone to speak.
- Don't give answer for other people. Encourage them to give answers and express their opinions.
- **Be Tolerant**. When someone begins to talk, he/ she may fumble, utter incomplete sentences, make mistake. Be tolerant and don't interrupt.
- **Repetition**. Saying the same thing in two or three different ways helps in communication an idea. Repetition also helps in understanding.
- **Be sensitive** to their non-verbal expressions in order to understand that one is being understood by them or not.
- Give correct facts. Don't add any information without confirming.
- Instead of giving wrong information, just tell that you would check with experts.
- Give solid facts and correct figures.
- Avoid irrelevant information.
- Message should be clear.
- Avoid using double meaning words.
- Sometime people talk down to others. They think that they know more than others. On the other hand, sometimes in their enthusiasm to create confidence in the listeners, people talk up to them and pretend as others know all. Neither talking **"up"** nor **"down"** to another person is helpful in communication. When people talk to each other as equal effective communication take place.
- Take interest in their lives and share their activities.
- Sympathize with people when they are sad or crying.
- Interpersonal Trust. When the listeners trust the speaker, they would listen to the speaker. They would also talk to him/ her openly and freely. Establishing interpersonal trust is critical for effective communication.
- Being genuine, honest, sincere, interested in people well-being and open about oneself helps to win people trust and promote effective communication.

- Sometime it's difficult to communicate a new concept to the people. Use of a proverb or an example related to their lives could make the point comprehensible.
- Humor has important place in effective communication. Telling a joke makes the atmosphere light, reduces tension and creates a friendly feeling. Use humor effectively in communication.
- Non-verbal communication should match verbal communication. It is most important for successful communication.
- The speaker could communicate effectively through his/her actions. If the speaker wants other people to share their feelings, he/she could set example by doing the same.

Listening Skills

We were given two ears and one mouth. This is because God knew that listening was twice as hard as talking.

A very important element in effective communication is to listen to what the other is saying. Through listening one could also know what others are thinking about him/ her.

One's presence may affect them. Thus, one must learn to listen as well as to speak. Those who dismiss this are already demonstrating an indisposition to listening. If a person does not develop the skill of listening, he/ she may not hear the suggestion or information.

Obstacles in Listening

There are barriers in listening:

- **On off listening**
  - On off individual think 4 times faster than an average speaker.
  - ¾ of a minute is spent thinking

  This problem could be solved by paying attention to non-verbal signs like gestures and facial expressions etc.

- **Red flag listening**
  There are certain words on hearing those people stop listening. They would start preparing defensive arguments.

  Find out which words are red flag and try to overcome them. Hear the speaker's point of view with an open mind.

- **Open ear and closed mind**
  Deciding quickly that there is nothing new that is why there no need to listen.

  Pay attention to non-verbal signs and try to focus on what the speaker is saying.

- **Glassy eyed listening**
  Seems to be listening but actually day dreaming.

  Concentrate on posture, gestures while listening.

- **Too deep for my listening**
  The information is far too complex, complicated and beyond understanding.

Ask for clarification or explain with an example.

Good Listening Skills

Listening is an active process and it could be facilitated by:

- Give full Attention to the person who is speaking.
- Suspend all other activities.
- Sit up straight.
- Maintain eye contact with the speaker.
- Keep a good distance between you and the speaker.
- Concentrate on what the speaker is saying.
- Show positive and encouraging expressions such as nodding head etc.
- Make appropriate sounds e.g. “uh-uh”, “I understand” and “I see what you mean” to show the speaker you truly understand what he/ she is saying.
- Hearing the speaker’s point of view with an open mind.
- Understanding the feelings behind what is being said.
- Hearing what is not being said or what is implied but not uttered.
- If you don’t understand, let the speaker know. Don’t fake listen!
- Asking questions to clarify what the speaker means to say.
- Rewording and repeating what you have heard.
- Checking with the speaker if you understood correctly.
- Summarizing main points or principles in the communication.
- Do not interrupt the speaker.

Many a time people are in a great hurry to say something or react to what they have heard. It is helpful to check yourself before you speak again and ensure that you have really understood what was being communicated.

Community Mobilization

Community mobilization is a proven development strategy that has helped people around the world identify and address pressing health care issues. Community mobilization not only helps people improve their health and living conditions, but by its very nature strengthens and enhances the ability of the community to work together for any goal that is important to its members. The end result of a successful community mobilization effort, in other words, is not only a "problem solved" but the increased capacity to successfully address other community needs and desires as well. Among other benefits, community mobilization efforts can:

- Increase community individuals and groups' capacity to identify and satisfy their needs.
- Improve programme design.
- Improve programme quality.
- Improve programme results.
- Improve programme evaluation.
- Be a cost-effective way to achieve sustainable results.
- Increase community ownership of a program.

"Community mobilization" has been used to describe a range of community-based activities—from community members marching in the streets with signs at the request of the Ministry of Health to raise awareness of a health problem to a much more sustained process in which community members participate in all aspects and phases of a health program.

Expanding on this definition somewhat, we can list the key tasks involved in most successful community mobilization efforts. In general, community mobilization involves:

- Developing an ongoing dialogue between community members regarding health issues.
- Creating or strengthening community organizations aimed at improving health.
- Assisting in creating an environment in which individuals can empower themselves to address their own and their community's health needs.
- Promoting community members' participation in ways that recognize diversity and equity, particularly of those who are most affected by the health issue.
- Working in partnership with community members in all phases of a project to create locally appropriate responses to health needs.

- Identifying and supporting the creative potential of communities to develop a variety of strategies and approaches to improve health status (even interventions that may not have been recommended by funders and other external actors).

- Assisting in linking communities with external resources (e.g. organizations, funding, and technical assistance.) to aid them in their efforts to improve health.
- Committing enough time to work with communities, or with a partner who works with them, to accomplish the above. Normally, this process is not suitable for short-term projects of less than two years.

The role of external organizations

A recurring theme in the literature and practice of community mobilization is the proper role of external organizations. In some cases, community mobilization is both prompted and carried out exclusively by community members. External organizations often bring important elements to the table, such as technical expertise, broad experience, financial resources, or simply an outside perspective that may be lacking in the community.

In many situations, external organizations play an important role by helping community members raise awareness about their problems and build momentum in the community towards the development of sustainable solutions.

Community mobilization efforts are no less authentic when they involve outside players and are often more effective, but all those involved must be careful to ensure that the role external organizations play does not undermine one of the key goals of mobilization: building community capacity. In general, as long as the role of outside players is confined to advising, facilitating, and supporting the work of community members, participation by outsiders can be very beneficial.

In the best cases, community members enter into a dialogue within their community and with external actors to explore ways to improve their health. Through this dialogue, effective community mobilization strategies acknowledge and respect indigenous health paradigms while at the same time introducing other paradigms, such as a biomedical perspective.

At all seven stages of a mobilization effort initial preparation, organizing the community for action, exploring the health issues and setting priorities, planning, acting, and evaluating together, and scaling up external players need to keep in mind a simple rule of thumb:

Community Mobilization: is not just something done to the community, but something done by the community.

Phases in Community Mobilization

Phase 1: Prepare to Mobilize

Community mobilization is a proven approach to development that has helped people around the world identify and address pressing health care issues. The approach not only helps people improve their health and living conditions, but by its very nature strengthens and enhances the ability of the community to work together for any goal that is important to its members.

Community mobilization is defined as a capacity-building process through which community individuals, groups, or organizations plan, carry out, and evaluate activities on a participatory and sustained basis to improve their health and other needs, either on their own initiative or stimulated by others.

STEP 1: Select a health issue and define the community

Ideally it is the community itself which selects the issue, but in the real world of international development assistance, the issue is often pre-selected by donors or other external organizations with little or no consultation with the community. Whether you choose your own health issue or have it handed to you, you will almost always be in a position to shape and define the issue with respect to the local circumstances in which you will be working.

Some questions to consider in selecting a health issue…

- Is the definition of the health problem appropriate given the cultural, political and social context?
- Is there an underlying/deeper issue behind the problem?
- Is the definition of the health issue too broad given the timeframe and resources available?

STEP 2: Put together a community mobilization team

Before you get very far into this initial preparation stage, you will need to put together the team of people who will be working with you to support the community on this project. This team may be made up exclusively of people from your own organization, or it may include members from partner or other organizations. You have to first change yourself, to be able to change the community.

STEP 3: Gather information about the health issue and the community

You and your team will need to learn as much as you can about the people who are most affected by the health issue and the community you are planning to work with. Some of the questions you will need to gather answers to are: Who is most affected by the issue, directly, and indirectly? Why are these people the most affected? What are their socio-demographic characteristics? Where do they live? What are current beliefs and practices related to the issue?

In exploring the health issue, it can also be very helpful to identify and study the people who should be affected by the issue but apparently are not; that is, people living in the same area and/or under the same conditions who have the same risk of being affected by the issue but who are healthy and doing well in spite of the presence of risk factors.

STEP 4: Identify resources and constraints

You will need to do an inventory of the resources that will be available to the programme and any constraints you may face. Resources usually fall into four categories: financial, human, material, and time. After you identify resources, you should then identify what constraints you may face and ways to eliminate minimize or work around these constraints. For example, constraints might be that project staff do not possess the skills to do the work, that there is insufficient time to achieve the desired results through a high-quality program, or that there are very limited financial or material resources.

STEP 5: Develop a community mobilization plan

A community mobilization plan is a general description of how you and your team intend to assist this particular community to mobilize around this particular issue. At a minimum, such a plan should contain: background information, the programme goal, the overall objectives of the effort, the process you and the community will go through to achieve the goal and objectives, a monitoring and evaluation plan, a project management plan, and a budget.

STEP 6: Develop your team

One of the last things you and your team will do in this preparation phase is to look again at the tasks you've set for yourselves and decide who is going to be responsible for what. Once you have done this, it will become clear as to whether your team members have the skills they need for the duties they've been assigned.

Sustainability cannot be assured without the participation of the people

Phase 2: Organize the Community for Action

Before this stage in the community mobilization (CM) process, you should have completed your initial preparations and developed an overall design for community mobilization. It is now time to formally approach the community and begin their involvement in this effort.

STEP 1: Orient the community to the community mobilization project

The first step in organizing a community is to invite community members to an orientation about the mobilization effort. You should give some thought to who will convene the meeting and how it will be convened, to be sure you reach those members most affected by and interested in the CM health issue as well as community leaders and others who take a general interest in community life. As you plan this orientation meeting, you should think about what your objectives are, what you hope to accomplish as a result of this event. Once you've done that, you will then be able to plan the content of the meeting.

STEP 2: Build relationships, trust, credibility and a sense of ownership with the community

It is important for you and your programme team to take time to establish trust and credibility in the community and develop ownership of the CM effort among community members. Trust can be established through transparency of intention, honesty, mutual respect, working side by side, learning from each other, admitting and learning from mistakes, celebrating small successes, and lots of humor.

STEP 3: Invite community participation

Early on, you need to identify those people and groups who are most affected by and interested in the CM health issue and invite them to participate in the program. These are the people who most directly experience the effects of the problem and who will sooner or later need to be involved in finding appropriate solutions. In many cases, it should be noted, these same people are not the types who are normally involved in community affairs, and you will need to think of ways to make them feel welcome and to otherwise encourage their participation.

You may also want to consider inviting those who are successfully dealing with the problem despite difficult circumstances, the "positive deviants," to share their experience. Community participation is also a function of whether or not people are aware of and concerned about the particular health issue. Where awareness and concern are low, the CM programme team may have to spend time initially in raising awareness.

STEP 4: Develop a "core group" from the community

Once individuals and groups have expressed interest in participating in the program, you will need to begin to develop a "core group" of individuals who will lead the effort on behalf of the community. Developing and then supporting this core group are two of your programme team's most important jobs.

An important decision you may have to make at this stage is whether or not to work with an already existing core group or to form a new one. There are advantages and disadvantages to working with both types of groups. If you decide against using a pre-existing group or there is not an appropriate one available, then you will need to devise a strategy for identifying possible group members. Keep in mind that group dynamics and cohesion are dependent on group composition.

Phase 3: Explore the Health Issue and Set Priorities

Before this stage in the community mobilization (CM) process, you should have selected and begun to develop your core group (made up of members from the community). Now it's time for you to work with this group to jointly explore the issue or health focus of the community mobilization effort and set priorities.

STEP 1: Decide the objectives for this phase

Before you begin your CM programme, team will need to determine the objectives of this exploration phase. Remember that your objectives should be directly related to the overall programme goal.

STEP 2: Explore the health issue with the core group

This exploration phase begins with an in-depth examination of the health issue with core group members in order to learn as much as possible about their current feelings, knowledge, practices and beliefs related to the issue and their capacity to address their needs. Once you have been able to bring the core group together, it's time to start learning what they know and how they feel about the health issue.

Before you start asking questions, you will need to spend some time helping the group develop a common vocabulary to talk about the health issue. The questions you ask the core group should be organized around the topics to be explored in this step: the feelings, knowledge, attitudes, practices, and beliefs of the community concerning the health issue-the community perspective, in short, based on members' experiences and circumstances.

STEP 3: Together with the core group, explore the health issue with the broader community

Just as the programme team planned for the core group exploration process, now the core group (with assistance from the programme team) needs to plan for the exploration process within the broader community. One of the decisions your team will need to make here is to determine to what extent the core group will be involved in developing and/or participating in this exploration process. Keep in mind that the greater the involvement from the community in setting their own agenda and mobilizing to carry it out, the more likely it is that change will be sustained. Whoever participates in this exercise, the group will initially need to decide three important things about this activity:

1. Objectives: What is it that we want to learn about this health issue in the *broader community* and why? What are our other objectives (raise community awareness, broaden community participation, involve local leaders, etc.)?

2. Methods: How will we gather and use this information? Does it already exist or do we need to collect it? Who will be responsible for organizing, coordinating, collecting, consolidating and analyzing the information?
3. Resources: Which human, financial and material resources will we need to carry out the assessment? What resources do we have now?
4. What resources will we need to get? How will we get them? Are there specialists in monitoring and evaluation, epidemiology, social science, anthropology, sociology and other related disciplines that can help us?

The team will need to select various methods and tools appropriate for gathering information in your particular setting. Your choice of tools will depend on your project's objectives, your team's skill and the dynamics and characteristics of the community with which you are working. We recommend a combination of both quantitative and qualitative methods to best support community learning.

STEP 4: Analyze the information

During this step, groups should organize the information they have collected so they can use it to better understand the issue, identify priorities and monitor progress in the future. There are a variety of methods you can use to organize information that has been collected. The methods you choose will depend on the amount of information you have to analyze, the level of accuracy and complexity necessary or desired for the analysis, the level of education and skills of participants, the extent to which capacity building is an objective, and the time and resources available.

STEP 5: Set priorities for action

If the community mobilization health issue is defined broadly, the exploration phase is likely to uncover a large variety of potential priorities to choose from. To decide which priorities the community will focus on immediately in the upcoming planning phase, participants will need to establish some criteria. The team and core group should review the information gathered to rank the possible priorities until there is general agreement. It is best to try to limit the number of priorities to two or three in order to focus the group's effort.

Phase 4: Plan Together

Before this stage in the community mobilization process, you should have worked with the core group to jointly explore the health issue and set priorities.

STEP 1: Decide the objectives of the planning process

Before beginning to plan, it can be helpful to determine the purposes of the planning process. You may want to think of this in terms of identifying the main planning tasks and specific objectives of this phase. The planning process will also have its own objectives, beyond producing the plan, and it is important to work with your programme team and core group members to determine these objectives.

STEP 2: Determine who will be involved in the planning and their roles and responsibilities

Who will participate and how they will participate are critical questions. Equally important is who asks and answers these questions. Often, when groups answer the question, "Who should be involved in planning?" the list grows until the response ends up being everyone. While involving everyone in the planning process may be desirable from a participation perspective, the core group and others involved in determining who should be invited need to consider the advantages and disadvantages of managing a large group versus a smaller, more defined group. Determining who is participating and why will help facilitators better structures the process and will help participants understand their respective roles and responsibilities in the planning process.

STEP 3: Design the planning process

Now it is time to design the planning process itself. You may want to review general facilitation guidelines and experiential learning principles as you develop the planning methodology. You may also find it helpful at this point to observe how community members plan other activities and incorporate important lessons or activities. In designing any participatory group process, you need to first think about planning from the participants' point of view. The core group should also review its findings and priorities from Phase 3 to highlight salient information that needs to be incorporated into the planning session.

Step 4: Conduct/facilitate the planning process to create a community action plan

The planning team (core group members and others identified in Step 2 above) will now design a community action plan using the process agreed on in Step 3. Discuss with your team and the core group ahead of time what you will do if any problems arise during the planning session. If you experience difficulties conducting the session, review your assumptions about the participants, the planning process and how the community views health. Often, problems stem from how we have conceived of and developed the planning process. Now that you have developed strategies to address the health issue, you are ready to implement the action plan.

Phase 5: Act Together

Before this stage in the community mobilization process, you should have developed with the community various strategies and an action plan to address the health issue. During this stage, your team should assist the community to implement the action plan.

STEP 1: Define your team's role in accompanying community action

In the community mobilization process, there are many possible roles the CM programme team can play. CM programme teams often end up assuming different roles at different stages of the process as

the community's needs and capacity change. How a team perceives its role influences the way team members and community members relate to each other. A common source of conflict between communities and external organizations is their differing perspectives on the roles each entity is expected to play. You will need to continually review your role as the various steps of this phase unfold and ask yourselves whether you are creating or reinforcing dependency or fostering autonomy.

STEP 2: Strengthen the community's capacity to carry out its action plan

Now it's time to determine whether and how your team can help community groups strengthen their abilities or help identify other individuals and organizations that would assist. The kind of assistance and expertise the community will need to increase its capacity vis-à-vis its action plan will depend on what that plan consists of. Once you and your team have a sense of what skills and knowledge the community may need to carry out the action plan, you will have to answer three related questions: (1) whether you will provide the necessary assistance and, if so, (2) how much and (3) what kind.

STEP 3: Monitor community progress

Monitoring during the "act together" phase and throughout the Community Action Cycle is carried out by various actors on several levels using a combination of formal and informal systems, methods and tools. The following general monitoring questions are appropriate for any group:

- What is our goal? What are our desired results?
- What indicators do we use to judge our progress, success or failure?
- How do we currently assess how we are doing related to this goal and our desired results? What formal and informal monitoring processes currently exist to share observations about progress?
- What do we want to monitor that we currently do not monitor and how will we do this? What kind of tool and/or process do we need to implement?

Now, let's look at the different monitoring needs for the major groups involved in most community mobilization programs. Specific monitoring tools will need to be tailored to your particular health issue and community *capacity building* goals.

STEP 4: Problem-solve, trouble shoot, advise and mediate conflicts

In spite of the best planning, forethought and intentions, things do not always proceed smoothly. Good monitoring systems and regular communication will help to alert participants' to existing or potential problems.

Every culture has developed strategies to prevent, avoid and resolve conflicts. Some strategies, while they may resolve conflict, can also create ongoing negative feelings and resentment. These types of strategies can usually be characterized as "win/lose" strategies. "Win/win" strategies more often result in better long-term relationships. It can be helpful to discuss with community groups how they have

dealt with differences of opinion and conflict in the past, the results of these strategies and the differences between win/lose and win/win approaches to conflict resolution.

Phase 6: Evaluate Together

Before this stage in the community mobilization process, your team should have assisted the community in implementing its action plan. During this stage in the Community Action Cycle, you should evaluate the programme with the core group.

STEP 1: Determine who wants to learn from the evaluation

In determining who wants to learn from the evaluation, you should consider the many stakeholders who have been involved or have a direct interest in the project. The core group should continue to be the primary participants in the evaluation process. Other interested parties should also be invited to participate.

STEP 2: Form a representative evaluation team

Creating a representative, effective and appropriate evaluation team requires careful consideration and negotiation with all parties concerned. When putting together a team, be sure to consider group dynamics, power relations, technical skills, credibility, and diversity of strengths, weaknesses and perspectives. A mix of internal and external evaluation team members is preferred.

STEP 3: Determine what participants want to learn from the evaluation

People involved in an evaluation usually want to learn what was achieved and what was not achieved, how, why and at what cost. Ideally, each representative on the evaluation team will have a chance to meet with his or her respective group to discuss what the group wants to learn from the evaluation before the evaluation team develops a detailed plan, tools and methods.

STEP 4: Develop an evaluation plan

The plan maps out how the evaluation questions can be answered by identifying appropriate quantitative and qualitative methods, when the evaluation will take place, who will carry out the field work, the analysis, and the dissemination of lessons and recommendations, and what resources and materials will be needed to carry out the work.

STEP 5: Develop evaluation methods and instruments and train team members in their use

If you are repeating a baseline survey or other baseline assessment to compare pre- and post-project implementation status, you will probably want to use the same instruments and techniques that were

used at baseline. Beyond repeating baseline assessments, most teams use evaluations to understand better what happened, what worked and did not work and why, the community's vision for the future and their capacity to work toward their vision.

STEP 6: Conduct the participatory evaluation

When the team has developed the plan and methods and instruments to collect information, it is time for the team to conduct the evaluation. The team leader should determine how she or he can best support the other members. If at all possible, the team should meet every day after fieldwork has been completed to identify problems or challenges, share and consolidate learning and make adjustments in the plan and information collection instruments if necessary.

STEP 7: Analyze the results

To begin the analysis, team members should review the information collected in the field. Analysis tables will help the team to organize the information so that data related to the same question coming from various sources can be compared and contrasted.

STEP 8: Provide feedback to the community

When the team has finished its analysis, it is important to present the results to the participating communities in a way that all can understand them. The feedback session is a chance to validate the results and to raise questions that the team and the community have about them. Simplify the results so that the major findings are covered. It is important to incorporate community participants' observations into the team's analysis of the results.

STEP 9: Document and share lessons learned and recommendations for the future

To make information accessible to a wider audience, determine what each of the stakeholders you identified wanted to learn from the evaluation and develop a summary of the results tailored to these groups' particular needs. Discuss with your team how you would like to contribute to the greater body of knowledge and experience aimed at improving health through community mobilization.

STEP 10: Prepare to reorganize

The purpose of most evaluations is not merely to determine whether your efforts have succeeded, but also to help guide future action. If the community believes that there is still work to be done on the same issue, participants can use the results of the evaluation to determine whether they need to reorganize (change the nature and structure of participation). If the community has made advances to the point that it is ready to take on a new health or other issue, it is time to return to the beginning of the Community Action Cycle.

Phase 7: Scale Up - Spreading Your Success

Scaling up community mobilization means going beyond a single or limited number of communities to have greater impact at the regional, national or even multinational level. The challenge for communities is to expand their effective participatory approaches beyond a relatively small population without diminishing the quality and impact.

STEP 1: Have a vision to scale up from the beginning of the project

From the start of a CM program, your team needs to envision how this approach could be expanded if it is successful. The team should discuss the potential and possible steps for achieving scale. Identify point people and provide them with adequate time and resources to ensure that these steps are followed.

STEP 2: Determine the effectiveness of the approach

It is important to establish that the technical intervention, methodology or approach that is being considered for *scaling up* leads to desired results through carefully evaluated and documented research. The demand for innovative and new approaches to involving communities in improving their health is, in some cases, leading to *scaling up* some approaches too quickly, without proof that the new approaches really do improve health or lead to other positive results.

STEP 3: Assess the potential to scale up

Not all programs have the potential to scale up, or at least not in their existing form. It's important, then, to assess the possibilities for *scaling up* and the potential barriers.

STEP 4: Consolidate, define and refine

The programme design and/or interventions should be simplified as much as possible and written documents should be accessible in user-friendly language. Documenting and refining successful approaches is the first step.

STEP 5: Build a consensus to scale up

You will need to lay a foundation for *scaling up*. Principally, this means building consensus for scaling up among decision makers, implementers and leaders of those who participate in the program. You will have to introduce the intervention and make the case for its added value to key individuals and groups.

STEP 6: Advocate for supportive policies

Before expanding a community mobilization program, you will need to look at the existing policies in the country and determine whether or not they present any barriers to effective large-scale programme implementation. If there are policies that will seriously restrict the ability of the programme to function, you should consider whether these policies could or should be changed

STEP 7: Define the roles, relationships and responsibilities of implementing partners

All of the partners will need to determine who will be responsible for programme training, supervision, monitoring and evaluation, resource allocation, funding procurement, management and information systems and other functions.

STEP 8: Secure funding and other resources

The amount of funding needed for large-scale programs is often not available through only one donor. You will probably need to negotiate contracts, budgets, and work plans both with partners and donors.

STEP 9: Develop the partners' capacity and capability to implement the program

An organization that chooses to adopt a new approach to community mobilization is not usually able to effectively implement it without orientation, training and technical assistance. You will, therefore, need to prepare training and technical assistance teams and materials for use at the regional or other levels depending on organizational structure.

STEP 10: Establish and maintain a monitoring and evaluation system

Programme implementers need to meet regularly on the local, regional and national levels to monitor progress, identify problems, develop innovative solutions, strengthen skills and build the team. It is important to establish participatory systems that provide for regular monitoring of process and outcome indicators. Instruments and tools to help programme teams monitor their progress should be developed and used to synthesize information and detect trends over time.

STEP 11: Support institutional development for scale

For community action to be sustained over the long term on a larger scale, it needs to depend not on individuals but on organizations and/or networks dedicated to the issue-in this case, health. *Advocacy* groups and coalitions can build support for ongoing assistance to communities as they learn to better identify and address their health needs.

Inclusive Education

Inclusion in education is an approach to educating students with special educational needs. Under the inclusion model, students with special needs spend most or all of their time with non-special needs students. Inclusion rejects the use of special schools or classrooms to separate students with disabilities from students without disabilities.

Implementation of these practices varies. Schools most frequently use the inclusion model for selected students with mild to moderate special needs. Fully inclusive schools, which are rare, do not separate "general education" and "special education" programs; instead, the school is restructured so that all students learn together.

Inclusive education differs from the 'integration' or 'mainstreaming' model of education, which tended to be concerned principally with disability and special educational needs, and learners changing or becoming 'ready for' or deserving of accommodation by the mainstream. By contrast, inclusion is about the child's right to participate and the school's duty to accept the child.

A premium is placed upon full participation by students with disabilities and upon respect for their social, civil, and educational rights. Feeling included is not limited to physical and cognitive disabilities, but also includes the full range of human diversity with respect to ability, language, culture, gender, age and of other forms of human differences.

Common practices in inclusive classrooms

Students in an inclusive classroom are generally placed with their chronological age-mates, regardless of whether the students are working above or below the typical academic level for their age. Also, to encourage a sense of belonging, emphasis is placed on the value of friendships. Teachers often nurture a relationship between a student with special needs and a same-age student without a special educational need. Another common practice is the assignment of a buddy to accompany a student with special needs at all times (for example in the cafeteria, on the playground, on the bus and so on). This is used to show students that a diverse group of people make up a community, that no one type of student is better than another, and to remove any barriers to a friendship that may occur if a student is viewed as "helpless." Such practices reduce the chance for elitism among students in later grades and encourage cooperation among groups.

Teachers use a number of techniques to help build classroom communities:

- Using games designed to build community
- Involving students in solving problems
- Sharing songs and books that teach community
- Openly dealing with individual differences by discussion
- Assigning classroom jobs that build community
- Teaching students to look for ways to help each other
- Utilizing physical therapy equipment such as standing frames, so students who typically use wheelchairs can stand when the other students are standing and more actively participate in activities
- Encouraging students to take the role of teacher and deliver instruction (e.g. read a portion of a book to a student with severe disabilities)

- Focusing on the strength of a student with special needs
- Create classroom checklists
- Take breaks when necessary
- Create an area for children to calm down
- Organize student desk in groups
- Create a self and welcoming environment
- Set ground rules and stick with them
- Help establish short-term goals
- Design a multi-faced curriculum
- Communicate regular with parents and/or caregivers
- Seek support from other special education teachers

Selection of students for inclusion programme in schools

Educators generally say that some students with special needs are not good candidates for inclusion. Many schools expect a fully included student to be working at or near grade level, but more fundamental requirements exist: First, being included requires that the student is able to attend school. Students that are entirely excluded from school (for example, due to long-term hospitalization), or who are educated outside of schools (for example, due to enrollment in a distance education program) cannot attempt inclusion.

Additionally, some students with special needs are poor candidates for inclusion because of their effect on other students. For example, students with severe behavioral problems, such that they represent a serious physical danger to others, are poor candidates for inclusion, because the school has a duty to provide a safe environment to all students and staff.

Finally, some students are not good candidates for inclusion because the normal activities in a general education classroom will prevent them from learning. For example, a student with severe attention difficulties or extreme sensory processing disorders might be highly distracted or distressed by the presence of other students working at their desks. Inclusion needs to be appropriate to the child's unique needs.

Most students with special needs do not fall into these extreme categories, as most students do attend school, are not violent, do not have severe sensory processing disorders, etc.

The students that are most commonly included are those with physical disabilities that have no or little effect on their academic work (diabetes mellitus, epilepsy, food allergies, paralysis), students with all types of mild disabilities, and students whose disabilities require relatively few specialized services.

Regular inclusion, but not full inclusion, is a reasonable approach for a significant majority of students with special needs. Some students, notably those with severe autism spectrum disorders or mental retardation, as well as many who are deaf or have multiple disabilities, even regular inclusion may not offer an appropriate education.

Safe Water, Sanitation & Hygiene

WASH is the collective term for Water, Sanitation and Hygiene. Due to their interdependent nature, these three core issues are grouped together to represent a growing sector. While each a separate field of work, each is dependent on the presence of the other. For example, without toilets, water sources become contaminated; without clean water, basic hygiene practices are not possible.

Water

Water is essential for the survival and development of all children. Without water, children simply cannot stay alive or thrive in a healthy environment. Water resources, and the range of services they provide, strengthen poverty reduction, economic growth and environmental sustainability.

Water facts:

- 663 million people are still without access to clean drinking water, despite the Millennium Development Goal target for clean water being met in 2010.
- 8 out of 10 people without access to clean water live in rural areas.
- 159 million people use untreated water from lakes and rivers, the most unsafe water source there is.
- Since 1990, 2.6 billion people have gained access to improved drinking water and today, 91% of the world's population drink clean water.

Drinking water supply and water safety

Globally, the inequalities between those having access to water living in an urban area or rural areas have decreased but large gaps remain. Eight out of ten people without access to safe drinking water live in rural areas.. The most deprived are still using untreated surface waters like lakes and rivers. Many of those deprived communities are located in remote hard to reach areas. Therefore, rural water supply will remain a challenge for many national governments and their development partners in the coming decade.

Safety of drinking water is a growing concern in many parts of the world. Drinking water sources are increasingly under threat from contamination, which impacts on not only on the health of children, but also on the economic, environmental and social development of communities and nations.

Threats to drinking water quality include unsafe handling and storage at the household: water drawn from safe sources may be contaminated by the time it reaches and is ultimately consumed in households.

In addition to this is the threat of contamination of water sources – both naturally occurring and from pollution. Water contaminated with arsenic and fluoride threaten the health of millions in certain counties; water that has been in contact with human feces is a major cause of disease, including diarrhea, which kills over 800 children a day.

In some areas of the world, the availability of water is scarce. Poor governance, environmental degradation, over-extraction and climate change are further diminishing already scarce freshwater resources.

Using safe drinking water

The best way to address contamination of drinking water is by preventing it from happening in the first place. Water safety planning is an approach that helps communities and service providers understand and manage contamination risks, and it is increasingly being applied to new and rehabilitated water points. Water safety planning also helps to identify the necessary control measures communities can take to protect their water from becoming contaminated from such things as poorly constructed or located toilets. Well-constructed toilets help prevent the contamination of water supplies. Regular handwashing after defecation and before handling water minimizes the risk that dirty hands contaminate water used in the home.

Household water treatment (for example chlorination or filtration), along with improved water storage and handling, is another control measure to ensures safe water use inside the household.

Sanitation

Sanitation is a comprehensive term and it means more than just toilets. Sanitation can be understood as interventions that reduce human exposure to diseases by providing a clean environment in which to live. It involves both behaviors and facilities, which work together to form a hygienic environment.

Sanitation is essential to the survival and development of children. Currently, there are 2.4 billion people worldwide who do not use improved sanitation (a facility that safely separates human waste from human contact). 946 million people go in the open, known as “open defecation”. While progress has been made to improve access to sanitation in some parts of the world, millions of children in poor and rural areas have been left behind.

Key sanitation facts:

- 1 in 3 people don’t use improved sanitation.
- 1 in 7 people practice open defecation.
- Since 1990, 2.6 billion people have gained access to improved sanitation.
- **5** countries, *India, Indonesia, Nigeria, Ethiopia, Pakistan*, account for 75% of open defecation.
- We must double our current efforts in order to end open defecation by 2030.

Ending open defecation

Open defecation is when people go out in fields, forests, open bodies of water, or other open spaces rather than using a toilet. It is incredibly dangerous, as contact with human waste can cause diseases such as cholera, typhoid, hepatitis, polio, diarrhea, worm infestation and under nutrition. Every day, over 800 children under five die from diarrhea-related diseases.

Currently, 1 in 7 people, or 946 million people, practice open defecation. Of those who do, 9 out of 10 live in rural areas. Globally, India has the largest number of people still defecating in the open: more than 564 million.

Not just toilets, but behaviour

One of the biggest challenges to ending open defecation is not just providing clean and safe toilets, but changing the behavior of entire communities.

Hygiene

According to the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." Something as simple as handwashing can save lives. Washing hands with soap at critical times, like after going to the toilet or before eating, can have a significant impact on children's health. Good hygiene practices reduce the incidence of diseases such as pneumonia, trachoma, scabies, skin and eye infections and diarrhoea-related diseases like cholera and dysentery.

Research shows that regular handwashing with soap can reduce the number of incidents of diarrhea, a disease which can be deadly for children, by around 50 percent.

Hygiene and behavior change

The key to improving hygiene practices amongst children is to promote behavioral change within schools and communities. Education and communication are important components of a promoting hygiene, however education alone does not necessarily result in improved practices. Promoting behaviour change is a gradual process that involves working closely with communities, studying existing

beliefs, defining motivation strategies, designing appropriate communication tools and finally, encouraging practical steps towards positive practices.

Communities should be fully engaged in the process at all stages using participatory processes, and special attention should be given to building on local knowledge and promoting existing positive traditional practices.

In order for behaviour change to be effective, it needs to take place not only at the community level, but also among decision makers as well.

How to maintain personal hygiene and personal health:

The following skills must be practiced regularly in order to maintain personal health and reduce the chance of diseases:

1. **Bathing:** washing all parts of the body with clean warm water and soap. Bathing cleanses the skin from excess secretion, perspiration, cumulative dirt and germs which produce bad odours. Since the skin is the body's first line of defence in its fight against germs, hygiene supports skin health. Other advantages of bathing include activating the blood circulation, relaxation and feeling refreshed.

2. **Hair washing**: As one of the skin's outgrowths, hair gets its nutrition from the hair roots. Upon washing and cleaning or combing one's hair, blood circulation in hair roots is activated by rubbing and massaging the scalp with the tips of one's fingers.

3. **Oral and dental care**: Covered in later sections

4. **Eyes, ears and nose care:** Senses have an important role in effective communication, keeping the body and environment safe and avoiding the risks to human life and health. Eyes ought to be washed daily and their inner corners (that are close to the nose) are wiped with a cotton pad or soft handkerchief towards the outer corners in order to remove eye secretion and dust and prevent them from entering to the nasal tear canal. As for the ears, they are to be wiped (after bathing) with a smooth towel or cotton swab, which should not be pushed into the ear canal because that would cause the earwax to clog the canal and weaken hearing. The best way for nose care is to gently wipe it with a handkerchief and cleanse the area around nostrils with lukewarm water and soap.

5. **Manicure:** Nails are clipped and filed in an oval way; one should avoid over-clipping the nails in order not to infect or injure the surrounding skin.

6. **Pedicure:** Foot care takes place during bathing as the feet are rubbed and massaged with lukewarm water and soap. Longer toe nails are then clipped in a straight shape, and if available, a moisturizing cream is applied to prevent the toe nails from cracking. Another requirement for foot care is selecting/using proper and comfortable shoes.

7. **Genitalia care:** This area needs special care for healthy and sick males and females alike. Hence, it should be washed and cleaned numerous times a day with soap and water to remove dirt caused by various types of body secretions like sweat, urine, faeces, vaginal discharges and odours. Women have to have special care for these body parts particularly during menstruation; the pads should be constantly changed. They are usually placed starting from front to back; the area is also cleaned in the same

direction (from front to back). Unlike what is wrongly and commonly believed, it is preferable to take daily showers during menstruation.

Common diseases caused by poor personal hygiene: lice and scabies

Lice (Phthiriasis) can infect hair, pubic and arm-pit areas and skin. Based on the place where it exists on the human body. Phthiriasis is transmitted from one person to another upon rubbing or touching the infected body parts and using the infected person's tools and clothes.

It is therefore very common in pre-primary care and primary level schools. Its symptoms include severe itching of the head and body. It is very difficult to remove even when washed. Lice has to be treated, usually with Gamma Benzene Hexchloride, and combing the hair thoroughly until all nits have been removed. The procedure must be repeated after a week. The combs and brushes must also be kept cleaned at all times.

Scabies is caused by small insects which spread through touching, infected skin or clothes. Scabies make tunnels under the skin and cause little itchy bumps in the body. They frequently nest in warm places on the human body such as: areas between fingers, on the wrists, around the waist, on the genitals, and from there they easily spread to other parts of the body. Scabies itch especially during the night and cause the person to scratch which cause further skin infections and inflammation resulting in pus. The resulting skin infection can lead to fever.

Management of Scabies

- Smear Benzyl Benzoate (BBE) lotion all over the body from the neck down (the caregiver can buy BBE in the pharmacy or get it at the health facility)
- Leave the lotion on the body overnight; do not wash it off; it will kill the scabies insects
- The next night, put lotion on again, over the child's whole body, and leave for another night
- Then do it again for a third night; the 3-day treatment will kill scabies insects and their eggs
- To keep from getting scabies again, take out all of the clothes and sleeping bedding and wash it with soap and hot water, and then put it in the full sun to dry
- You need to treat the whole family and all of their clothes and sleeping bedding; if one person has scabies, everyone else will get infected.

Nutrition

Nutrition

Nutrition is the study of food at work in our bodies, our source for energy, and the medium for which our nutrients can function. Think of nutrition as the building blocks of life.

The essential nutrients for life include carbohydrates, proteins, and lipids (fats), as well as fiber, vitamins, minerals, and water—the solvent for all soluble ingredients in the blood and cells. The absorption of nutrients starts the moment we begin to digest our foods, as they are transported to assist all the metabolic processes in the human body.

Good nutrition means getting the right amount of nutrients from healthy foods in the right combinations. Having nutrition knowledge and making smart choices about the foods you eat can and will help you achieve optimum health over your lifetime, and be a key to avoiding obesity, illness, and many of today's most prevalent chronic diseases.

Nutrition is just one key to developing and maintaining good health. Good health is defined as a state of complete physical, mental and social well-being — a healthy mind, body, and spirit.

Nutrition is at work during our entire life-cycle — from infancy to adolescence, adulthood and in our senior years — and can be the antidote for many of today's common problems, such as stress, pollution and disease prevention.

Classification of Food

a. Classification by origin

- Plant origin
- Animal origin

b. Classification by Chemical Composition

- Proteins
- Fats
- Carbohydrates
- Vitamins
- Minerals

c. Classification by Predominant Function

- Body Building foods e.g. milk, meat, poultry, fish, eggs, pulses, ground nuts etc.
- Energy giving foods e.g. cereals, sugars, roots and tubers, fats and oil
- Protective foods e.g. vegetables, fruits

d. Classification by Nutritive Values

- Cereals and millets
- Pulses(legumes)
- Vegetables
- Nuts and oil seeds
- Fruits
- Animal Foods
- Fats and oils
- Sugar
- Condiments and spices
- Miscellaneous foods

Nutrients

The food you eat is a source of nutrients. Nutrients are defined as the substances found in food that keep your body functioning. Nutrients are the organic and inorganic complexes contained in food. There are about 50 kinds of nutrient. Each nutrient has specific function in the body. Most natural foods contain more than one nutrient.

Body needs nutrients to

- Fuel energy
- Help body grow
- Repair
- Maintain basic bodily functions

Types of Nutrients

There are seven major types of nutrients: carbohydrates, fats, fiber, minerals, protein, vitamins, and water

Macronutrients: These are protein, fats and carbohydrates. Also, called, "proximate principle" – which form bulk of food.

Micronutrient: These are vitamins and minerals. Required in small quantities and vary from fraction of milligram to several milligrams.

Macronutrients in detail

a. Carbohydrates

Carbohydrates are referred to as energy-giving foods. They provide energy in the form of calories that the body needs to be able to work, and to support other functions.

Carbohydrates are needed in large amounts by the body. Indeed, up to 65% of our energy comes from carbohydrates. They are the body's main source of fuel because they are easily converted into energy. This energy is usually in the form of glucose, which all tissues and cells in our bodies readily use.

For the brain, kidneys, central nervous system and muscles to function properly, they need carbohydrates. These carbohydrates are usually stored in the muscles and the liver, where they are later used for energy.

The main sources of carbohydrates are bread, wheat, potatoes of all kinds, maize, rice, cassava, 'shiro', pasta, macaroni, 'kocho', banana, sweets, sugar cane, sweet fruits, and honey. Other foods like vegetables, beans, nuts and seeds contain carbohydrates, but in lesser amounts.

Classification of carbohydrates

Based on the number of sugar units, carbohydrates are classified into three groups; these are monosaccharides, disaccharides and polysaccharides. You need to know the classes of carbohydrates to enable you to give relevant advice to patients with special needs like diabetes (when someone has problems regulating the amounts of glucose in their body).

Monosaccharides and disaccharides are referred to as simple sugars or simple carbohydrates that our body can easily utilise. For this reason, people with diabetes mellitus shouldn't eat too many of these carbohydrates. Examples include sugar, honey, sweet fruits and sugar cane. Polysaccharides are called complex carbohydrates and they need to be broken down into simple sugars to be used by our body. They can be consumed by diabetic patients without restriction. Examples include starch and cellulose.

b. Proteins

About 10–35% of calories should come from protein. Proteins are needed in our diets for growth (especially important for children, teens and pregnant women) and to improve immune functions. They also play an important role in making essential hormones and enzymes, in tissue repair, preserving lean muscle mass, and supplying energy in times when carbohydrates are not available.

Pregnant women need protein to build their bodies and that of the babies and placentas, to make extra blood and for fat storage. Breastfeeding mothers need protein to make breast milk.

The main sources of proteins are meats, chicken, eggs, breast milk, beans, ground nuts, lentils, fish, cheese and milk.

All animal foods contain more protein than plants and are therefore usually better sources of body building foods. However, even though plant proteins are usually not as good for body-building as animal proteins, they can become more effective nutritionally when both are mixed with each other.

c. Fats and oils

Fats and oils are concentrated sources of energy and so are important nutrients for young children who need a lot of energy-rich food. Fats can also make meals tastier and satisfying. Fat is found in meat, chicken, milk products, butters, creams, avocado, cooking oils and fats, cheese, fish and ground nuts.

Classification of fats

Fats are classified into saturated and unsaturated fats. The classification is important to enable you to advise your community about which fats can be consumed with less risk to people's health. Saturated fats are not good for a person's health.

Saturated fats are usually solid at cool temperatures. Eating too much saturated fat is not good for a person's health, as it can cause heart and blood vessel problems.

Unsaturated fats are usually liquid at room temperature. These types of fats are healthy fats. Examples include fats from fish, oil seeds (sesame and sunflower), maize oil and ground nut oil and breastmilk.

As a general rule, plant sources of fats are better for a person's health than the animal sources, because animal fats contain more saturated fats.

d. Water

1/2 to 3/4 of the human body consists of water! Functions of water in the body are:

- Water carries nutrients to your cells and carries waste from your body.
- Regulates body temperature.
- Dissolves vitamins, minerals, amino acids and other nutrients.
- Lubricates joints.

It is recommended that adults drink 6-8 glasses (8 fl. oz each) (1 fl. oz ≈300ml) of water each day. This is in addition to around 4 cups of water human body get from food each day.

e. Fibre

Fibre is a mixture of different carbohydrates which are not digested like other nutrients but pass through the gut nearly unchanged. Foods rich in fibre are '*kocho*'; vegetables like cabbage, '*kosta*', carrots, cassava; fruits like banana and avocado; peas and beans; whole-grain cereals like wheat flour and refined maize or sorghum.

Fibre should be included in the diet for the following reasons:

- Fibre makes food bulky or bigger — this can help a person who is overweight to eat less food
- Fibre makes the faeces soft and bulky; this can help prevent constipation
- Fibre slows the absorption of nutrients, so it helps nutrients to enter the blood stream slowly. This is important for patients with diabetes mellitus.

In this section, you have learned about the macronutrients: carbohydrates, fats, proteins, water and fibre, and how they nourish the body. You are now going to learn more about vitamins and minerals, the important micronutrients.

Micronutrients in detail

a. Vitamins

Vitamins are groups of related substances present in small amounts in foodstuffs and are necessary for the body to function normally. Vitamins are also called protective foods. They are grouped together because, as their name implies, they are a vital factor in the diet.

Classifications of vitamins

Vitamins are classified into two groups:

Fat soluble vitamins (vitamins A, D, E and K) are soluble in fats and fat solvents. They are insoluble in water. So, these are utilised only if there is enough fat in the body.

Water soluble vitamins (vitamins B and C, and folic acid) are soluble in water and so they cannot be stored in the body.

The best sources of micronutrients in our diets are fruits and vegetables. These two food groups contain essential vitamins and minerals. Animal sources of foods are also both good sources of micronutrients. However, an adequate micronutrient intake can only be achieved through sufficient intake of a balanced diet that includes plenty of fruits and vegetables. Table 2.1 overleaf sets out the functions of some of the important vitamins and examples of sources of food for each of these.

Table 1. Functions and sources of vitamins.

Vitamins	Function	Food sources
Vitamin A	Night vision	Breast milk, tomatoes, cabbage, lettuce, pumpkins
	Healing epithelial cells	Mangoes, papaya, carrots
	Normal development of teeth and bones	Liver, kidney, egg yolk, milk, butter, cheese cream
Vitamin D	Needed for absorption of calcium from small intestines	Ultra violet light from the sun
	Calcification of the skeleton	Eggs, butter, fish
		Fortified oils, fats and cereals
Vitamin K	For blood clotting	Green leafy vegetables
		Fruits, cereals, meat, dairy products
B complex	Metabolism of carbohydrates, proteins and fats	Milk, egg yolk, liver, kidney and heart
		Whole grain cereals, meat, whole bread, fish, bananas
Vitamin C	Prevention of scurvy	Fresh fruits (oranges, banana, mango, grapefruits, lemons, potatoes) and vegetables
	Aiding wound healing	Breast milk
	Assisting absorption of iron	

b. Minerals

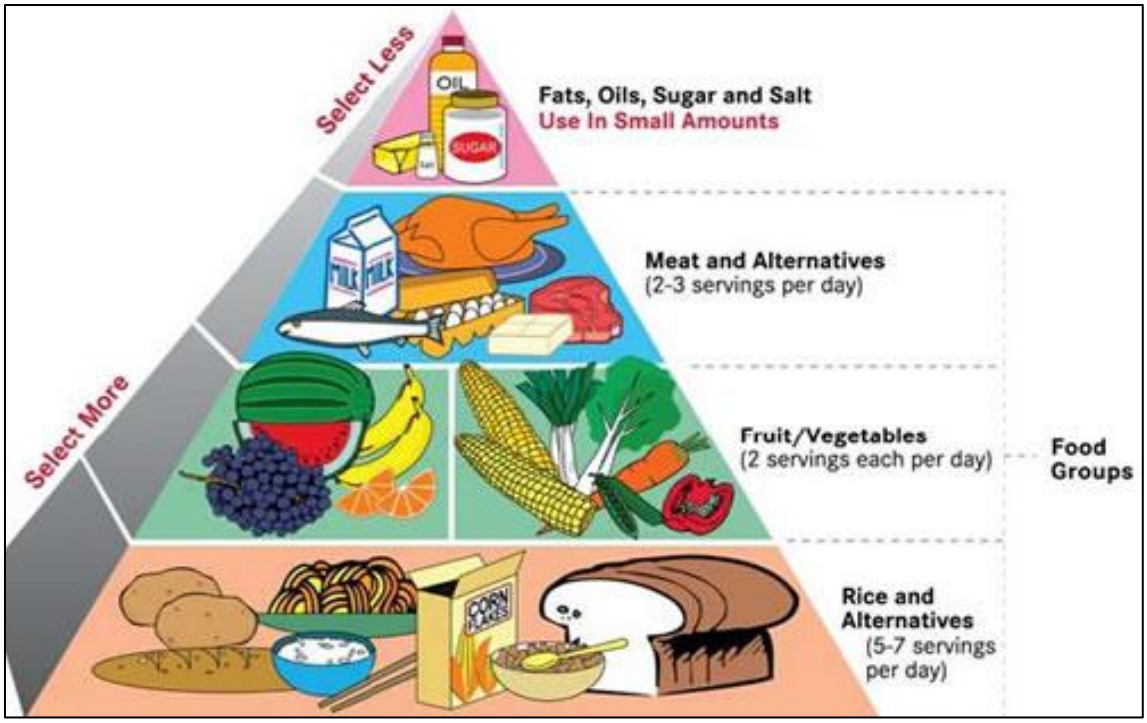
Minerals are the substances that people need to ensure the health and correct working of their soft tissues, fluids and their skeleton. Examples of minerals include calcium, iron, iodine, fluorine, phosphorus, potassium, zinc, selenium, and sodium. Table 2.2 outlines the functions of some of these important minerals and examples of sources of food for each of these.

Table 2. Functions and sources of common minerals.

Minerals	Function	Food sources
Calcium	Gives bones and teeth rigidity and strength	Milk, cheese and dairy products
		Foods fortified with calcium, e.g. flour, cereals. eggs, fish cabbage
Iron	Formation of haemoglobin	Meat and meat products
		Eggs, bread, green leafy vegetables, pulses, fruits
Iodine	For normal metabolism of cells	Iodised salt, sea vegetables, yogurt, cow's milk, eggs, and cheese
		Fish; plants grown in iodine-rich soil

Balanced Diet

A balanced diet is one that includes all the food groups in quantities and proportions needed to maintain health and growth. A food pyramid or diet pyramid is a pyramid-shaped diagram representing the optimal number of servings to be eaten each day from each of the basic food groups. The first food pyramid was published in Sweden in 1974.



These three are the framework of the Food Guide Pyramid:

- Balance - Eat foods from all groups of the Food Guide Pyramid.
- Variety - Eat different foods from each food group.
- Moderation - Eat more foods from the bottom of the pyramid, and fewer and smaller portions of foods from the top of the pyramid.

For years, people held to the idea that there are “bad” nutrients and “good” nutrients when, in fact, all nutrients play a certain role in the body. Even those nutrients once considered “bad” such as fats and carbohydrates perform vital functions in the body and if one consumes too many “good” nutrients such as vitamins or minerals there can be harmful results, as well.

For years, people held to the idea that there are “bad” nutrients and “good” nutrients when, in fact, all nutrients play a certain role in the body. Even those nutrients once considered “bad” such as fats and carbohydrates perform vital functions in the body and if one consumes too many “good” nutrients such as vitamins or minerals there can be harmful results, as well.

The newest update is to make suggestions based on age, gender, and activity level. It no longer recommends amounts of food in terms of serving size, but rather suggests portions according to actual weights and amounts of specific foods. The eatwell plate and the USDA MyPlate provides guidance on how everyone can achieve a healthy varied diet.

Malnutrition

Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. The term malnutrition covers 2 broad groups of conditions. One is 'undernutrition'—which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals). The other is 'overnutrition'- which includes overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and cancer).

Consequences of Malnutrition

Malnutrition affects people in every country. Around 1.9 billion adults worldwide are overweight, while 462 million are underweight. An estimated 41 million children under the age of 5 years are overweight or obese, while some 159 million are stunted and 50 million are wasted. Adding to this burden are the 528 million or 29% of women of reproductive age around the world affected by anaemia, for which approximately half would be amenable to iron supplementation.
Many families cannot afford or access enough nutritious foods like fresh fruit and vegetables, legumes, meat and milk, while foods and drinks high in fat, sugar and salt are cheaper and more readily available, leading to a rapid rise in the number of children and adults who are overweight and obese, in poor as well as rich countries. It is quite common to find undernutrition and overweight within the same community, household or even individual – it is possible to be both overweight and micronutrient deficient, for example.

Types of Undernutrition – Growth Failure

a. Acute Malnutrition
b. Chronic Malnutrition

Both acute and chronic malnutrition are serious global problems that contribute significantly to under 5 child mortality

a. Acute Malnutrition

This is the result of recent rapid weight loss or failure to gain weight over short period of inadequate nutrition. It leads to wasting and, if severe, may also lead to edema and increases risk of mortality. It can be seen at any age but is common in infants and young children. It is linked with poor feeding practices, poor hygiene, and illness. Inadequate nutrition during pregnancy can precede both acute and chronic malnutrition. Current estimates by WHO suggest that about 1 million children die every year from severe acute. It can manifest in the following ways:

- **Severe Wasting**: characterized by a massive loss of body fat and muscle tissue. Children who are severely wasted look almost elderly and their bodies are extremely thin and skeletal. Measured by weight-for-height <70% or <-3SD, or MUAC <110mm for children 6 – 59 months
- **Edema**: present on the lower limbs and may eventually spread to the legs and face, and the child appears puffy, and is usually irritable, weak, and lethargic
- Severe wasting, and/or edema of both feet

Acute malnutrition is classified as Severe and Moderate:

- **Moderate Acute Malnutrition (MAM):** Also, known as wasting. It is defined by a weight-for-height indicator between -3 and -2 z-scores (standard deviations) of the international standard or by a mid-upper arm circumference (MUAC) between 11 cm and 12.5 cm (6- 59 Months).
- **Severe Acute Malnutrition (SAM):** The most dangerous form of malnutrition. If left untreated, SAM can result in death.

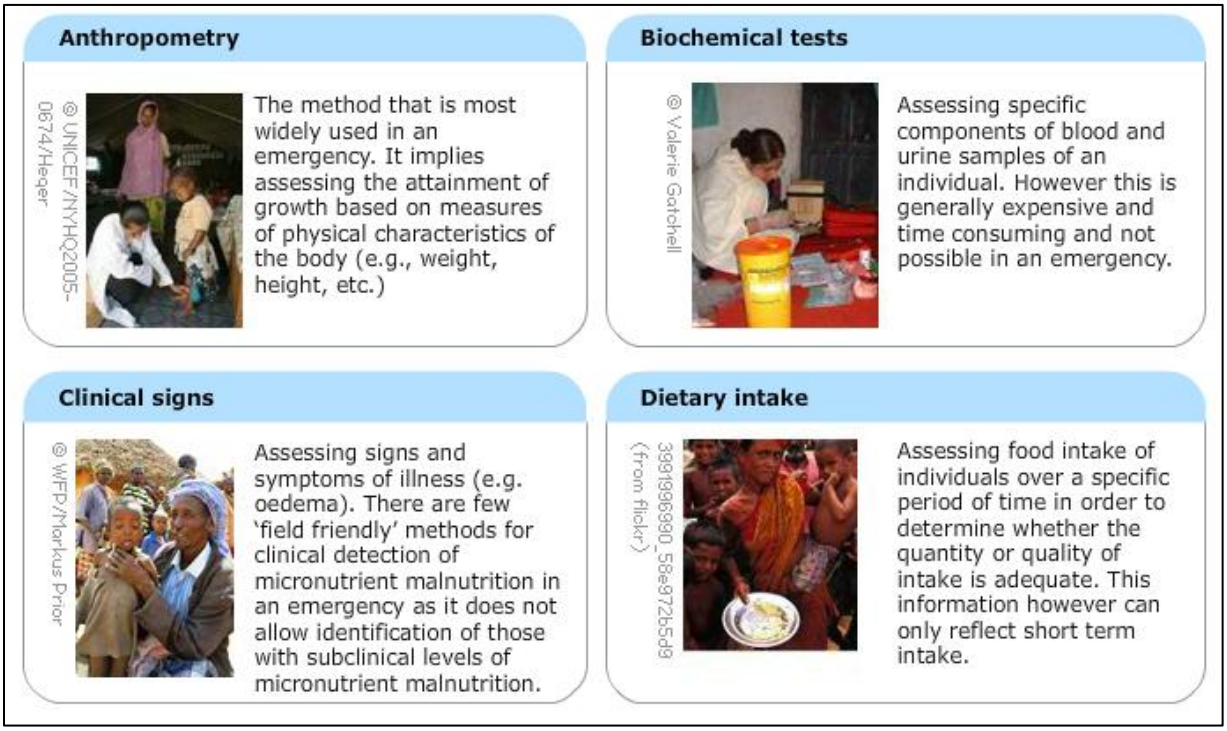
b. Chronic Malnutrition

This is due to result of long period of inadequate nutrition. It leads to stunting and associated with increased risk of disease/eventual death. Stunting is a form of growth failure. A child who is stunted or chronically malnourished often appears to be normally proportioned but is actually shorter than normal for his/her age. Stunting starts before birth and is caused by poor maternal nutrition, poor feeding practices, poor food quality as well as frequent infections which can slow down growth.

Measuring Malnutrition

Undernutrition can be identified by assessing an individual's nutritional status, meaning the internal state of an individual as it relates to the availability and utilisation of nutrients at the cellular level. In emergency situations, the nutritional status of young children is very important. When assessing undernutrition in emergency situations, the focus is usually on young children. This is because children from 6-59 months of age are particularly vulnerable to malnutrition and generally show signs of undernutrition earlier than other age groups in the population.

The prevalence of acute malnutrition among children 6-59 months is a sensitive and objective indicator can be used to reflect the nutritional status of the population as a whole. This state cannot be observed directly so observable indicators are used instead. There are four indicators; **Anthropometry, Biochemical Tests, Clinical Signs** & **Dietary Intake.** None of them, by themselves or in combination, are capable of providing a full picture of an individual's nutritional status. They are instead proxy indicators of nutritional status



Anthropometry is the use of body measurements such as weight, height and mid-upper arm circumference, in combination with age and sex, to gauge growth or failure to grow.

Anthropometry cannot be used to detect all forms of undernutrition. It cannot be used to measure micronutrient malnutrition, but it can be used to assess:

Wasting:

- Wasted children are extremely thins for their height
- Wasting is the result of recent rapid weight loss or failure to gain weight due to acute infection and inadequate diet intake.
- Wasting is readily reversible once conditions improve
- Wasting is the evidence of malnutrition
- Wasting is measured by the weight for the height index or MUAC

Stunting:

- Stunted children are short for their age
- Stunted children may have normal body proportions but look younger than their actual age
- Stunting develops over a long period as a result of inadequate nutrition or repeated infections.
- The development of stunting is a slow cumulative process
- The presences of stunting does not necessarily mean that current dietary intake in inadequate
- By two years of age, stunting may be irreversible
- Stunting is measured by the height for age index

Underweight

- Underweight children are too light for their age
- Underweight is due to either wasting or stunting
- Underweight is measured by the weight for age index

Anthropometry can be used to assess both individual and population nutritional status.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INDIVIDUAL ASSESSMENT

- **Growth monitoring and promotion** as part of a mother and child health (MCH) programme where the growth of infants and young children are monitored over time in order to identify and address growth faltering and growth failure.
- **Nutritional screening** - where each child is measured in order to identify and refer individuals for further check-ups or to services such as supplementary or therapeutic feeding as needed.


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POPULATION ASSESSMENT

- **Nutritional surveillance for famine early warning systems** in order to measure changes in nutritional status of populations over time to mobilise appropriate preparation and/or response.
- **Rapid nutrition assessments** which are carried out to quickly in order to establish whether or not there is a major nutrition problem and to identify immediate needs.
- **Nutrition surveys** in emergencies in order to assess the extent of undernutrition or estimate the numbers of children who might require supplementary and therapeutic feeding or other nutritional support.

Individual assessment

In this lesson we will focus on the individual assessment of young children.


© Nicky Dent

The basic information and body measurements needed to assess an individual's anthropometric status include:

- age
- sex
- weight
- height/length
- mid-upper arm circumference (MUAC).

We will now look at how to measure age, sex, weight, height/length and MUAC in young children. Bilateral oedema is an important additional clinical sign of acute malnutrition. We will also look at bilateral oedema later on in this lesson.

Age and sex

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Children grow and change physically over time. There are some differences in how girls and boys grow and develop, so it is critical that the age and sex of children are recorded so that the anthropometric status can be calculated as accurately as possible.

Age is generally recorded in months. In some cases this information can be derived from a known date of birth (such as from birth registration or health cards) or can be based on an estimate derived from a calendar of local events.

Sex (male, female) can generally be noted through observation.

Measuring weight

How do we measure weight, height and length and MUAC? Each operation has a precise procedure. Let's review the procedures beginning with weight.

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Weight should be measured to the nearest 100 g. Although various types of scales are used for weighing young children in the field, the most commonly used is the hanging spring balance, which can weigh up to 25 kg.

Hanging scales are robust, cheap and easy to carry. Weight may be also be measured using an electronic scale such as the United Nations Children's Fund (UNICEF) UNISCALE, which is more precise and allows a child to be measured in the mother/caregiver's arms.

Measuring length or height

When measuring a child's length or height, you should consider the child's age and ability to stand. Length and height should be measured to the nearest 0.1cm.

If a child is less than 2 years old (e.g. less than 87cm), measure recumbent length.

If the child is aged 2 years or older (e.g. 87cm or above) and able to stand, measure standing height.

It is crucial to ensure that the child is looking straight ahead with his/her head parallel to the baseboard.

In general where height is used as a proxy for age, a height of 65 to 110cm is used to approximate children 6-59mo. However in populations with a high level of stunting national guidelines may suggest lowering the lower limit to 60cm.

Measuring MUAC

Mid-upper arm circumference (MUAC) measures the muscle mass of the upper arm. A flexible measuring tape is wrapped around the mid-upper arm (between the shoulder and elbow) to measure its circumference.

MUAC should be measured to the nearest 0.1cm.
MUAC is a rapid and effective predictor of risk of death in children aged 6 to 59 months and is increasingly being used to assess adult nutritional status.

Bilateral oedema

In addition to anthropometry, clinical signs such as the presence of bilateral oedema also indicate undernutrition.

Bilateral oedema (fluid retention on both sides of the body) is a clinical sign indicating severe acute malnutrition.

When an individual has bilateral oedema, body weight increases due to the excess fluid retained.

In children with bilateral oedema, anthropometric indices involving weight must be interpreted with caution as their inflated weight can give an inaccurate picture of their nutritional status.

Measuring oedema

Oedema is the retention of water and sodium in the extra-cellular spaces. Generally it accounts for 10–30% of bodyweight, but in the most severe cases of kwashiorkor the proportion can reach 50%.

There are three grades of bilateral pitting oedema. When there is no bilateral pitting oedema, the grade is "absent." Grades of bilateral pitting oedema are classified by plus signs:

Grades of bilaterals pitting oedema	Definition
Absent	Absent
Grade +	Mild: Both feet / ankles
Grade ++	Moderate: Both feet, plus lower legs, hands or lower arms
Grade +++	Severe: Generalised bilateral pitting oedema, including both feet, legs, arms and face

Measuring oedema

Bilateral pitting oedema usually starts in the feet and ankles.

It can be verified when thumb pressure applied on top of both feet for three seconds leaves a pit (indentation) in the foot after the thumb is lifted. The pit will remain in both feet for several seconds.

It is important to test both feet; if the pitting is not bilateral, the oedema is not of nutritional origin. The presence of bilateral pitting oedema should be confirmed by a second person who repeats the test.

A child with oedema of both feet is automatically considered severely underweight, regardless of what the scale shows.

Nutritional requirements across the lifespan

Birth to 3 years:

Infancy is a time of rapid growth and development. Throughout the first 2 years of life, there are high needs for a balance of nutrients to promote growth and development and to prevent under and over nutrition. Infants should be fed only breastmilk from birth to age 6 months. Breastmilk is the perfect 'food' providing all of the nutrients, energy, and fluid that an infant needs in their first 6 months of life. At age 6 months however, breastmilk is no longer enough to meet the increasing nutritional needs for growth and development.

At age 6 months, the infant also needs to be given other foods and drinks in addition to breastmilk. This is known as complementary feeding. Complementary foods should be energy and nutrient rich. They should be of a suitable texture for the age of the child, the amount given at each meal and the frequency of meals should be appropriate for the child's age. Hand washing before feeding infants and young children is critical to prevent disease and infections.

The following micronutrients are essential for good nutrition:

Iron, vitamin A, iodine and folate - These play a vital role in the mother's survival in pregnancy and childbirth and in the child's development.

Vitamin A is essential for the functioning of the immune system. Vitamin A deficiency (VAD) causes blindness and renders children susceptible to common childhood killers: measles, diarrhoea, malaria and pneumonia.

Iodine is a critical nutrient for the proper functioning of the thyroid gland which regulates growth and metabolism. Iodine deficiency can cause learning disabilities and brain damage. The body needs iron to manufacture haemoglobin – the protein in red blood cells that carries oxygen around the body – and several enzymes necessary for muscle, brain and the immune system. The body's iron requirements increase during menstruation, pregnancy, breastfeeding and high-growth periods.

Folate, a B vitamin, is needed for the formation of red blood cells and also the development of nerve cells in the embryo and fetus stages of development.

Three years to adolescence

Nutritional requirements gradually increase with increasing age and physical activity level. From age three the requirements are based on a need for increased variety and amount of food and a range of different textures of food. As a child grows they are more likely to begin consuming 'family foods' whereby they are eating the same foods as the older children and adults in the house.

Adjustments need to be made to the amount of food given to children as they grow to accommodate their physical growth and increased activity level. It is advised that children consume a variety of foods, choosing from each of the 4 food groups; fruits and vegetables; meats, chicken and fish; dairy and dairy products; breads and cereals, which includes staples such as wheat, maize, rice and bread. Drinking adequate quantities of safe water is also important.

In order to prevent childhood overweight and obesity, foods high in added sugar such as sweets, cakes, biscuits and cool drinks should be avoided. Fried foods may be consumed in limited amounts. Every child should aim to eat 2 servings of fruit and 5 servings of vegetables every day in order to promote optimal health, growth and development. A serving of fruit is equivalent to 1 piece of fruit, such as an apple, banana or orange. A serving of vegetables is equivalent to ½ cup of cooked or raw vegetables. It is important to eat a variety of different vegetables at all meals in order to get the vitamins and minerals needed for growth and development.

Nutritional needs during adolescence

Adolescence begins at the onset of puberty and is the transition period between childhood and adulthood. For girls, puberty typically occurs between ages 12 and 13, and for boys 14 and 15 years. It is one of the fastest growth periods of a person's life and is characterized by physical changes that may affect the body's nutritional needs. Changes in lifestyle may also affect eating habits and food choices. Teenagers need additional calories, protein, calcium, and iron to support the growing body and prevent future health problems. Protein is important for growth and maintenance of muscle. Adolescents need between 45 and 60 grams of protein each day. Sources of protein include beef, chicken, eggs, dairy products and some vegetable sources, including legumes, seeds and nuts.

Adequate calcium intake is essential for development of strong and dense bones during the adolescent growth spurt. Inadequate calcium intake during adolescence and young adulthood puts individuals at

risk for developing osteoporosis later in life. In order to get the required 1,200mg of calcium, teenagers are encouraged to consume three to four servings of calcium-rich foods each day. Good sources include milk, yogurt, cheese, calcium-fortified juices, and calcium-fortified cereals.

As adolescents gain muscle mass, more iron is needed to help muscle cells obtain oxygen for energy. A deficiency of iron causes anaemia, which leads to fatigue, confusion and weakness. Adolescent boys need 12 milligrams of iron each day, while girls need 15 milligrams. Good sources of iron include beef, chicken, legumes (including beans and peanuts), enriched or whole grains, and leafy green vegetables such as spinach, collards, and kale.

Nutrition related issues during adolescence

Globally, adolescents face a serious nutritional challenge affecting not only their growth and development but also their livelihood as adults. They remain a largely neglected, difficult-to-measure and seemingly hard-to-reach population. The needs of adolescent girls in particular are often ignored. Good nutrition is essential for survival, physical growth, mental development, performance and productivity, health and well-being. Adolescent girls in particular need access to information and services related to nutrition, reproductive health, family planning, and general health. Programmes can reach girls through a variety of avenues, including schools, workplaces, marriage registration systems, and youth-oriented health programmes.

Twenty percent of total growth in height and 50% of adult weight gain occur during adolescence. Adequate nutrition is important to support optimal growth. While the nutritional status of children and adolescents has generally improved, many problems remain to be addressed. These include:

- **Under nutrition**: Inadequate food supply, especially in poor households, is a major factor contributing to undernutrition. For adolescent girls, gender-based discrimination in the distribution of, and access to, food within the family can be a strong factor in under nutrition.
- **Micronutrient deficiency**: Vitamin A, iodine and iron deficiencies are common among adolescents. The adverse effects of these deficiencies include delayed growth spurt, stunted height, delayed/retarded intellectual development, anaemia and increased risks in childbirth. Micronutrient deficiencies are often associated with poverty but they may also result from unhealthy eating behaviours, associated with the intake of highly processed, nutrient low, energy- dense foods.
- **Overweight and obesity**: Due to rapid urbanization and economic growth there is a rise in obesity. Lifestyle changes related to high-fat diets and low levels of physical activity have resulted in a rising prevalence of overweight and obese adolescents, particularly in urban areas.
- Overweight and obesity during childhood and adolescence tends to continue into adulthood, increasing the likelihood of health conditions including cardiovascular diseases, diabetes and some cancers. Being overweight can have serious health consequences.

Eating Disorders

Adolescents are increasingly confronted with the pressure to have a “perfect” body shape - informed in great part by celebrity culture. Eating disorders are extremes in eating behavior. Eating too little or too much are both extremes. The most common eating disorders are anorexia nervosa and bulimia nervosa (usually called simply “anorexia” and “bulimia”). But other food-related disorders, like binge eating, body image disorders, and food phobias, are becoming more and more common. Many young people who develop an eating disorder are between 13 and 17 years old. This is a time of emotional and physical changes, academic pressures, and a greater degree of peer pressure.

While the issues surrounding eating, disorders are complex, in many cases the condition is associated with poor self-esteem. For girls, even though it’s completely normal (and necessary) to gain some additional body fat during puberty, some respond to this change by becoming very fearful of their new weight. They might mistakenly feel compelled to get rid of it any way they can.

Athletes are also vulnerable to eating disorders as they may seek to stop or suppress growth - both height and weight - in order to maintain performance. Bodybuilding on the other hand, may encourage rapid ‘bulking up’ which is unhealthy and can cause excessive weight gain in later life.

Unhealthy eating patterns tend to begin gradually and build to the point where a person feels unable to control them. Adolescents with eating disorders often do not recognize or admit that they have a problem. As a result, they may not want to get treatment and, as such, need the support of family members to ensure that treatment is obtained.

Growth Monitoring

Growth monitoring is the regular measurement, recording and interpretation of a child's growth change in order to counsel, act and follow up results.

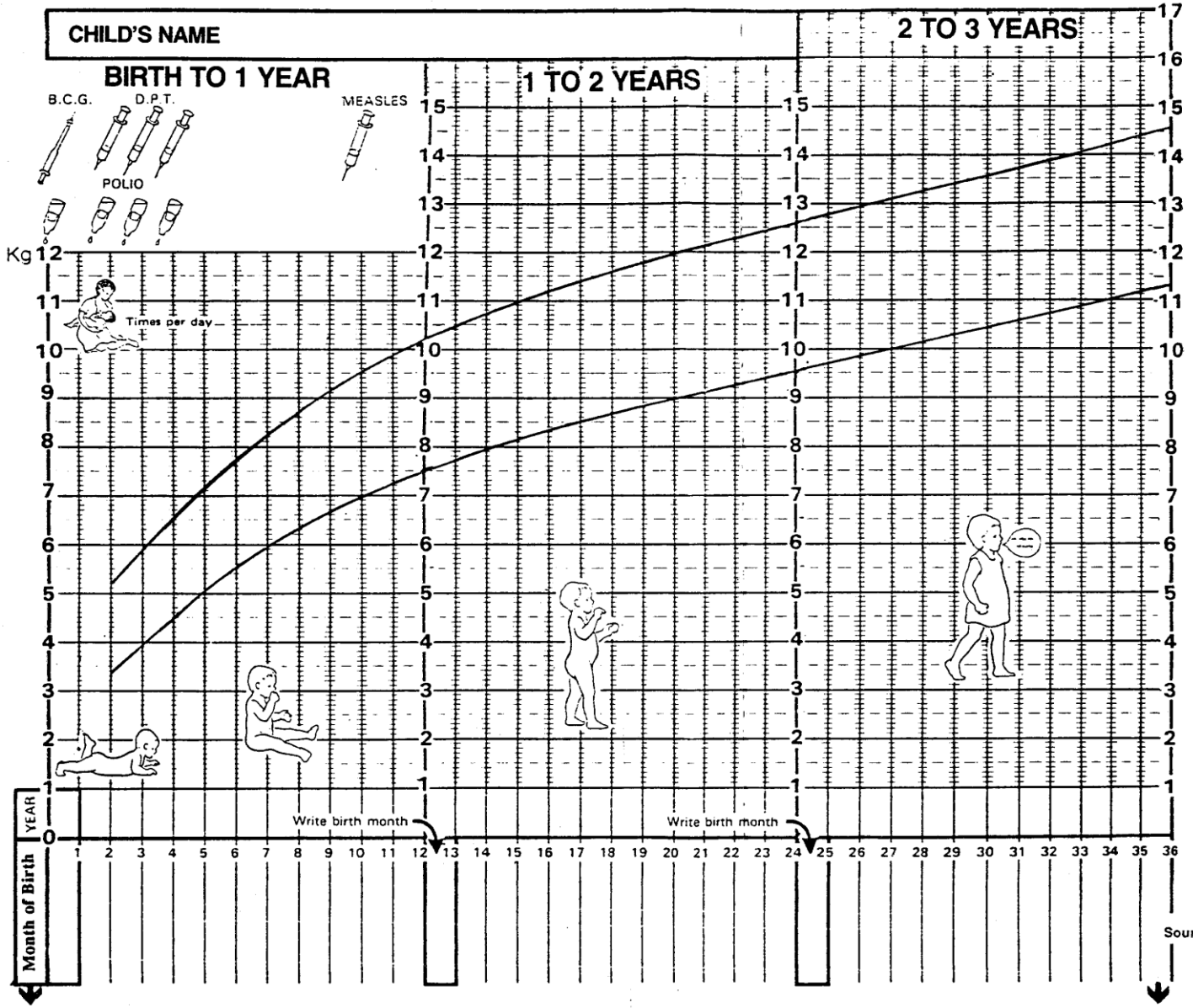
Growth monitoring is not an intervention, like ORT and immunization, to be applied in response to need. It is a continuous activity which incorporates all key interventions with the goal of improving the health of children.

Growth charts and weighing scales are the most important pre-requisite for growth monitoring. An effective growth card will help in fulfilling the basic essentials and true essence of growth monitoring.

The Growth Chart is meant to:

- Make growth a tangible visible attribute.
- Create felt need, a demand for growth.
- Detect the earliest signs of faltering of growth.
- Reinforce effective behavior resulting in the growth.
- Illustrate the adverse effects of various negative events and or circumstances on growth (infection, material absence, seasonal scarcity etc.)
- Facilitate the transfer of information to the mother regarding means to promote growth.

A model growth chart recommended for the developing countries by WHO is shown here:



WATCH THE DIRECTION OF THE LINE SHOWING THE CHILD'S GROWTH

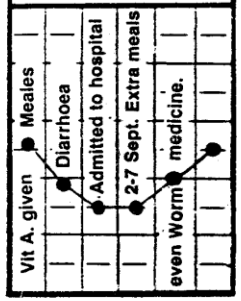
GOOD
Child growing well

DANGER
Not gaining weight; find out why

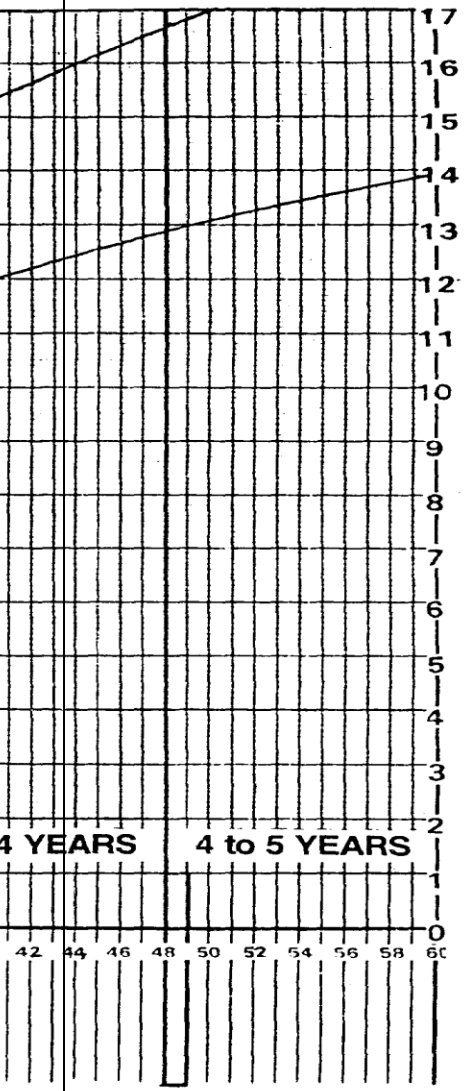
VERY DANGEROUS
Losing weight. May be ill; needs extra care

WRITE ON THE CHART
Any illness e.g. diarrhoea, measles
Admission to hospital
Solids introduced
Breast feeding stopped
Birth of next child

like this —



Source: A.K.U. MECDICAL COLLEGE



CHILD HEALTH CHART

CLINIC 1 ..... No .....

CLINIC 2 ..... No .....

CHILD'S NAME	GIRL / BOY
DATE OF BIRTH day month year	BIRTH WEIGHT

MOTHER'S NAME
CARETAKER IF NOT THE MOTHER
FATHER'S NAME
WHERE DOES THE CHILD LIVE?

How many children has the mother had?

Number alive ..... Number dead .....

CARD GIVEN AND MOTHER TAUGHT BY

ASK THE MOTHER ABOUT THESE REASONS FOR GIVING THE CHILD EXTRA CARE (make a circle round the right answer)		TAKE EXTRA CARE
Was the baby **less than 2.5 kg at birth**	no	yes
Is this baby a **twin**	no	yes
Is this baby **bottle fed**	no	yes
Does the mother need more **family support**	no	yes
Are any brothers or sisters **underweight**	no	yes
Are there any other reasons for **taking extra care?** For example – tuberculosis or leprosy or **social problems**	no	yes

Remember to discuss child spacing

IMMUNISATIONS		DATE GIVEN
BCG		
POLIO		FIRST DOSE
		SECOND DOSE
		THIRD DOSE
		FOURTH DOSE
DPT	Diptheria Whooping Cough Tetanus	FIRST DOSE
		SECOND DOSE
		THIRD DOSE
MEASLES		
MOTHER'S TETANUS TOXOID (or one booster)		FIRST DOSE
		SECOND DOSE
		THIRD DOSE

ORAL REHYDRATION

DATES			
Taught			
Used			

Date of visit _____

Development means attainment of skill and function while growth refers to increase in physical size of the baby. Statistical terms are required for range of normal development. Milestones are definitive landmark in growth and development of child. They are attained in terms of new skills and include the mental, social and physical development of the baby i.e. head holding at 3 months, sits without support at 6-8 months, walks at 18- 21 months. Hereditary and environment are two factors involved in growth and development, to this added effect of nutrition and disease. Growth and development do not proceed at constant rate. It is most rapid in first year of life. Child doubles its weight by 5 months, triple to it by end of first year, quadrupled by the end of second year. After 2 years, increase in birth weight is steady till adolescence.

Growth of the child is measured in terms of weight, height and bone age. The height and weight of bay vary in different ethnic groups, socio economic groups and also varies with the nutritional status of the parents. A single weight record only indicates the child size at the moment, for growth monitoring, periodic weight is necessary.

Growth Chart:

It was first designed by David Morley and later modified by WHO. It is visual display of child physical growth and development.

The other names of the growth chart are:

- Road to health chart
- Weight for age chart

This chart is available to the LHV and LHW. The following explanation will help to understand its importance in growth monitoring.

Features:

- On x-axis child age (in months) is mentioned and on y- axis, weight (in Kg) is mentioned.
- Periodic weight is done and curve is obtained which indicates the child health.
- For purpose of comparison, growth chart is provided with reference curves. These curves show limit of normal growth.
- On growth chart space is provided for recording of:
    - Immunization status
    - Identification and registration
    - Birth date and weight
    - Mothers immunization against tetanus
- It is only effective when mother is involved in all activities
- It is inexpensive way of growth monitoring
- On growth chart, ORS preparation method id written in Urdu, so easily understandable by common people.

Uses of Growth Chart:

- Growth monitoring
- Diagnostic tool
- Planning and policy making by grading malnutrition

Give information such as:

- Immunization of child
- Birth weight of child
- Immunization of mother (done/or not)
- Child health record
- Nutrition level
- It is helpful for parents in ORS preparation at home
- It is helpful for mothers, as visual display of breast feeding is there.

Evaluation: It provides a good method to evaluate the effectiveness of services & programmes in child growth and development.

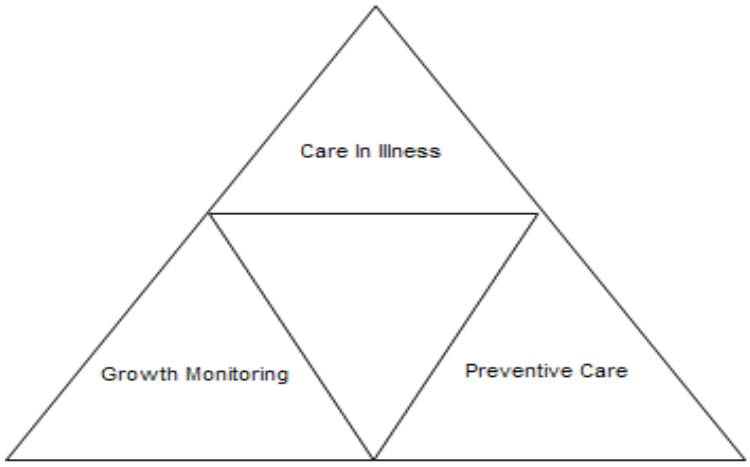
Care of Under Fives:

There is relative neglect of children of preschool age. They need attention because of

- High mortality and morbidity
- Growth and development is rapid in this age group.
- These children are our future.
- Infant is easily approached but pre- school child is difficult to approach.

Under Five Clinics:

Under five clinics are functioning with the aim of providing curative, preventive and promotive health services to children.



Symbol for Under Five Clinics

Care in Illness:

It is apex of the symbol. This is the mother's felt need. The illness care comprises of early diagnosis, treatment and referral service.

Preventive Care:

- Immunization (children need it because of less/ decreased immunity) Nutritional surveillance (as all major nutritional disorders occur in children under 5)
- Health checkup (it provides check list)
- Oral rehydration (diarrhea is major killer of children)
- Family planning (birth spacing, helps in health improvement)

Growth Monitoring:

It is very helpful in assessing whether child is healthy or not. If growth curve is going normal, no need to worry about. But if the curve lies in danger zone, following causes must be noted.

- Failure of breast Feeding
- Inadequate nutrition
- Intestinal parasites
- Any infection

Breast Feeding & Complimentary Feed

Breast Feeding:

Breast feeding is the very essential part of the nutritional component of PCSP (Pakistan Child Survival Programme). The guidelines of nutrition by WHO says “exclusive breast feeding should be practiced in the first 6 months of child’s age” which means should not have anything other than the breast milk.

Breast feeding should be initiated within an hour of birth instead of waiting several hours as is often customary. Although there is little milk at that time, it helps to establish feeding and a close mother child relationship known as bonding. The first milk which is called “colostrum” is the most suitable food for the baby during the early period because it contains a high concentration of protein and other nutrient the body needs. It is also rich in anti infective factors which protect the body against respiratory infections and diarrheal diseases. Supplementary feeds are not necessary. The regular milk comes on third to sixth day after birth. The baby should be allowed to breast feed whenever it wants. Feeding the baby on demand helps the baby to gain weight. It is very important to advise the mothers to avoid feeding bottles.

Under any circumstances, it is ideal food for infants. No other food is required by the baby until 6 months after birth. Under normal conditions mother secrete 450 to 600 ml of milk daily with 1.2 gm percent protein. The energy value of human milk is 70 kcal per 100 ml.

A child who is breast fed has greater chances of survival than a child artificially fed. Prolonged breast feeding does protect the infant from early malnutrition and some infections. The data suggest that infant mortality rates in developing countries is higher among children who have not been breast fed or who have been breast fed for less than 6 months.

National Breast Feeding Policy:

Breast milk is ideal for babies. The breast feeding should do the following to protect, promote and support breast feeding.

- Hospital administrative, obstetric, pediatric, nursing and paramedical staff forms a team that ensures the implementation of this breast feeding policy.
- Relevant health care staff shall be trained in the skills necessary to implement this policy.
- All expectant mothers shall receive education on the benefits and management of breast feeding, the dangers of bottle feeding and the dietary needs during pregnancy and lactation. Prenatal exams should include the breast examination.
- In the delivery room, new born infants, including premature infants, shall be put on the breast with in an hour of delivery. Babies should be fed on demand, every 2-3 hours for a minimum of eight feedings within 24 hours.
- Exclusive breastfeeding shall be promoted from birth to 4-6 months. No water, ghutti, fresh animal milk, infant formula or other liquid is to be given to an exclusive breastfeed infant. Trained health care staff shall help mothers having breastfeeding problems to continued breastfeed.

- Staff shall promote the introduction of semisolids at 4-6 months with continuous breastfeeding up to 2 years.
- No bottle feeding and pacifiers are allowed in health facility.
- No promotion materials about formula, feeding bottles and pacifiers such as posters, free samples or gift items shall be allowed in the facility or given to the mothers.
- No health care staff should receive gifts, free samples, donations, free trainings etc, from formula manufacturers.
- Mothers shall be given sufficient education so that they can understand that:

    - Breast feeding should be started within one hour of delivery after birth because colostrum is important for babies and protect them from infections.
    - Frequent breastfeeding increase the breast milk production.
    - Babies should be fed only mother's milk for the first 6 months as it is best for them and it prevents infection.
    - Bottle feed can cause serious infection and death.
    - Supplementary foods should be started between 4 to 6 months.
    - Lactating mothers should eat more food and drink more liquids to maximize their milk supply.

Complementary Feeding

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. The transition from exclusive breastfeeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world-wide. WHO estimates that 2 out of 5 children are stunted in low-income countries.

Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. Foods should be prepared and given in a safe manner, meaning that measures are taken to minimize the risk of contamination with pathogens. And they should be given in a way that is appropriate, meaning that foods are of appropriate texture for the age of the child and applying responsive feeding following the principles of psycho-social care.

The adequacy of complementary feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers. Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child clues for hunger and also encourages the child to eat. This is also referred to as active or responsive feeding.

WHO recommends that infants start receiving complementary foods at 6 months of age in addition to breast milk, initially 2-3 times a day between 6-8 months, increasing to 3-4 times daily between 9-11 months and 12-24 months with additional nutritious snacks offered 1-2 times per day, as desired.

Inappropriate feeding practices are often a greater determinant of inadequate intakes than the availability of foods in the households. Research has shown that caregivers require skilled support to adequately feed their infants.

Notifiable Diseases

A notifiable disease is any disease that is required by the Law to be reported to government authorities. This collation of information allows the authorities to monitor the disease, and provides early warning of possible outbreak. Many governments have enacted regulation for reporting of both human and animal (generally live stock) diseases. WHO's international health regulation 1969 required disease reporting to the Organization in order to help with its global surveillance and advisory role. These regulations were rather limited with a focus on reporting of three main diseases: Cholera, Yellow Fever and Plague. A few others like Congo Fever, Dengue Fever, Meningitis, Viral Hepatitis, HIV/AID, Bird Flu, SARS, Polio, Malaria, Rabies, Influenza etc were subject to international surveillance.

In response to the exponential increase in international travel and trade, and emergence and reemergence of international disease threats and other health risks, 194 countries across the globe have agreed to implement the International Health Regulations (2005) (IHR). This binding instrument of international law entered into force on 15 June 2007. The stated purpose and scope of the IHR are "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade." Because the IHR are not limited to specific diseases, but are applicable to health risks, irrespective of their origin or source, they will follow the evolution of diseases and the factors affecting their emergence and transmission. The IHR also require States to strengthen core surveillance and response capacities at the primary, intermediate and national level, as well as at designated international ports, airports and ground crossings. They further introduce a series of health documents, including ship sanitation certificates and an international certificate of vaccination or prophylaxis for travelers.

Lists of notifiable diseases are varying from country to country, and also within the same country between the States and between urban and rural areas.

These diseases are to be notified to the Chief Executive Officer (Health). There is a Surveillance system through which notification is further put forward to the Directorate of Communicable Disease Control and ultimately the Directorate General Health Services is notified. The whole system is a part of National Institute of Health. At the notification of certain disease or problem concerned authorities take prompt actions for the control of that disease.

Protocol for Disease Reporting

Disease/ Condition	Case Definition	Alert Threshold	Outbreak Threshold
Vaccine Preventable Diseases			
Measles	**Suspected Case:** Any person in whom a clinician suspects measles infection OR Any person with fever, and generalized maculopapular rash (i.e. Non-vesicular) and one of the followings; cough,	One suspected case	Five or more clinical cases with at least one lab confirmed case in a single location over a

	coryza (i.e. Runny Nose) and conjunctivitis (i.e. Red Eye).		30 day period
Meningococcal Meningitis	**Suspected Case:** An acute illness with sudden onset of high grade fever (>38.5 °C rectal and >38 °C axillary) AND one or more of the followings: -Neck stiffness -Altered consciousness -Other meningeal sign - petechial or purpural rash In patients under one year of age, when fever is accompanied by bulging fontanelle.	Three or more suspected case in one location or one confirmed cases of N. meningitides	Two or more lab confirmed meningococcal meningitis cases from a single location
Acute Flaccid Paralysis	**Suspected case**: Any child under 15 years of age with recent onset of floppy weakness of any cause including Guillian-Barre Syndrome or any person of any age with a paralytic illness, in whom poliomyelitis is suspected.	One suspected case	One lab confirmed case is an outbreak of Poliomyelitis
Pertussis (Whooping Cough)	**Suspected case:** A person with a cough lasting at least 2 weeks with one of the followings: Paroxysms i.e. bouts of coughing; or Inspiratory "whoop" or Post-tussive vomiting (i.e. vomiting immediately after coughing) AND without other apparent cause. OR A case diagnosed as pertussis by a physician.	One suspected case	Five cases in one locality (Laboratory confirmation of all cases is NOT REQUIRED. Only few cases from each outbreak should be laboratory confirmed.)
Diphtheria	**Suspected Case:** Not applicable **Probable case:** An acute illness characterized by an adherent membrane on the tonsils, pharynx and/or nose and one of the followings: laryngitis, pharyngitis or tonsillitis. **Confirmed Case:** A confirmed case is a probable case who has been laboratory confirmed laboratory confirmed or	One probable case	One confirmed case is an outbreak

	linked epidemiologically to a laboratory confirmed case.		
Neonatal tetanus (NNT)	**Suspected Case:** Any neonatal death between 3 and 28 days of age in which the cause of death is unknown **OR** any neonate reported as having suffered from neonatal tetanus and not investigated. **Confirmed Case:** Any neonate with normal ability to suck and cry during the first 2 days of life but who between 3 and 28 days of age cannot suck normally and becomes stiff or has convulsions or both. Hospital-reported cases are considered confirmed.	One case requires investigation for safe birth practices and maternal immunization status.	NA
Respiratory Diseases (Air-borne Infections)			
Pneumonia	**<u>Children < 5 years</u>:** Any child presenting with cough or difficult breathing with any one of these: • Fast breathing: (Less than 2 months; ≥ 60 breaths/min, 2 months to 12 months; ≥50 breath/min, 12 months to 5 years; ≥ 40 breaths/min). • Lower Chest wall in-drawing, • Unable to drink or breastfeed, • Difficulty to awaken, • Fits / convulsions, • Stridor in calm child. **<u>Over 5 years</u>:** Any person presenting with acute onset of cough, fever, difficulty in breathing and chest pain which increases with breathing.	Two times the mean number of cases of the previous 3 weeks for a reporting unit	Cluster of cases in a single location
Acute Upper Respiratory Infection	Any acute onset of fever, cough, runny nose, pharyngitis, laryngitis, bronchitis, otitis, tonsillitis, with normal breathing and with or without danger signs.	Two times the mean number of cases of the previous 3 weeks for a	Not specified until infectious agent is identified

		reporting unit	
Influenza (Influenza Like Illness-ILI)	A person presenting with a sudden onset of fever ≥ 38°C and cough or sore throat, in the absence of other diagnosis. *(Influenza is a systemic illness that involves the upper respiratory tract and should be differentiated from other URIs.)*	Unusual rise in cases satisfying case definition and presence of other epidemiological factors.	Not specified until infectious agent is identified
Severe Acute Respiratory Illness (sARI)	Meets ILI case definition (sudden onset of fever ≥ 38°C and cough or sore throat, in the absence of other diagnosis), AND Shortness of breath or difficulty breathing, AND Requiring hospital admission.	One suspected case	One lab confirmed case
Water Borne Diseases			
Acute Diarrhea (non-cholera)	Acute diarrhoea (passage of 3 or more loose stools in the past 24 hours) with or without dehydration, and which is not bloody or watery diarrhea.	Two times the mean number of cases of the previous 3 weeks for a given reporting unit	Cluster of cases in a single location
Acute watery diarrhea (AWD) / Cholera	**Suspected cholera case:** **In an area where the disease is not known to be present:** Severe dehydration or death from acute watery diarrhoea in a patient aged 5 years or more. **In an area where Cholera is endemic:** Acute watery diarrhoea, with or without vomiting in a patient aged 5 years or more. **In an area where there is a cholera epidemic:** Acute watery diarrhoea, with or without vomiting, in any patient.	One AWD case OR any death due to acute diarrhea	One lab confirmed case, or a cluster (6 or more suspected cases) of AWD in a single locality during previous THREE weeks.
Bloody Diarrhea (Dysentary)	Acute illness characterized by frequent passage of scanty amount of stools, mostly mixed with blood and mucus and accompanied with moderate to	Three or more cases in one location	Cluster of cases: 6 or more cases in one location + one lab

	high grade fever, Severe abdominal cramps, Tenesmus AND usually no dehydration.		confirmed case for Shigella
Acute Viral Hepatitis {A & E} **(Acute Jaundice Syndrome)**	**Suspected Case:** An acute illness with discrete onset of symptoms of jaundice, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness OR elevated serum alanine aminotransferase (ALT) level > 2.5 times the upper limit.	A cluster of Three or more cases in one location/reporting unit	A cluster of cases(6 or more cases in one location + Lab confirmation of type)
Typhoid fever	**Suspected Case:** Any person with acute illness and demonstrates: Insiduous onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea or abdominal tenderness progressing to prostration.	Three or more linked cases	10 or more epidemiologically linked cases from one location with at least one lab. confirmed case through Typhi Dot/Blood Culture)
Vector-Borne Diseases			
Dengue Fever	**Suspected Case:** An acute febrile illness of >2days and <10 days duration with 3 or more of the following: ▪ Headache, ▪ Retro-orbital pain, ▪ Myalgia, ▪ Arthralgia, ▪ Rash ▪ Haemorrhagic manifestations ▪ Leucopoenia	**For Epidemic Phase:** Cluster of T suspected cases with at least one lab confirmed. **For Inter-Epidemic Phase (and for the area that is previously not known for Dengue):** One case fulfilling the criteria of either Suspected, Probable or lab confirmed dengue	**Cluster of cases:** Six or more cases in one location + one lab confirmed case in a period of four weeks

Dengue Hemorrhagic Fever (DHF)	A probable or confirmed case of dengue fever and any two of the following: Platelets < 100,000/mm^3, Petechial or purpuric rash, Epistaxis, vomiting with blood, cough with blood, blood in stools **OR** other hemorrhagic signs AND no known predisposing host factor for hemorrhagic manifestations. DHF definition also requires hematocrit rise ≥ 20%.	One probable case	One lab confirmed case of DHF
Cremean Congo Hemorrhagic Fever (CCHF)	**Suspected Case:** Patient with sudden onset of illness with high grade fever (>38.5 °C) for > 72 hours and < 10 days especially in CCHF endemic areas and among those in contact with a confirmed patient or handling animals and raw animal products AND fever usually associated with headache & muscle pain and does not respond to antibiotics or anti-malarial treatment.	One suspected case	One Lab confirmed case
Malaria	**Suspected Case of Uncomplicated Malaria:** History of recent fever (may be continuous or irregular in beginning), chills, headache, body aches, weakness, anaemia, hepato-splenomegaly. (In falciparum infection, the fever may be continuous with bouts of high peaks.) **Suspected Case of Severe/complicated Malaria:** H/O fever with prostration (inability to sit), altered consciousness (lethargy, coma), generalized seizures (followed by coma), difficulty in breathing, low urinary output or dark urine, severe anaemia, abnormal bleeding, and hypoglycaemia. (Only Falciparum malaria can develop into severe malaria if not treated promptly especially in children and pregnant women).	Case count greater than 2 times the mean number of cases of the previous 3 weeks for a reporting unit.	In endemic area: Slide positivity rate above 50% or Falciparum rate above 40%; In non-endemic area, evidence of indigenous transmission of Falciparum.

Leishmaniasis	**Suspected Case:** **Cutaneous Leishmaniasis (Saldana/Kaldana):** Appearance of one or more skin lesions, typically on uncovered parts of body (Face, Neck, Arms and Legs) which begins as nodules and turn into skin ulcers eventually healing but leaving a depressed Scar. **Visceral Leishmaniasis (Kala-Azar):** Case presenting with H/O irregular fever, Hepato/Splenomegaly, enlarged lymph nodes, weight loss, fatigue and secondary infections such as Pneumonia.	**Cutaneous Leishmaniasis:** One case in non-endemic areas, and cluster of Three cases in endemic area. **Visceral Leishmaniasis:** One suspected case	**Cutaneous Leishmaniasis:** Cluster of Six or more cases in one location **Visceral Leishmaniasis**: One confirmed case
Scabies	Skin infection characterized by rash or lesions and intense itching especially at night. Lesions are prominent around finger webs, wrists, elbows, axillaries, beltlines, thighs, external genitalia, nipples, abdomen and lower portion of buttocks. Head, neck, palm and soles of infants may be involved.	Case count greater than 2 times the mean number of cases over the previous 3 weeks for a reporting unit.	Unusual Clustering of cases in a single location
Other Diseases Under Surveillance			
Unexplained Fever AND Pyrexia of Unknown Origin (PUO)	**Unexplained Fever:** Fever (body temperature >38.5 °C) for >48 hours and without other known etiology **Pyrexia of Unknown Origin:** A Patient having Fever of > 38.5°C for more than 3 weeks with no established diagnosis despite appropriate investigation for 1 week.”	One death due to fever without known etiology in a given location or Case count greater than 2 times the mean number of cases of the previous 3 weeks for a reporting unit	Not specified until infectious agent is identified
Unusual Disease or Unexplained cluster of Health Events	An aggregation of cases with similar symptoms and signs of unknown cause that are closely grouped in time and/or place.	Unusual appearance of cases which are previously not known for the	Not specified until infectious agent is identified

		area or unrecognized health event	

Screening

Iceberg Phenomenon of Disease

Pattern of disease in hospitals is quite different from that in a community. That is, far larger proportion of disease is hidden from view in the community than is evident to physician or to general public. The analogy of iceberg, the tip of which is seen, is widely used to describe the disease in the community. The idea of iceberg of the disease gives us better idea of the progress of the disease than the familiar spectrum of the disease. The submerged portion of the iceberg represents the hidden mass of the disease (e.g. subclinical cases, carriers, undiagnosed cases). The floating tip represents what the physician sees in his practice. The hidden part of the iceberg thus constitutes the mass of unrecognized disease in the community, and its detection and control is a challenge to modern techniques in preventive medicine.

The active search for the disease among the apparently healthy people is a fundamental aspect of prevention. The search for unrecognized cases or detect by means of rapidly applied tests, examinations or other procedures in apparently healthy individual.

Historically, the annual health examinations were meant for the early detection of “hidden” diseases. To bring such examinations within the reach of large masses of people with minimal expenditures of time and money, a number of alternative approaches have come into use. They are based primarily on conserving physician time for diagnosis and treatment and having technicians to administer simple, inexpensive laboratory tests and operate other measuring devices.

Aims and Objectives

The basic purpose of screening is to sort out from a large group of apparently healthy persons those likely to have the disease or at increased risk of the disease under the study. Screening is carried out in the hope that early diagnosis and treatment favorably alters the natural history of the disease, in significant proportions of those who is identified as “positive”.

Explanation of terms:

- Screening: screening is tested for infection or disease in populations or in individuals who are not seeking health care, e.g. Test for AIDS virus in blood donors, neonatal screening, and premarital screening for syphilis etc.
- Case finding: This is use of clinical and laboratory tests to detect disease in individual seeking health care for other reasons e.g. the use of VDRL test to detect syphilis in pregnant women. Other diseases include pulmonary tuberculosis in chest, hypertension, cervical cancer, breast cancer, and diabetes mellitus.
- Diagnostic tests: Use of laboratory procedures to confirm or refute the existence of disease or true abnormality in patients with signs and symptoms presumed to be caused by the disease, e.g. VDRL, testing of patients with lesions, suggestive of secondary syphilis, endocervical culture for gonorrhea virus.

Use of Screening

There are 4 main uses:

- Case detection: It is defined as the presumptive identification of unrecognized disease which does not arise from patient request. e.g. neonatal screening. Specific diseases sort by this method have included breast cancer, cervical cancer, deafness in children, diabetes mellitus, iron deficiency anemia etc
- Control of disease: this is also known as prospective screening. People are examined for the benefits of the others. e.g. screening of immigrants from the infectious diseases to protect the home population. Early diagnosis and treatment may help to prevent spreading of the disease and so reduce the mortality rate.
- Research purpose: Screening may sometimes be performed for the research purpose. Screening may help to obtain more basic knowledge about the natural history of that disease.
- Educational opportunities: Apart from possible benefits to the individual and the acquisition of information of public health relevance, screening programs provide opportunities for creating public awareness and for educating health professionals.

Types of Screening

There are three types of screening have been described.

- **Mass screening:** it is screening of whole population or a sub group, as for example, adults. It is offered to all, irrespective of particular risk individual may run of contracting the disease in question (tuberculosis).
- **High risk or selective screening:** Screening will be most productive if applied selectively to high risk groups. For example, cervical cancers tend to occur relatively less often in the upper socio economic groups, screening for the cancer cervix in lower socio economic groups could increase the yield of new cases. Screening for risk factors as these factors antedate the development of the actual disease. For example, elevated levels of serum cholesterol are associated with coronary heart disease So effective interventions will help to reduce the risk of coronary heart diseases.
- **Multiphasic screening**: it has been defined as the application of two or more screening tests in combination to a large number of people at one time than to carry out separate screening tests for single disease. The procedure may include health questionnaire, clinical examination, and range of measurements and investigations, all of which can be performed rapidly with appropriate staffing, organization and equipment.

Criterion for Screening

The disease should fulfill the following criterion before it is considered suitable for screening.

1- The condition sought should be an important health problem.
2- The natural history of the disease should be adequately understood.
3- There is a test which can detect the disease prior to the onset of signs and symptoms.
4- Facilities should be available for the confirmation of diagnosis.
5- There is an effective treatment.

6- There should be agreed on policy concerning whom to treat the patients (low range of BP and borderline diabetes mellitus)
7- There is good evidence that early detection and treatment reduce morbidity and mortality
8- The expected benefits (e.g. the number of lives saved) of early detection exceeds the risk and cost.

Evaluation of Screening Tests

The following measures are used to evaluate the screening test.

Sensitivity: The ability of a test to identify correctly all those who have the disease that is true positive.

Specificity: The ability of a test to identify correctly those who do not have the disease, that is, true negative.

Predictive accuracy: It reflects the diagnostic power of the test. It depends upon sensitivity, specificity and disease prevalence.

False positive: It means that patients who do not have the disease are told that they have.

False negative: It means that patients who have disease are told that they do not have.

Screening Equipments used by SH&NS:

Service	Equipment & Other supplies
Anthropometric measurement	• Weighing scale • Stadiometer • MUAC tapes
Oral Health	Torch
Vision and external eye examination	• Snellen Chart: Alphabet/E chart • Reading card

General Physical Examination

General Physical Examination: It means the examination of the person generally. Always examine the person where there is good light, preferably sunlight, never in the dark room.

There are certain basic things to ask and to look for in anyone who is to be examined. These include things the person feels or reports (symptoms) as well as things you notice on examining him (signs). These signs are important in babies and persons unable to talk.

Before touching a sick person, look at him carefully. Observe how ill or weak he/she looks. Whether the person looks well nourished or poorly nourished. Has he being losing weight. Every part of the body should be examined very carefully. The information gather will reflect the health status of the individual.

Skin

It is important to examine the skin of the sick person whole body, no matter, how mild the sickness is. Note the color of the skin and the eyes. These sometimes change when the person is sick. (Dark skin can hide color change. Look where the skin is pale, such as palm of the hands and soles of the feet, the finger nails, or inside of the lips and eyelids).

- Paleness, especially of the lips and inside of the eyelids, is the sign of anemia. Skin may also go lighter as result of tuberculosis, or kwashiorkor.
- Darkening of the skin may be sign of starvation.
- Bluish skin, especially blueness of the lips and fingernails, may mean serious problems with breathing or with the heart.
- A gray white color with cool moist skin often means that person is in shock.
- Yellow color (jaundice) of the skin and eyes may results from disease in the liver or gall bladder.
- Look also at the skin when a light is shining across it from one side. This can show the earliest sign of measles rash on the face of a feverish child.
- Look for any sores, wounds, rashes, spots or patches etc.
- Always examine the skin of children between the buttocks, in the genital area, between the fingers and the toes and behind the ears.

Temperature

If there is no thermometer one can get the idea of temperature by putting the back of one hand on the sick person forehead and other on your own. If the sick person has fever, you should feel the difference.

It is important to find out when and how fever comes, how long it last and how it goes away. This may help you to identify the disease. Not every fever is malaria.

For example:

- Common cold and other viral infections. The fever is usually mild.
- Typhoid causes a fever that goes on rising for 5 days.
- Tuberculosis sometimes causes a mild fever in the afternoon. At night, the person often sweats and the fever goes down.

Breathing

Count the number of breath per minute with the help of timer or simple watch (When the person is quiet). Between 12 to 20 breaths per minute is normal for adults and older children. Up to 30 for children and 40 for the babies.

People with high grade fever or serious respiratory illness breathe more quickly than normal.

Listen carefully to the sounds of the breath. For example:

- A whistle and difficulty in breathing out can mean asthma.
- A snoring noise and difficult breathing in a un conscious person may mean that tongue or mucus or something else is stuck in throat and it does not let air get through.

If the person has a cough, ask if keeps him from sleeping. Find out if he coughs up mucus, how much, its color and if there is blood in it. If there is any problem. The person should be referred to MO in BHU.

Pulse

To take the person pulse put your fingers on the wrist (do not use thumb)

Normal pulse for the people at rest:

Adults	60 to 80 per min
Children	80 to 100 per min
Babies	100 to 140 per min

The pulse gets faster with exercise and when a person is nervous or has fever.

If there is any change in the rate of pulse along with fever or any other problem, one must be referred to doctor.

Hair

- Look carefully for the hair luster (shine or dull), texture (thin or coarse), bulk (heavy or light), color (brown or dusky) etc.
- See for any infestation of lice, scabies, ringworm etc.
- See for the rash or sores on the scalp.
- Is there dandruff etc.

Eyes

Look for the color of white part of the eyes. Is it normal, red or yellow? Also note any change in the sick person vision.

Have the person slowly her eyes up or down and from side to side. Jerky or uneven movements may be sign of the brain damage.

Pay attention to the size of the pupils (the black window in the center of the eyes). If they are very large, it can mean state of shock. If they are very large or very small, it can mean poison or the effects of certain drugs.

Nails

Look in nails for

- Pallor - gets pale in anemia.
- Cyanosis – Bluish discoloration
- Spoon shaped- becomes thin, brittle and spoon shaped in iron deficiency.
- Blackish streaks under the nails commonly seen in manual workers.
- Pitting in the nails seen in skin disease, psoriasis.

White patches in the nails seen in normal individual and sometime also in condition hypo albuminemia. (one of the plasma proteins decreased)

Fingers

Look for any change in shape of fingers or any painful swelling in the finger tips. If there is any change, person must be referred to doctor.

Palm

- Pallor: color of palm get pale in anemia.
- Redness of palm: seen sometime in normal person and also in person with joint disease, pregnancy, females taking oral contraceptive pills.
- Sweating: Excessive sweating seen in persons with anxiety and thyroid gland problem.

Face

- Look for shape of the face.
- Any swelling around the eyes.
- Eyeball looks normal or eyes looks unusually prominent.
- Any rash over the cheeks.
- Swelling of the parotid due to mumps.

Tongue

- Look for the dryness seen in dehydration.

- Bluish color or pale color.
- Look for jaundice on undersurface of tongue
- Look for size of the tongue.

Abdomen

If there is any complain of pain look for the skin of the belly. Is there is any swelling on belly. Is belly button looks normal. Check for any rash, or pigmentation.

Muscles And Nerves

If the person complains of numbness, weakness or loss of control in part of his body. Notice the way he walks or moves. Have him stand, sit or lie straight and carefully compare both sides of his body. Look his face, compare both arms and the legs. If muscle loss or weakness affects the whole body, suspect malnutrition or chronic illness like tuberculosis. If weakness or muscle loss is uneven, in children, think first of polio. If there is any thing seems abnormal, person should be referred to BHU for complete check up.

Legs

Look for skin of the legs, any abnormal swelling in the groin area etc. Any prominent veins. Any wound or rash or skin pigmentation.

Feet

- Look for swelling of the feet. Any change in the shape of fingers etc.
- Any sign of infection between the toes like scabies.
- Condition of the heel.

Oral Health

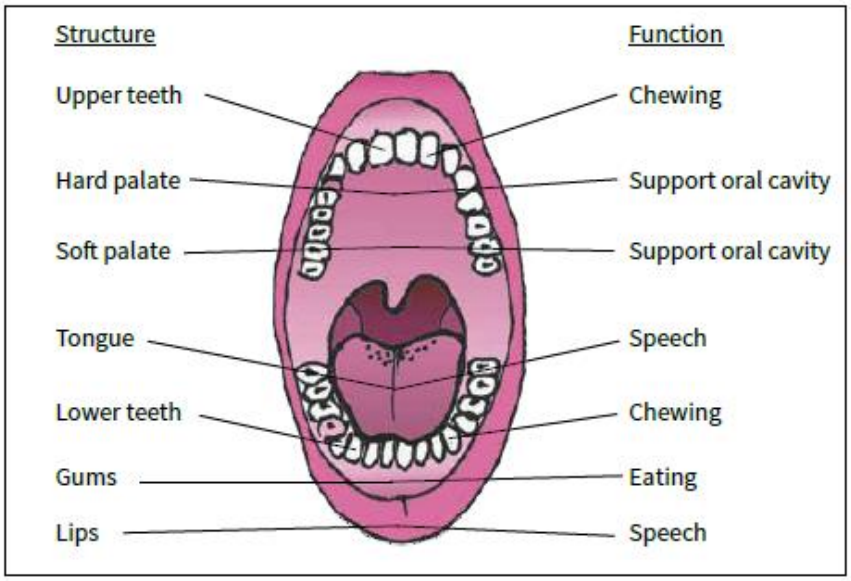
Oral hygiene in schools

Many school-going children suffer from oral diseases. This contributes to learners not attending school and receiving poor academic results. The rapidly growing burden of oral diseases are closely linked to unhealthy environments and to lifestyles that include diets rich in sugars, widespread use of tobacco and excessive consumption of alcohol. Most oral diseases are also dependent on clean water, adequate sanitation, proper oral hygiene and appropriate exposure to fluorides. Oral disease control and public health need to take integrated approaches to health promotion and disease prevention based on common risk factors. Programmes which include training of teachers and learners on health promotion and primary prevention of oral diseases are important and should include:

- Effective use of fluorides for prevention of dental caries: the goal is to implement appropriate means of maintaining a level of fluoride through fluoridated drinking water, salt, milk or affordable toothpaste
- Oral health and prevention of oral disease through a healthy diet, i.e. education and advocacy for reduced consumption of sugars and increased intake of fruits and vegetables
- Control of tobacco-related oral disease by involving oral health professionals in tobacco cessation and preventing children and youth from adopting the tobacco habit
- Oral health through health-promotion in schools
- Development of oral health systems and orientation of services towards prevention and health promotion
- Advocate for oral hygiene habits

Basic oral anatomy

Knowledge of the structures of the mouth, their locations, and naming is important in helping children maintain good oral health. Figure below shows major structures and organs in the mouth.



Common dental diseases

1) Tooth decay

Definition: Tooth Decay is the formation of holes or cavities on the tooth as a result of acid produced by the bacteria found in plaque.

2) Gum diseases

Definition: Gum disease refers to inflammation of the gums presenting with painful, reddish swelling and bleeding easily.

	Causes	Signs & Symptoms	Treatment
Tooth Decay	• High consumption of foods with high sugar content • NB: frequency is more important than the quantity of sugar (eg. eating one bar of chocolate once a day is not as harmful as eating smaller quantities more frequently) • Poor oral hygiene	• Tooth may change from white to dark or yellow colourpain/ sensitivity when chewing or drinking sweet, hot or cold fluids • Swelling due to dental abscess	• A dentist will restore teeth by using a filling or crown replacement. If the tooth is beyond repair it may be extracted.
Gum Diseases	• Accumulation of plaque and calculus around the gums caused by poor oral hygiene which attracts bacteria.	• Swollen reddish gums, bleeding easily • Gums may separate from teeth • Teeth become loose • Unpleasant smell in the mouth.	• Professional oral hygiene by scaling and root planing (cleaning between the gums and the teeth down to the roots) • Surgery • Mouth wash and antibiotics • The dentist may need to use a local anesthetic to numb the gums and the roots of the teeth

Prevention

Tooth Decay

- Reduce sugary food intake
- Eat more fruits
- Brush teeth twice a day using fluoridated tooth paste
- Visit the dentist at least twice a year for a routine dental checkup.

Gum Diseases

- Brush teeth thoroughly with a proper technique, toothpaste and toothbrush at least twice a day
- Rinse mouth thoroughly after every meal
- Floss teeth every day
- Brush tongue
- Visit the dentist at least twice a year for a dental check-up

Toothbrush

- Use a toothbrush with medium end-rounded bristles
- Choose the correct size in accordance to the size of your oral cavity
- Change toothbrush every 3 months or when the bristles are bent or after an infectious disease such as TB or strep throat has been diagnosed
- Use chewing stick if there is no toothbrush

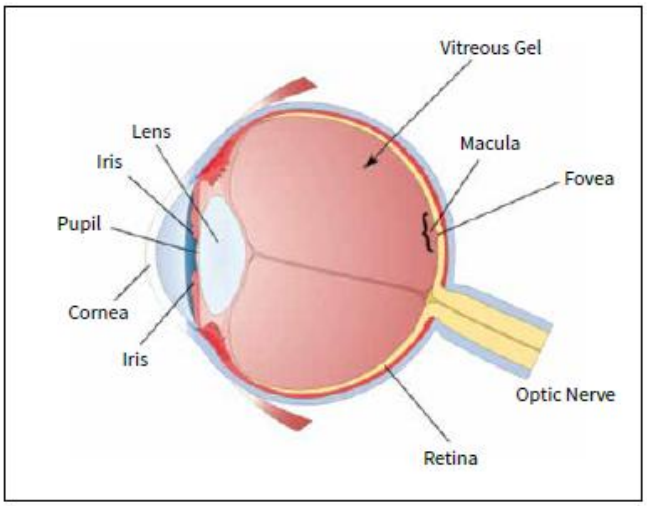
Toothpaste

- Use fluoridated tooth paste
- Brush all surfaces of the teeth (buccal, lingual, proximal and occlusal)
- Brush teeth systematically starting from one side of the jaw to the other and cover only a few teeth at a time. Brush top and bottom teeth with slow circular movements.
- Hold toothbrush at an angle of 45 degrees toward the gums
- Remember to brush the tongue
- Use clean water for rinsing
- Store tooth brush in an upright, covered position to keep germs away
- Do not leave toothbrush in the toilet
- Chewing sticks (Miswaak etc.) can be used when toothbrush and/or toothpaste is not available

Vision & Hearing

The human eye can be compared to a camera which gathers, focuses, and transmits light through a lens to create an image of the environment. In a camera, the image is created on film; in the eye, the image is created on the retina, a thin layer of light sensitive cells at the back of the eye. The lens of the eye refracts (or bends) light that enters the eye. The cornea, which is a clear, transparent covering in the front portion of the eye also contributes to focusing light on the retina. Nerve fibers extending back from the retina's nerve cells come together behind the retina to form the optic nerve, a "cable" of nerve fibers connecting the eye with the brain. The optic nerve transmits messages about what we see from the eye to the brain. Like a camera, the human eye controls the amount of light that enters the eye through the lens under various lighting conditions.

A basic anatomy of human eye is shown as follows:



Definition of visual impairment. Screening for visual impairment

Visual impairment is a term used to describe any kind of visual loss, whether the person cannot see at all or just has partial visual loss. In the case of young children or any person who cannot read letters, a tumbling "E" chart is used. The examiner asks the person to use their left or right hand to show in which direction the "fingers" of letter E on the chart are pointing: right, left, up or down.

The main tool used for vision screening in school is the Snellen chart. It has several rows of letters, the ones on top are largest, and the letters on bottom are the smallest. The child stands at 6 a meters distance from the chart covering one eye. The child is supposed to read from the top down to test what is the smallest row of letters the child can see on the chart.

- 6/6 vision (6/6/ visual acuity) is considered "normal" vision. If the child has 6/6 vision, this means that the child can read a letter at 6 meters that most human beings should be able to read at a distance of 6 meters.
- If the child can only read the big E on the top of the chart, her/his vision is considered 6/60. This means that the child can read a letter at 6m what a person with "normal" vision can read at 60m. In other words, the 6/60 visual acuity is very poor.

Figure: Snellen chart

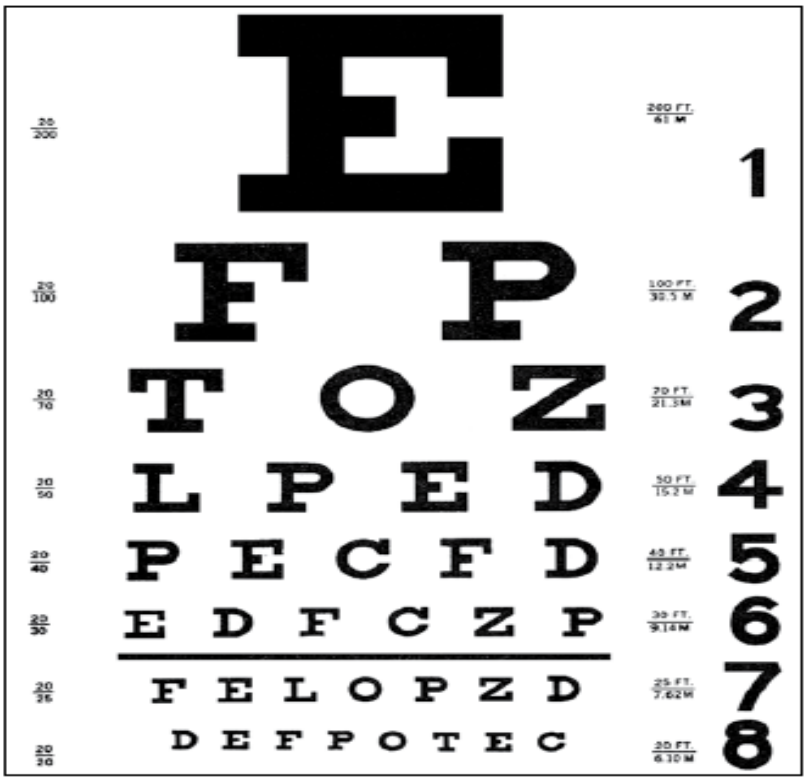
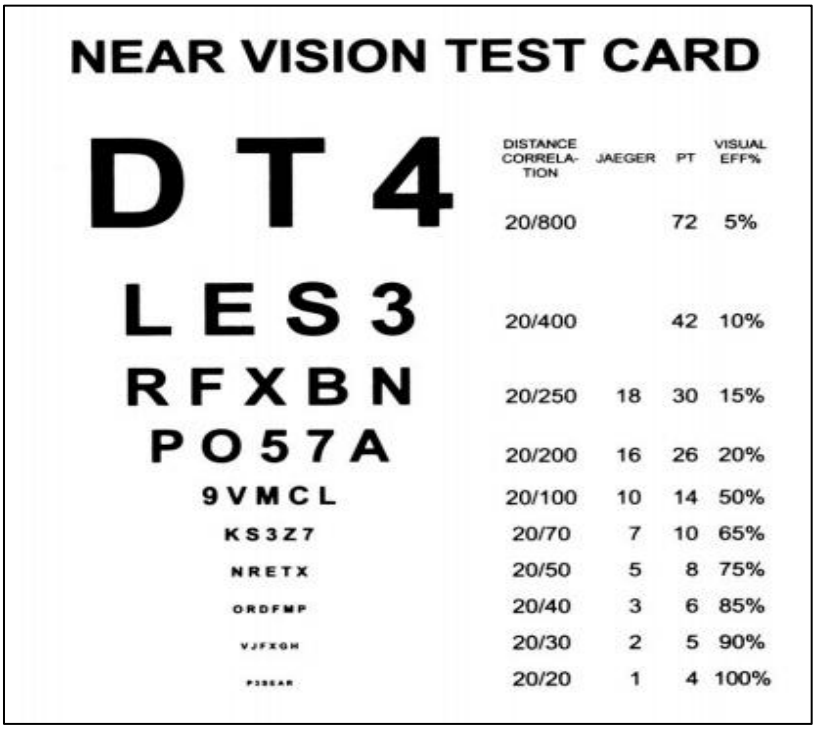


Figure: Near vision test card



Signs of visual impairments

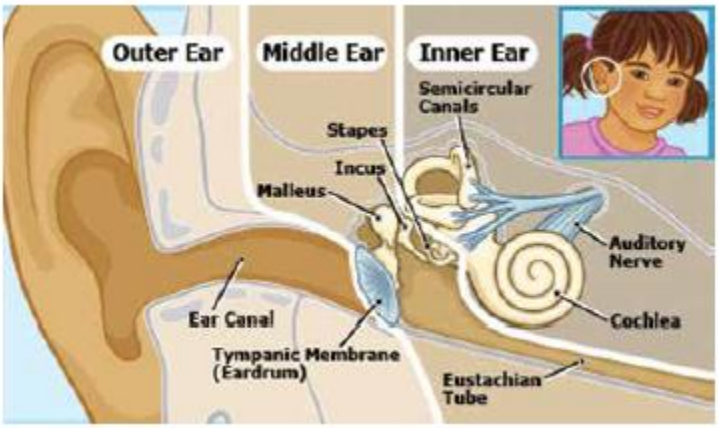
A child with poor vision may show or express the following:

- Closes or cover one eye
- Squints (narrow the eyes) or frowns when reading or copying from the board
- Has one eye that turns in or out, especially when tired
- Complains of double vision
- Avoids reading, writing or drawing, or has short attention span in reading writing drawing or copying
- Complaining that things are blurry or hard to see (e.g. can't see what is written on the board)
- Has trouble reading or doing other close-up work or hold objects close to eyes in order to see copies from a peer's book instead of the board
- Writes up or down hill on paper and/ or has excessively sloppy handwriting which becomes smaller, crowded or inconsistent in size

Hearing Screening - The Ear (Hearing Loss)

The ear comprises of three main parts i.e. the outer, middle and inner ear. Sound travels through the air (via vibration) and is caught by the outer ear. The sound then travels through the external meatus (ear canal) and hits the tympanic membrane (eardrum). The ear drum passes the vibrations on to the middle ear, which contains the three smallest bones in the body (malleus, incus and stapes). These little bones begin to move when the eardrum is pushing against them and pass on the vibrations further.

Through this movement, the sound is transferred to the inner ear. The inner ear (cochlea) has the shape of a snail. It is filled with fluid and contains many little nerve cells, called hair cells. When these hair cells are moved by the vibration, i.e. waves of the liquid, they send the sound message through the auditory nerve (cochlear nerve) to the brain, where it is processed so that we understand what was heard. A child with hearing impairment has damage to one or more parts of the ear (somewhere along the auditory pathway).



Types of hearing loss

There are three main types of hearing loss, namely:

- Conductive hearing loss - an interference in the transmission of sound to the inner ear. In other words, the breakdown in sound transmission occurs in the outer ear and/or middle ear. Infants and young children frequently develop conductive hearing loss due to ear infections. This loss is usually temporary and treatable with medicine or surgery.
- Sensorineural hearing loss - malformation, dysfunction, or damage of the inner ear (cochlea). The most common type is cochlear hearing loss which can be hereditary or arise as a result of medical problems before, during or after birth. Children with this type of hearing loss can often be helped with hearing aids, except in cases of profound deafness.
- Mixed hearing loss - when there is a combination of a conductive and sensorineural hearing loss. This means that the breakdown in sound transmission occurs in the outer and/or middle ear as well as the inner ear. These cases are managed by first treating the cause of the conductive hearing loss (e.g. ear infection) and then addressing the sensorineural hearing loss, if possible by fitting a hearing aid.

The severity of hearing loss

The measurement of hearing involves two parameters: the frequency or pitch of the sound (low vs high) and the intensity or loudness of the sound (soft vs loud). The device used to measure a person's responses to sound is called audiometer. The responses to the different sounds are marked on a graph called audiogram. An audiogram plots how soft a person can hear when the hearing levels are measured.

The numbers across the top indicate the frequencies (pitch). They are measured in Hertz (Hz). Although the range of hearing in the human ear is from 20Hz to 20 000Hz, the audiogram shows the frequencies that are essential for human speech, i.e. from 250Hz to 8000Hz. The numbers from the top to the bottom measure intensity. Intensity is measured in decibels (dB) and often ranges from -10dB to 110dB. As the number increases, the intensity or loudness of the sound increases at each individual frequency. Similarly, as the number decreases, the loudness of the sound decreases at each frequency.

In order to formally determine whether a hearing loss is present, hearing levels in both ears should be screened at 20dB at 500Hz, 1000Hz, 2000Hz and 4000Hz. A person who is able to hear at 20dB or softer in either ear, has normal hearing levels in both ears.

Immunization

Immunization is a process whereby a person is made immune or resistant to an infectious disease, by the administration of an antigen.

Importance of Immunization:

- Immunization builds and strengthens the body's immunity against diseases
- All vaccines used are WHO pre- qualified with no significant side effects, making them safe and effective
- Fully immunized children and women are protected from diseases and cannot infect others, saving time and money
- Immunization reduces and in some cases completely eliminates some diseases thereby protecting future generations.
- A fully immunized population is a healthy and productive nation.

Tuberculosis

Tuberculosis is a bacterial infection that is caused by Mycobacterium tuberculosis which usually attacks lungs but can also affect other parts of the body including the bone, joints, and brain.

TB transmission

TB is spread from one person to another through air droplets from an infected person. TB spreads rapidly especially where people are living in crowded conditions, have poor access to health care, and are malnourished. A variety of TB called Bovine tuberculosis is transmitted through drinking raw milk from infected cattle. People of all ages contract tuberculosis. But the risk of developing tuberculosis is highest among children younger than three years old and in older people. People with TB infection who have weakened immune system (for example people with HIV/ AIDS) are more likely to develop the disease.

Signs and symptoms of TB

The period from infection to development of the first symptom is usually for two twelve weeks, but the infection may persist for weeks even years, before the disease develops. The symptoms of TB include general weakness, weight loss, fever and night sweats. TB of the lungs called pulmonary tuberculosis, the symptoms include persistent cough, coughing up of blood and chest pain. In young children, however the only sign of pulmonary TB may be stunted growth or failure to thrive. Other signs and symptoms depend on the part of the body that is affected. For, example the tuberculosis of the bones and the joints there may be swelling, pain and crippling effects on the hips, knees, or spine.

TB prevention

Immunization of children with Bacilli Calmette Guerin vaccine (BCG) can protect against meningitis and other severe forms of TB in children less than five years old. BCG vaccine is not recommended after 12 months because the protection provided is variable and less certain.

Tetanus:

Tetanus is acquired through exposure to a gram-positive anaerobic spore forming bacterium called Clostridium tetani, which is universally present in the soil. The disease is caused by the action of the potent neurotoxin produced during the growth of the bacteria in dead tissue. e.g. in dirty wounds or in the umbilicus following non sterile delivery. People of all age can develop tetanus. But the disease is particularly common and serious in newborn babies. This is called Neonatal Tetanus. Most infants who get the disease die. Neonatal tetanus is more common in rural areas where most deliveries are at home without adequate sterile procedures.

Tetanus transmission

Tetanus is not transmitted from person to person. A person usually becomes infected with tetanus when dirt enters a wound or a cut. Tetanus germs are likely to grow in deep puncture wounds caused by dirty nails, knives, tools, wood splinters and animal bites. Women face an additional risk of infection if a contaminated tool is used during childbirth or during an abortion. A newborn baby may become infected if the knife, razor or other instrument used to cut its umbilical cord is dirty, if dirty material is used to dress the umbilical cord, or if the hands of the person dressing the cord are not clean. Infants and children may also contract tetanus when dirty instruments are used for circumcision, scarification, and skin piercing, and when dirt, charcoal or other unclean substances are rubbed into a wound.

Signs and symptoms of Tetanus

The time between getting infection and showing symptoms is usually between three and ten days. But it may be as long as ten weeks. In Children and adult's muscular stiffness of the jaw is usually the first sign of Tetanus. This symptom is followed by stiffness in the neck, difficulty in swallowing, stiffness in the stomach muscles, muscle spasms, sweating and fever. Newborn babies with Tetanus are normal at birth, but stop sucking between three and 28 days after birth. They stop feeding and their bodies become stiff while severe muscle spasms and contractions occur. Death follows in most cases.

Tetanus prevention

Immunizing infants and Children with DPT or DT prevents tetanus. A combination vaccine (Pentavalent) that includes vaccines for Diphtheria, Tetanus, Pertussis, Hepatitis b (hep), Hemophilus influenza type b (HIb). Neonatal tetanus can be prevented by immunizing women of child-bearing age with Tetanus toxoid, either during pregnancy or outside pregnancy. This protects the mother and enables tetanus antibodies to be transferred to her baby. A woman should receive five (5) doses of tetanus toxoid vaccine between 15 – 49 years of age. Clean practices (environment, hands and instruments) anywhere are especially important when a mother is delivering a baby, even if she has been immunized. People who recover from tetanus do not have natural immunity and can be infected again and therefore need to be immunized.

Pertussis: (Whooping Cough)

Pertussis or whooping cough is a disease of the respiratory tract caused by bacteria that live in the mouth, nose and throat. Many children who contract pertussis have coughing spells that last four to eight weeks. The disease is more dangerous in infants.

Pertussis transmission

Pertussis spreads easily from child to child in droplets caused by coughing or sneezing. Children exposed to the germs become infected. In most countries, the disease occurs in regular epidemic cycles of three to five years.

Signs and symptoms of pertussis

The incubation period is five to 10 days. At first the infected child appears to have a common cold with runny nose, watery eyes, sneezing, fever, and a mild cough. The cough gradually worsens, and involves many bursts of rapid coughing. At the end of these bursts the child takes in air with a high-pitched whoop. The child may turn blue because he or she does not get enough oxygen during a long burst of coughing. Vomiting and exhaustion usually follow the coughing attacks, which are particularly frequent at night. During recovery coughing becomes less intense. Children do not usually have a high fever during any stage of the illness.

Pertussis prevention

Prevention involves immunisation with pertussis vaccine, which is usually given in combination with diphtheria and tetanus (DPT). A combination of vaccine (Pentavalent) that includes vaccines for diphtheria, tetanus, pertussis, hepatitis B (hepB) and Hemophilus influenza type b (Hib).

Poliomyelitis:

Poliomyelitis or polio is a crippling disease caused by anyone of the three related viruses, polioviruses types 1, 2 or 3.

Polio transmission

The only way to spread polio is through the fecal/oral route. The virus enters the body through the mouth when people eat food or drink water that is contaminated with feaces. The virus then multiplies in the intestine, enters the blood stream, and may invade certain types of nerve cells, which it can damage or destroy. Polioviruses spread very easily in areas of poor hygiene. Children are most likely to spread the virus between 10 days before and ten days after they experience the first symptoms of disease. It is important to know that the great majority of the people who are infected do not have symptoms, but they can still spread the disease. The incubation period is 6 to 20 days.

Signs and symptoms of Polio

Most of the children infected by poliovirus never feel ill. Less than 5% of the infected may have general flue like symptoms such as fever, loose stools, sore throat, upset stomach, headache and stomach ache. Paralytic polio begins with mild symptoms and fever. These symptoms are followed by severe muscle

pain and paralysis, which usually develops during the first week of the illness. Patients may lose the use of one or both arms or legs. Some patients may not be able to breathe because respiratory muscles are paralyzed. A diagnosis of polio is confirmed by laboratory testing of stool specimens.

Polio prevention

Polio can be prevented with Oral Polio Vaccine (OPV) or inactivated polio vaccine.

Measles:

Measles is a highly infectious disease caused by a virus. Measles kills more children than any other vaccine preventable disease. Because the disease is so infectious, it tends to occur as epidemics, which may cause many deaths especially among malnourished children.

Measles transmission

Measles is spread through contact with nose and throat secretions of infected people and airborne droplets released when an infected person sneezes or coughs. A person with measles can infect others for several days before and after he develops the symptoms. The disease spreads easily where infants and children gather, for example the health centers and schools.

Signs and Symptoms of Measles

The first sign is a high fever, which begins approximately 10 to 12 days after exposure and lasts several days. During this period, a patient may develop a runny nose, a cough, red and watery eyes, and small white sports inside his or her cheeks. After several days, a slightly raised rash develops, usually of the face and upper neck. Over a period of about three days, the rash spreads to the body and then to the hands and feet. It lasts for six days and then fades. The incubation period from exposure to the onset of the rash averages 14 days, with a range of 7 to 18 days.

Measles prevention

Measles can be prevented though immunization at the age of 9 months.

Hepatitis B

Hepatitis B is caused by a virus that affects the liver. Most infants affected at birth become chronic carriers, that is, they carry the virus for many years and can spread the infection to others.

Hepatitis transmission

The Hepatitis B virus is carried in the blood and other fluids. It is usually spread by contact with the blood in the following ways:

- Through unsafe injection or needle stick. Unsterilized needles and Syringes can contain hepatitis B virus from an infected person, for example from a patient or a needle user.
- Transmission of the virus from the mothers to their babies during the birth process when contact with blood always occurs. (Vertical)
- Transmission between children during social contact through cuts, scrapes bites, and scratches. (Horizontal)
- Transmission during sexual intercourse through contact with blood and other body
- fluids.

Signs and symptoms of Hepatitis B

The incubation period averages six weeks but can be as long as six months. Infection in young children is usually asymptomatic. However, a large proportion of children may become chronic carriers compared to adults. Symptoms are associated with weakness, stomach upsets and other flu–like symptoms. They may also have very dark urine and pale stools. Jaundice is common (Yellow skin and yellow color in the whites of the eyes) the symptoms may last several weeks or months. A laboratory test is required for confirmation. Many children become chronic carriers.

Hepatitis B prevention

It is recommended that all infants receive three doses of hepatitis B vaccine during their first year of life. A combination vaccine (Pentavalent) which includes vaccines for diphtheria, pertussis, hepatitis B (hep B) and Hemophilus influenza type B (Hib) is provided at 6, 10 and 14 weeks. A birth dose of hep B is given at birth within 24 hours; however, babies who are reporting after 24 hours up to 14 days can still be vaccinated. It would therefore be most feasible to deliver this vaccine dose just after birth to all infants who are born in health facilities as part of the other routine treatments for the new – borne. Optimum efficacy in preventing the peri – natal HBV infection is achieved when the Hep B. vaccine is given within 24 hours after birth.

Hemophilus influenza type b (Hib)

Hemophilus influenza type B (Hib) is one of the six related types of bacterium (a, b, c, d, e, f) that cause illness but type B is responsible for 90% of the serious infections, which include bacteria meningitis and pneumonia. Other Hib infections include epiglottis, septicemia, septic arthritis, osteomyelitis, cellulites and pericarditis.

Hib transmission

The Hib bacterium is commonly present in the nose and throat. Bacteria are transmitted from person to person in droplets through sneezing and coughing. Infected children may carry Hib bacteria without showing any signs and symptoms of illness, but they can still infect others. The risk of disease is highest for children between six months and two years of age. Hib disease should be suspected in the case of any child with signs and symptoms of meningitis or pneumonia.

Signs and symptoms of Hib

Pneumonia and Meningitis are the most important diseases caused by Hib bacteria. In developing countries, pneumonia is more common than meningitis in children with Hib disease. Hib disease should be suspected in any case of any child with signs and symptoms of meningitis or pneumonia.

Hib disease prevention

Several Hib conjugate vaccines are available. All are effective when given in early infancy and have virtually no side effects except occasional temporary redness and swelling at the injection site. It is given at 6, 10 and 14 weeks as a combination vaccine (Pentavalent) DPThep B and Hib

Pneumococcal Disease

Pneumococcal, also called Streptococcus pneumoniae, is a bacterium that is commonly found in the nose and throat of healthy people without causing disease. But it can spread in the body to the different organs to cause a variety of diseases, one of which is pneumonia. It is the leading cause of bacterial pneumonia.

Diseases caused by pneumococcus

There are 2 kinds of pneumococcal disease:

a) The more serious invasive pneumococcal disease (IPD) is due to infection of a normally sterile site and causes significant morbidity and mortality. IPD includes:

- Pneumonia (bacteraemic)
- Meningitis
- Febrile bacteraemia
- Arthritis
- Peritonitis
- Osteomyelitis

b) The more common pneumonia - by direct spread from the nasopharynx. Less serious, but more common pneumococcal disease includes:

- Otitis media (middle ear infection)
- Sinusitis
- Bronchitis

How common is pneumococcal disease

Of the syndromes caused by pneumococcal disease, the following two are the most prevalent - pneumonia and meningitis:

Pneumonia is a very important health problem in children causing about 15-20% of deaths among young children. Pneumonia kills more children than any other illness - more than AIDS, Malaria and measles combined.

Meningitis among children can lead to death in 10 to 45% of children and to life-long disability - hearing loss, learning disabilities, and other physical disabilities - in 15-20% children who survive

Most at risk of pneumococcal disease

- Children under five years of age, and especially those under two years of age, are the most at risk of developing and dying from pneumococcal disease.
- Older people over age 65 years
- Other factors that place individuals at higher risk include HIV infection, sickle cell disease, chronic renal disease, and for infants, lack of breast-feeding and indoor smoke exposure.

Pneumococcal disease transmission

The noses and throats of up to 70% of healthy people contain pneumococcus at any given time. It is spread from person to person through bacteria from respiratory droplets – by coughing, sneezing or close contact.

Expanded Programme on Immunization Schedule:

Age for Vaccination	Name of Vaccine
At Birth	BCG
	OPV-0
	Hepatitis-B
At 6 Weeks of Age	OPV-1
	Penta-1
	PCV-10-1
	Rota-1
At 10 Weeks of Age	OPV-2
	Penta-2
	Pcv-10-2
	Rota-2
At 14 Weeks of Age	OPV-3
	Penta-3
	PCV-10-3
	IPV
At 9 Months	Measles 1
At 15 Months	Measles 2
At 4-5 Years of age	DPT Booster

Common Infections & Illnesses

Viral Hepatitis

Acute viral Hepatitis is characterized by inflammation and necrosis of liver. Viruses are major causes of acute infected Hepatitis; it may be due to infection with hepatitis A, B and C viruses.

Signs and Symptoms

- Anorexia
- Nausea
- Jaundice
- Fever
- Pain at the upper side of abdomen

a. Hepatitis A

Hepatitis 'A' Virus most commonly gives rise to a symptomatic infection major route is faeco-oral.

Risk Factors

- Travel to endemic area
- House hold contact with HAV infection.
- Child of age 3 to 10 years in house hold.

Prevention

- Improving sanitation.
- Improving standard of basic hygiene.
- HAV vaccine is in a single dose.

b. Hepatitis B

HBV may cause fulminate hepatic failure and leads to cirrhosis.

Transmission

HBV is present in infected individual in high concentration in blood in serum and serous exudates, semen, vaginal fluid and saliva parental, and sexual exposure is main route of transmission.

Prevention

- Vaccination for Hepatitis B virus.
- Screening for blood donor.
- Use of properly sterilize needles.

c. Hepatitis C

Hepatitis C virus infection like HBV carries risk for progressive liver disease.

Transmission

Parental transmission is the most common mode of transmission, it is increase in persons expose to multiple blood transfusion or repeated infusion of pooled products. Vertical transmission occurs in born delivered to HCV positive mother.

Snake Bite

The world health organization (WHO) estimates that as many as 30,00,000 snakes bites occur throughout the world each year, causing perhaps 30,000 to 40,000 deaths. The largest number of fatal snake bites occur in South East Asia (about 25,000).

Pakistan being an agricultural country where about 70% populations live in rural areas. Majority of them are farm workers, they water their lands bare footed and in darkness of nights without even the cheapest source of light. The snake bite is most acute public health problem. According to survey Pakistan is seventh in the list of countries with mortality due to snake bites.

The peak incidence is during the months of June to August.

Symptoms:

These may vary from variety of snakes for example:

- Vomiting
- Giddiness
- Muscular weakness
- Drowsiness
- Respiration is difficult, patient may complain of a sensation of weight on the chest.
- Temperature is normal or below normal.
- Violent abdominal pain.
- Death usually occurs within 15 hours after the onset of systemic symptoms; patients surviving longer generally recover.
- Nervous system may involve sometime, but permanent neurological sequels do not occur.

Local:

Severe local pain, edema spreading from the bite. Necrosis may occur locally. Sometime pain start in bite after the hour or so. Sometime fluid filled blisters found locally. Always check for the fang marks of snake. This will tell whether the snake is poisonous or not. Poisonous snakes always leave marks of the 2 fangs and sometime little marks by the other teeth.

Prevention:

- Half of the snake bites are below the knee, so wearing of high boots is valuable preventive measure.
- Lantern or torches should be used when walking or watering the fields at night in snake infested areas.
- People especially children are advised not to put their hands into hollow logs or animal burrows.
- The residential area must be keep clean and surveyed for holes, or other likely places where snakes can hide, all the burrows holes should be kept closed.
- When troops (Military, Scouts etc) are residing in an area where snakes are numerous, they should be advised to examine their boots, beddings and sleeping bags for the presence of any snake the might have sought refuge in them. A tent can be protected by the trench with vertical sides. a mosquito net gives considerable protection.
- In snake area arrangements should be made to have an adequate supply of antivenom in convenient centers with the necessary apparatus for administration.
- Mass public education in First Aid management can greatly reduce the morbidity and mortality.
- Immunization against snake venom: now a day's active research is going on in many countries including Pakistan to make a vaccine against snake venom which may be marketed when available.

Treatment:

- Stay quiet; do not move the bitten part. The more it is moved, the faster the poison will spread throughout the body. If the bite is on the foot, the person should not walk at all. Send for the medical help.
- Wrap the bitten area with wide elastic bandage or clean cloth to slow the spread of poison. Keeping the arm and leg very still, wrap it tightly, but not so tight it stops the pulse at the wrist or on the top of the foot. If you cannot feel the pulse, loosen the bandage a little.
- Wind the bandage over the hand or the foot and up the whole arm or leg. Make sure you can still feel the pulse.
- Then put the splint to prevent the limb from moving.
- Carry the person, on a stretcher if possible, to the nearest health centre. If you can, take the snake, because different snakes require different anti venom. If the anti venom is needed, leave the bandage on until the injection is ready, and take all precautions for allergic shock. If there is no anti venom remove the bandage.
- Give acetaminophen for pain, not aspirin. Give tetanus, vaccine. If the bite gets infected than give penicillin.
- Also, ice helps to reduce pain and slow the poisons. Wrap the arm or leg with plastic sheet and a thick cloth. Then pack crushed ice around it. (Too much cold can damage the skin and flesh. If it gets so cold it aches, let the person decide when to remove the ice for a few minute).

Dog Bite

A very fatal, rapidly developing viral infection occur in a suspected person through a wound caused by a rabid or "mad" dog. This condition is known as Rabies.

It begins with a sense of apprehension or headache, fever or malaise associated with irritability. a condition called "hydrophobia" meaning fear of water is derived from the fact that swallowing is very difficult and produces severe contraction in neck muscles, resulting in reflex contraction when person sees water. Fits can occur and death can occur due to respiratory failure. Duration from the onset of disease to death is 2 to 6 days. Fatality is 100% unless anti rabies vaccine is given to patient.

Signs of Rabies:

In Animals:

- Acts strangely- sometime sad, restless or irritable.
- Foaming at the mouth, cannot eat or drink.
- Sometimes the animal goes wild (mad) and may bite anyone or anything nearby.
- The animal dies within 5 to 7 days.

In People:

- Pain and tingling in the area of the bite.
- Irregular breathing, as if the person has just crying.
- Pain and difficulty in swallowing. A lot of thick, sticky saliva.
- The person is alert, but very nervous and excitable. Fits of anger may occur.
- As death nears, fits (convulsions) and paralysis.

If you have reason to believe an animal that has bitten someone has rabies:

- Tie or cage the animal for a week.
- Clean the bite well with soap, water and hydrogen peroxide. Do not close the wound; leave it open.
- If the animal die before the week is up (or if was killed or cannot be caught, take the bitten person at once to the health centre where he can be given a series of anti-rabies injections.

The first symptoms of rabies appear from 10 days up to 2 years after the bite. (Usually within 3 to 7 weeks). Treatment must begin before the first signs of the sickness appear. Once the sickness begins, no treatment known to medical sciences can save the person's life.

Prevention:

- Kill and bury (or cage for one week) any animal suspected of having rabies.
- Cooperate with programs to vaccinate dogs.
- Keep children far away from any animal that seems sick or acts strangely.

Malaria

Malaria is very ancient disease which has adversely affected the progress of the nation and has been a decisive factor in many wars. Malaria has been responsible for a high morbidity directly or indirectly. It makes the patient invalid and weak and said persons die from other causes, thus shortening the life expectancy. Malaria kills about 1% but it is a major cause of infant mortality where it is endemic.

How malaria is spread?

Malaria is a life threatening disease which can be caused by transfer of Plasmodium from a specific female mosquito. It is the infection of the blood that causes chills and high fever. Mosquito sucks up the blood of an infected person and injects them into the next person it bites.

Common symptoms of Malaria

Fever with shivering, weakness, sweating, headache, nausea or vomiting.

The typical attack has 3 stages:

1- It begins with chills- and often headache. The person shivers or shakes for 15 minute to an hour.
2- Chills are followed by fever, often 40 C or more. The person is weak, flushed (red skin), and at time delirious (not in his right mind). The fever lasts several hours or days.
3- Finally, the person begins to sweat, and his temperature goes down. After an attack the person feels weak but may also feel more or less OK.

Analysis and treatment

- If you suspect malaria or have repeated fevers, blood test should be done to confirm it. In areas where an especially dangerous type of malaria called falciparum occurs, treatment must be started immediately.
- In area where malaria is common, treat any unexplained fever as malaria. Take the malaria medicine known to be very effective.
- If the person diagnosed as case of malaria, suddenly have fits or other signs of meningitis, one must be taken to the hospital very urgently.

Diagnosis and Treatment

Where Malaria appears as epidemic, take the patient specially children and pregnant women to doctor as soon as symptoms appear, get the blood test done microscopically and do proper treatment.

Pregnant women and children under 5 years can easily be the victim of Malaria. If it is timely not diagnosed and proper treatment is not provided it can be turn out in complicated Malaria and could cause death.

Symptoms of complicated Malaria

Fits, oliguria or anuria, unconsciousness, dysponea. Take patient immediately to medical centre when the above mentioned symptoms appear.

Precautions

- Use mosquito mat/coil at night. Cover the baby cradle with a mosquito netting or a thin cloth.
- Spray medicine in the corners of house
- Use medicated net while sleeping
- Put wired net on the windows
- Properly cover drums/utensils filled with clean water
- Fill up water ponds with soil or spray used Mobil oil
- Apply lotion on uncovered parts of the body
- Avoid stagnant water in your area. Destroy mosquito and their young by using little oil on pools or marshes where mosquito breed. Fill the top of bamboo posts with sand.

Malaria is dangerous but a curable disease. If someone feels that he is suffering from Malaria, he should get free blood test from nearby health centre. In case of malaria, get timely free treatment. If any patient is not recovering even after 48 hours of doctor's treatment, he should be immediately referred to the District Hospital.

Timely diagnosis and complete treatment is necessary to be saved from malaria

Dengue (Breakbone Fever)

Dengue is an infection which is due to a specific virus. It is being spread by the bite of a specific female mosquito (Aedes Aegypti) Mosquito takes this virus during blood sucking of an infected person and transfer it to a healthy person.

Initial symptoms of Dengue

- High temperature and severe pain in body
- Appearance of red spots and itching on skin
- Bleeding from nose and gums
- Severe pain behind the eyes and drowsiness
- In our part of the world, a severe form of dengue may cause bleeding into the skin (small dark spots) or dangerous bleeding inside the body.

Precautions for Dengue Virus

- Use mosquito mat/coil at night
- Spray medicine in the corners of house
- Use medicated net while sleeping
- Put wired net on the windows
- Properly cover drums/utensils filled with clean water
- Fill up water ponds with soil or spray used Mobil oil

- Apply lotion on uncovered parts of the body
- Avoid stagnant water in your area
- During fogging keep the doors and windows open as the mosquitoes inside the house could be killed.

Treatment:

- No medicine cures it, but the illness goes away by itself in few days.
- Rest, lots of liquid, acetoaminophen (paracetamol) should be taken for pain and the fever, not aspirin.
- In case of severe bleeding rush to the hospital, otherwise patient will go in shock.

Crimean-Congo Hemorrhagic Fever (CCHF)

This is caused by infection with a tick-borne virus *(Nairovirus)*. The disease was first characterized in the Crimea in 1944 and given the name Crimean hemorrhagic fever. It was then later recognized in 1969 as the cause of illness in the Congo, thus resulting in the current name of the disease.

Signs and Symptoms

The onset of CCHF is sudden, with initial signs and symptoms including headache, high fever, back pain, joint pain, stomach pain, and vomiting. Red eyes, a flushed face, a red throat, and petechiae (red spots) on the palate are common. Symptoms may also include jaundice, and in severe cases, changes in mood and sensory perception.

As the illness progresses, large areas of severe bruising, severe nosebleeds, and uncontrolled bleeding at injection sites can be seen, beginning on about the fourth day of illness and lasting for about two weeks. In documented outbreaks of CCHF, fatality rates in hospitalized patients have ranged from 9% to as high as 50%.

Risk of Exposure

Animal herders, livestock workers, and slaughterhouse workers in endemic areas are at risk of CCHF. Healthcare workers in endemic areas are at risk of infection through unprotected contact with infectious blood and body fluids. Individuals and international travelers with contact to livestock in endemic regions may also be exposed.

Treatment

Treatment for CCHF is primarily supportive. Care should include careful attention to fluid balance and correction of electrolyte abnormalities, oxygenation and hemodynamic support, and appropriate treatment of secondary infections

Prevention

Agricultural workers and others working with animals should use insect repellent on exposed skin and clothing. Insect repellants containing DEET (N, N-diethyl-m-toluamide) are the most effective in warding off ticks. Wearing gloves and other protective clothing is recommended. Individuals should also avoid contact with the blood and body fluids of livestock or humans who show symptoms of infection. It is important for healthcare workers to use proper infection control precautions to prevent occupational exposure.

Anemia

A disease in which the blood gets thin for lack of red blood cells.

Causes

- Lack of iron, vitamin B 12 and folic acid
- Blood loss
- Anemia appears in a person when blood is lost or destroyed faster than the body can replace it.
- Blood loss from large wounds, bleeding ulcers or dysentery can cause anemia. So, can malaria, which destroys red blood cells. Not eating enough food rich in iron can cause anemia or make it worse.
- In children hook worm infections and chronic gut infections cause anemia.

Age Group

Women of reproductive age group and pregnant ladies:

Women can become anemic from blood loss during monthly bleeding (menstrual periods) and during child birth if they do not eat the foods their bodies need. Pregnant ladies are at risk of becoming anemic due because they make extra blood for their growing babies.

In children anemia comes from not eating foods rich in iron. It can also come from not starting to give some foods in addition to breast milk, after the baby is 6 months old. Commonly causes of severe anemia in children are hooked worm infection, chronic diarrhea and dysentery.

Signs

- Pale or transparent skin
- Pale insides of eyelids
- Pale gums
- White finger nails
- Weakness and fatigue
- If the anemia is very severe, face and feet may be swollen, the heart beat rapid and person may have shortness of breath.

- Children and women who eat dirt most likely to become anemic.

Treatment and Prevention

Eat foods rich in iron Meat; fish and chicken are high in iron. Liver is especially high in iron. Dark green leafy vegetables, beans, peas and lentils also have some iron.

To help the body to absorb more iron, eat raw vegetables and fruits with meals and avoid drinking coffee and tea with food.

- If the anemia is moderate or severe, the person should take iron (ferrous sulfate pills). This is especially important for pregnant women who are anemic. For nearly all cases of anemia ferrous sulfate tablets are much better than liver extracts or vitamin B12. If possible iron pills should be supplemented with vitamin C and folic acid tablets.
- If the anemia is caused by dysentery (diarrhea with blood), hook worm, malaria or any other disease, this should be treated.
- If the anemia is severe or does not get better, lady should be referred to MO in BHU.

Special care should be taken for pregnant ladies. Many women are anemic. Many women run a greater risk of miscarriage and of dangerous bleeding during child birth. It is very important for the women to eat as much of the foods high in iron as possible, especially during pregnancy. Allowing 2 to 3 years between pregnancies lets the woman gain strength and make new blood. Treat the cause of anemia and do not go bare foot if hook worm is common

Worm Infestation

Worm Infestation is the invasion of gut by the parasitic worms. It is the state of having a parasite in or on the body which includes arthropods or animal parasites.

There are many types of worms that live in intestine and cause diseases. Those worms which are larger can easily be seen in stool.

Commonly found parasites are:

2. Round worm
3. Pin worm
4. Whip worm
5. Hook worm
6. Tape worm

7. The commonly seen in the stools are round worm, pin worm and tape worms. Hook worm and whip worms may be present in the gut in large numbers without ever being seen in stool.

Round Worm:

- 20 to 30 cm
- pink or white color

Transmission:

Feces to mouth: though lack of cleanliness, the round worms' eggs pass from one person's stool to another's person mouth.

Effects on health:

- Itching all over the body.
- Dry cough
- If worse cause pneumonia with coughing of blood.
- Round worm in intestine cause discomfort, indigestion and weakness. Children with round worms often have very large, swollen bellies.
- Round worms may cause asthma, blockage in the gut. Especially when the child has a fever, the worms sometimes comes out in the stools or crawl out through the mouth or nose.
- Occasionally they cause gagging when crawl into airway.
- Prevention:
  - Use latrines
  - Wash hands before eating or handling food
  - Protect food from flies
  - Follow the guidelines of cleanliness

Pin Worm, Thread Worm

- 1 cm long
- White
- Very thin and thread like

How they are spread:

These worms lay thousands of eggs just outside of anus. This causes itching especially at night. When child scratches the eggs stick under his nails and are carried to food. In this way, it spread.

Effect on health:

These worms are not dangerous. Itching may disturb the child sleep.

Prevention:

- A child who has pin worms should wear tight diapers and pants while sleeping to keep him from scratching his anus.

- Wash the child hands and buttocks (anus) when he wakes up and after he has bowl movement. Always wash his hands before he eats.
- Cut his finger nails very short.
- Change his clothes and bathe him often- wash the buttocks and nails especially well.
- Put Vaseline in and around his anus at bed time to help him stop itching.
- Cleanliness is the best way to prevent for thread worms. Even if medicine gets rid of worms, they will be picked up again if care is not taken with personal hygiene. Pin worms only live for about 6 weeks.

By carefully following the guidelines of cleanliness, most of the worms will be gone within a few weeks, even without medicine.

Whip Worm

- 3-5 cm long
- Pink or gray

How they are spread:

This worm, like the round worm, is passed from the feces of one person to the mouth of another person. Usually this worm does little harm, but it may cause diarrhea. In children, it occasionally causes part of the intestines to come out of the anus (prolapsed of the rectum).

Prevention:

Same as for round worm.

Hook Worm

- 1 cm long
- Red
- Hook worms cannot usually be seen in the feces. A stool analysis is needed to prove that they are there.

How they are spread:

- The baby hookworms enter a person's bare feet. This causes itching.
- In the few days, they reach the lungs through the blood stream. This may cause dry cough. (rarely with blood)
- The person than coughs up the young worms and swallows them.
- A few days later the person may have diarrhea or stomach ache.
- The hook worm attaches themselves to the walls of the gut. Many worms can cause weakness and severe anemia.
- The hook worm eggs leave the body in the person's stool. The eggs hatch on moist soil.

- Hook worm infection can be one of the damaging diseases of childhood. Any child who is anemic, very pale or eats dirt may have hookworms. If possible, his stools should be analyzed.

Prevention:

- Build and use latrines.
- Do not let children go barefoot.

Tape Worm

In the intestines, tape worm grow several meters long. But the small, flat, white pieces found in the feces are usually about 1 cm long. Occasionally a segment may crawl out by itself and be found in the underclothing.

People get tape worm from eating beef (cow meat) or other meat or fish that is not well cooked.

Effect on the health:

Tape worms in the intestine sometimes cause mild stomach aches, but few other problems.

The greatest danger exists when the cyst (the small sac containing baby worms) get into the person's brain. This happen when the eggs pass from his stools to his mouth. A person has headache, fits or death.

How they are spread

- The worm eggs form cysts in the meat.
- When the person eats poorly cooked meat, the cyst becomes tape worms in the intestine.
- Eggs that enter the person's mouth from his feces, though lack of cleanliness can form cyst in his brain.
- The pig eats the eggs in man's stool. This is how it spreads.

Prevention:

Be careful that all meat must be cooked very carefully.

Anyone with tapeworms must follow the guidelines of cleanliness carefully and get treatment as soon as it is possible.

Trichinosis

These worms are never seen in the stool. They burrow through the person's intestine and get into her muscles. People get these worms from eating infected meat that is poorly cooked.

Effect on the health: Symptoms depends on the quantity the person eats.

Person may develop diarrhea and feel sick to her stomach.

In serious cases:

- Fever with chills
- Muscle pain
- Swelling around the eyes, sometime around the feet
- Small bruises (blue or black spots) on the skin
- Bleeding in the whites of the eyes

Prevention:

Only eat properly cooked meat.

Common Sexually Transmitted Infections

These include the infections which are spread by the sexual contact; Gonorrhea, Syphilis, Chlamydia and Bubos, Hepatitis B (discussed earlier), HIV/AIDS and some sexually transmitted disease that cause sores on the genitals (genital herpes, genital warts and chancroid).

Gonorrhea and Chlamydia

These diseases are usually spread by the sexual contact and have the same early signs. Often the person has both gonorrhea and Chlamydia at the same time so usually both diseases should be treated.

SIGNS

In man:

- Pain and difficulty with urination
- Drops of pus from the penis
- Sometimes there is painful swelling of the testis.

After weeks or months:

- Painful swelling in one or both knees, ankles or wrists or many other problems
- Rash and sores all over the body
- He may become sterile

In women:

- At first there is no symptoms
  - (She may have little pain on urination or have a slight vaginal discharge.
- If a pregnant woman with gonorrhea is not treated before giving birth, the infection can go into the baby eyes and can make him blind.

After weeks or months:

- Pain in the lower belly (pelvic inflammatory disease)
- Menstrual problems
- She may become sterile
- Urinary problems

In a man, the first sign begins 2 to 5 days (or up to 3 weeks or more) after the sexual contact with an infected person. In a woman, signs may not show up for weeks or months. But a person who does not show any sign can give the disease to someone else, starting a few days after becoming infected.

Treatment:

- If the women have gonorrhea or Chlamydia and also has fever and pain in the lower belly, she is having pelvic inflammatory disease. So, must be treated after seeking medical advice.

- Everyone who has had sexual relationship with a person known to have gonorrhea or Chlamydia should also be treated, especially wives of men who are infected. Even if the wife shows no signs, she is probably infected. If she is not treated at the same time, she will give the disease back to her husband.
- Protect the eyes of the newborn babies from these diseases as they cause blindness.

Syphilis

Syphilis is common and dangerous disease that is spread from person to person through sexual contact.

Signs

- The first sign is usually a sore, called as chancre. It appears 2- 5 weeks after sexual contact with a person who has syphilis. The chancre may look like a pimple, a blister or an open sore. It usually appears in the genital area of the man or women (or less commonly on the lips, fingers, anus or mouth). This sore is full of germs, which are passed to another person. The sore is usually painless and if it is inside the vagina, the women may not know she has it-but she can easily infect another person.
- The sore only lasts a few days and then goes away by itself without treatment. But the disease continues spreading through the body.
- Weeks or months later there may be sore throat, mild fever, mouth sores or swollen joints. Or anyone of these signs may appear on the skin; a painful rash or pimples all over the body, ring shaped welts, an itchy rash over the hands or feet.

All of these signs go away by themselves and then the person often thinks he is well- but the disease continues.

Without adequate treatment, syphilis can invade any part of the body, causing heart disease, paralysis, insanity and many other problems.

CAUTION: If any strange rash or skin condition shows up days or weeks after the pimples or sores appear on the genitals, it may be syphilis. Get the medical advice.

BUBOS: BURSTING Lymph nodes in the Groin (Lymphogranuloma Venerum)

Signs:

In man: Large, dark lumps in the groin that open to drain pus, scar up and open again.

In woman: Lymph nodes similar to those in the man or painful oozing sores in the anus.

How to Prevent Spreading Sexually Transmitted Infections

- Remain to your life partner. Someone who does not remain to the life partner is more likely to catch these diseases. Prostitutes are especially dangerous. (Use of condoms helps prevent sexually transmitted infections, but does not assure complete protection).

- Get treatment right away: it is very important that all persons infected with sexually transmitted infections get treatment at once so that they do not infect other persons. Do not have sexual relationship after treatment at least for 3 days. (this is not true for AIDS)
- Tell other people if they need treatment: When a person finds out that he or she has STI, they must disclose it to life partners to avoid infections. Without telling woman she can pass this infection to her baby and the baby may get blindness or she can become very ill.
- Help others: insist that friends who may have sexually transmitted infections get treatment at once, and that they avoid all sexual contacts until they are cured.

HIV/AIDS

HIV is a virus spread through certain body fluids that attacks the body's immune system, specifically the CD4 cells, often called T cells. Over time, HIV can destroy so many of these cells that the body can't fight off infections and disease. These special cells help the immune system fight off infections. Untreated, HIV reduces the number of CD4 cells (T cells) in the body. This damage to the immune system makes it harder and harder for the body to fight off infections and some other diseases. Opportunistic infections or cancers take advantage of a very weak immune system and signal that the person has AIDS

Transmission

HIV is spread primarily by unprotected sex (including anal and oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding. Some bodily fluids, such as saliva and tears, do not transmit HIV

Prevention

Today, more tools than ever are available to prevent HIV. In addition to abstinence, limiting your number of sexual partners, never sharing needles, and using condoms the right way every time you have sex, you may be able to take advantage of newer medicines such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP).

If you are living with HIV, there are many actions you can take to prevent passing it to others. The most important is taking medicines to treat HIV (called antiretroviral therapy, or ART) the right way, every day. They can keep you healthy for many years and greatly reduce your chance of transmitting HIV to your partners.

Common Non Communicable Diseases

Non communicable diseases are illnesses caused by genetic factors, improper diet, inadequate physical activity, smoking, alcohol and substance abuse etc. They are called non–communicable because they cannot be passed from person to person. They are usually chronic which means the condition gets worse over a long period of time.

As NCDs are typically associated with poor diet and lack of physical activity, it is very important to encourage a healthy lifestyle of learners as these are the cornerstones of prevention and good quality of life.

Hypertension (high blood pressure)

High blood pressure over an extended period of time results in hypertension. Although hypertension is mainly diagnosed in adults, it can occur in young people. High blood pressure is diagnosed when the blood pressure (BP) is consistently 140/90 mm Hg (millimeters of mercury) or above. Measuring BP. Blood pressure should always be measured at least 5 - 10 minutes after rest, using appropriate cuff size, monitoring the device cuff and taken with the cuff positioned at the level of the heart. Normal blood pressure in adults should be less than 120/80 mmHg. The higher, or top, number - in this example it's 120 - is called systolic pressure and represents the pressure at the peak of each heartbeat. The lower, or bottom, number (80 in this example) is called diastolic and represents the pressure when the heart is resting between beats.

Risk factors for hypertension:

- Getting little or no exercise
- Obesity
- Poor food choices or poor diet
- Genetic make-up
- Old age
- High salt intake for those who are susceptible.
- Excessive alcohol consumption.
- Pregnancy, especially during the last few months
- Smoking
- Coronary heart disease
- Kidney inflammation
- Use of contraceptive pills
- High blood lipids
- Diabetes

Signs and symptoms of hypertension

An individual with hypertension may not know they have the condition until it begins to cause trouble to the heart, brain and kidneys. Therefore, be on the lookout for some of the following signs and symptoms may be indicators for hypertension:

- Irregular heart beat
- Frequent and severe headache
- Fatigue or confusion
- Vision problems
- Weakness and dizziness
- Pounding of the heart and shortness of breath

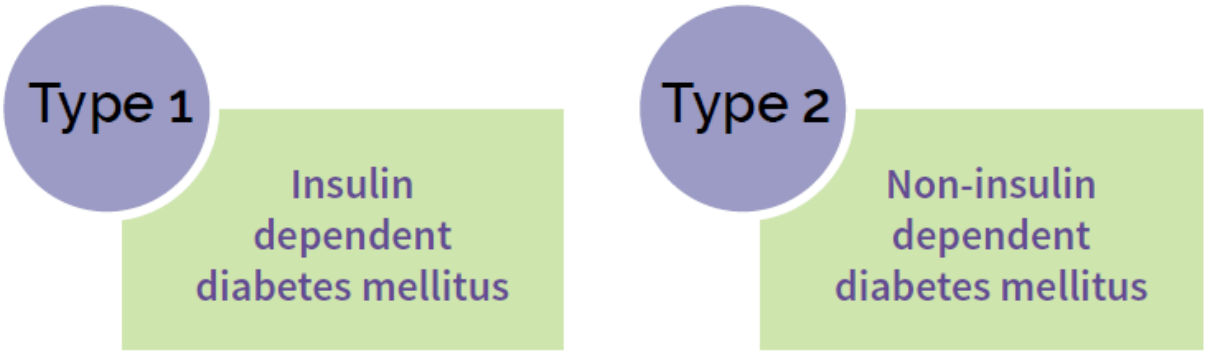
Prevention and management of hypertension

- Healthy diet and regular exercise
- Reduce the intake of saturated fats and animal fat e.g. fat cakes.
- Limit consumption of caffeine beverages (caffeine is found in tea, coffee and some soft drinks).
- Reduce the intake of simple sugars e.g. table sugar, fizzy drinks etc.
- Take complex carbohydrates such as whole grain meal like mahangu and brown bread.
- Reduce or remove alcohol intake from your diet
- Reduce body weight by engaging in regular physical exercise and reduce the portion
- size of food during meal times.
- If overweight reduce the intake of foods such as refined carbohydrates and fatty foods.
- Increase the intake of fruits and vegetables in your diet especially fresh produce.
- Include nuts, seeds, or legumes (dried beans or peas) daily.
- Maintain a normal Body Mass Index
- Manage stress by giving yourself time to meditate
- Avoid or quit smoking of any type
- Monitor or have your blood pressure checked regularly
- Develop the habit of using low salt diet through the use of garlic, tasty spices, tomato, and ginger when preparing meals.
- Avoid using cooking methods that retain a lot of fats and oils in the food such as frying.

Diabetes

Diabetes Mellitus is a chronic disorder of metabolism in which blood sugar levels are raised due to the deficiency or diminished effectiveness of a hormone called insulin. Insulin controls the movement of sugar (glucose) from blood into the body cells.

There are two types of diabetes:



Signs and symptoms of Diabetes

- Excessive thirst especially at night
- Excessive urine production
- Unexplained tiredness
- Numbness (lack of feeling) due to nerve damage
- Elevated blood sugar level because of insufficient or ineffective insulin
- Low blood sugar (glucose)
- Excessive feeling of hunger despite eating
- Recurring itchy skin, skin infections, gum and bladder infections.
- Blurred vision
- Poor concentration
- Sudden weight loss

Management and Prevention of Diabetes

Management of diabetes should strictly follow doctor's prescription. Here are a few general advices that should be observed in cases learners suffer from diabetes.

- A well-defined, timely and regular pattern for eating, working, recreation, exercise and sleep.
- Where dietary management is inadequate, administer medicines to treat and prevent complications of diabetes
- Reduce obesity by reducing body weight because obesity makes diabetes worse.
- Eat more of boiled or roasted foods rather than fried foods.
- Use less gravy and fats since these contribute to obesity, which is a risk factor for diabetes mellitus.
- Eat frequently in small or modest amounts.

- Avoid eating too much in one sitting and going for longer periods without eating.
- Avoid alcohol intake.
- Go to the hospital regularly for check up
- Restrict your salt intake. Try to limit intake to less than 1 teaspoon of salt a day.

Obesity

The body requires different nutrients for its normal functions, survival, growth, development and activity. The nutrients are required in specific amounts and proportions. The body's nutrient requirements are expressed on a daily basis and adequate nutrition is achieved when there is a balance between the amount of nutrients taken by the body and the body requirements or expenditure. When there is such a balance, a person is likely to have normal weight for height expressed as Body Mass Index (BMI) ranging between 18.5 and 24.9. When an individual takes more calories than what the body needs it creates an imbalance which results in over-nutrition. This means that the body is taking more energy than it is able to spend during physical activity thus leading to excessive weight gain. In such circumstances a person is likely to become overweight. An overweight adult person will have BMI ranging between 25.0 and 29.9.

Obesity is a condition that develops due to prolonged imbalance between energy intake and energy expenditure. A person is said to be obese when the BMI is equal to or greater than thirty (≥30). Just like with being overweight, obesity occurs when the dietary intake of energy and other nutrients is higher than what the body uses for physical activity, work and body processes leading to an increased amount of stored energy mainly in form of fat. A person becomes obese as a result of the excessive accumulation of body fat.

Risk factors for obesity:

- Genetic make–up: Naturally some people are more likely to gain weight than others on comparable energy intake. The genetic make-up may also influence the way the body utilises energy in different processes.
- Food choices: A person is likely to become overweight when he or she eats too much starchy foods such as, rice and potatoes; foods with too much fat (especially saturated fats) such as margarine, butter, cheese, fatty milk; and junk foods like chips, fizzy drinks, sweets. Too much intake of refined carbohydrates such as sugar, sweets, honey, jam, white bread, instant pasta (e.g. 2- minute noodles), cake, tart, pastries, puddings and rich pudding sauces may increase your chance to be overweight.
- Cooking methods: Methods of cooking that require a lot of fats like deep frying; stewing of fatty meat or stewing by adding excess oil (using a lot of fat) may also increase the risk of becoming overweight.
- Lack of physical activity: Physical activities such as walking, jogging, running, cycling and manual work make the body use more energy. When a person is not physically active

and is taking more foods that are rich in energy, he or she is more likely to become overweight.

- Malnutrition in early stage of life: If a person was malnourished in early childhood, he or she is more likely to become overweight. Children who are stunted (too short for their age) have a much greater risk of becoming overweight and developing chronic disease as adults.

Annexure:

SOPs to manage Common Health Problems

1. Abdominal Pain

Abdominal pain, usually caused by changes in eating or bowel habits, is a common complaint for children. If the pain goes away completely in less than three hours and is not accompanied by other symptoms, it can often be cured without a trip to the pediatrician's office. Severe or localized pain, which is pain located in one specific area, may be a symptom of a more serious condition.

a. Age 11 and Younger

Abdominal pain in children is a common problem. About 1 out of 3 children is seen by a doctor for abdominal pain by the time they are age 15, but only a small number of these children have a serious problem.

Complaints of abdominal pain are more common in children younger than 11 years and are often caused by changes in eating and bowel habits. Most cases of abdominal pain are not serious, and home treatment is often all that being needed to help relieve the discomfort.

Abdominal pain in children is often frightening and frustrating for parents. Many times, it is hard to find the exact cause of a child's abdominal pain. Pain without other symptoms that goes away completely in less than 3 hours is usually not serious.

In children, abdominal pain may be related to injury to the abdomen or an illness, such as an upset stomach, an ear infection, a urinary tract infection, or strep throat. Constipation is a common cause of abdominal pain in children. Some more serious causes of abdominal pain in children include appendicitis, lead poisoning, or problems with the intestines, such as intussusception or malrotation. Girls who start having menstrual periods may have abdominal pain each month, and the pain may be more severe in some months than others.

Generalized pain occurs in half of the abdomen or more. Localized pain is located in one area of the abdomen. Babies and toddlers often react differently to pain than older children who can talk about their pain. A baby may become fussy, draw his or her legs up toward the belly, or eat poorly. Older children may be able to point to the area of the pain and describe how severe it is.

Abdominal pain can occur one time, or it can occur repeatedly over several months. Recurrent abdominal pain (RAP) is a condition that affects children ages 4 to 11.

Home Treatment

Most of the time, a child's abdominal pain will get better with home treatment and the child will not need a visit to a doctor.

Home treatment for abdominal pain often depends on other symptoms that are present with the pain, such as diarrhea, nausea, or vomiting.

Try the following, one at a time in the order listed, if the child has mild abdominal pain without other symptoms:

- Have the child rest when he or she has mild stomachaches. Most symptoms will get better or go away in 30 minutes.
- Have the child sip clear fluids, such as water, broth, tea, or fruit juice diluted with water.
- Have the child try to pass a stool.
- If the measures above do not work, you may also try these:

    - Serve the child several small meals instead of 2 or 3 large ones.
    - Serve mild foods, such as rice, dry toast or crackers, gelatin, or applesauce. Do not give the child spicy foods, other fruits, or drinks that have caffeine or carbonation until 48 hours after all symptoms have gone away. These foods may make the child's stomachache worse.
    - Do not give the child any medicines without talking to the doctor first. Medicines may mask the pain or make it worse.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Pain increases or localizes to one section of the abdomen.
- Other symptoms develop, such as diarrhea, nausea, vomiting, or fever.
- The belly feels hard or looks very swollen.
- Symptoms become more severe or frequent.

Prevention

- Abdominal pain in children can often be prevented.
- Abdominal pain in children is often caused by irregular bowel habits. Become familiar with the child's normal bowel patterns. Also, be aware of the size and consistency of the child's stools. This will help to determine whether constipation is a problem.
- Try to make sure the child has regular eating habits. Overeating is a common cause of abdominal discomfort. Have the child eat slowly and stop when he or she feels full.
- Swallowing air (aerophagia) can cause abdominal pain and a swollen abdomen. The child may also have a lot of belching or flatus. Limit chewing gum and carbonated beverages to help prevent this. Many children swallow air when they are anxious or frightened.

b. Age 12 and Older

The cause of abdominal problems can be hard to pinpoint. Sometimes minor and serious abdominal problems start with the same symptoms. Fortunately, most abdominal problems are minor, and home treatment is all that is needed.

Many times, the exact cause of abdominal pain is hard to find. The severity of the pain, its location, and other symptoms you have may help determine what is causing the pain.

- **Generalized pain** occurs in half of the abdomen or more. Generalized pain can occur with many different illnesses and will usually go away without medical treatment. Indigestion and an upset stomach are common problems that can cause generalized pain. Home treatment may help relieve some of the discomfort. Generalized mild pain or crampy pain that becomes more severe over several hours may be a symptom of a blockage of the intestines (bowel obstruction).
- **Localized pain** is located in one area of the abdomen. Localized pain that comes on suddenly and gets worse is more likely to be a symptom of a serious problem. The pain of appendicitis may start as generalized pain, but it often moves (localizes) to one area of the abdomen. The pain from gallbladder disease or peptic ulcer disease often starts in one area of the abdomen and stays in that same location. Localized pain that gradually becomes more severe may be a symptom of inflammation of an abdominal organ.
- **Cramping** is a type of pain that comes and goes (intermittent) or that changes in position or severity. Cramping is rarely serious if it is relieved by passing gas or a stool. Many women have cramping pain with their menstrual periods. Generalized cramping pain is usually not a cause for concern unless it gets worse, lasts for longer than 24 hours, or localizes. Cramping that starts suddenly with diarrhea or other minor health problems can be quite painful but is usually not serious.

Occasionally, severe pain that comes on suddenly may be a symptom of a rupture of the stomach or intestines (perforation), torsion of the testicle or ovary, a kidney stone, gallbladder disease, or blood vessel problems, such as an aortic aneurysm. The pain caused by appendicitis or gallbladder disease may increase when you move or cough. Pain that increases with movement or coughing and does not appear to be caused by strained muscles is more likely to be a symptom of a serious problem. A visit to a doctor is usually needed when severe abdominal pain comes on suddenly, or when new and different mild pain slowly becomes more severe over several hours or days.

After a minor abdominal injury, pain, nausea, or vomiting may occur but often gets better in a few minutes. Pain and other symptoms that continue, increase, or develop following an injury may mean an abdominal organ has been damaged.

Many medicines can cause abdominal pain. Some medicines also cause side effects, such as constipation, that can make abdominal pain worse.

Specific abdominal symptoms have been linked to ovarian cancer. These symptoms include abdominal or pelvic pain, increased abdominal size or bloating, and trouble eating or feeling full quickly. If you have one or more of these symptoms, and it occurs almost daily for more than 2 or 3 weeks, talk with the doctor.

Home Treatment

Most of the time, abdominal pain improves with home treatment and you do not need a visit to a doctor. Specific home treatment for abdominal pain often depends on the symptoms you have along with the pain, such as diarrhea or nausea and vomiting.

If you have mild abdominal pain without other symptoms, try the following:

- Rest until you are feeling better.
- Drink plenty of fluids to prevent dehydration. You may find that taking small, frequent sips of a beverage is easier on the stomach than trying to drink a whole glass at once. Do not drink carbonated or caffeinated drinks, such as carbonated drinks, tea, or coffee.
- Try eating several small meals instead of 2 or 3 large ones. Eat mild foods, such as rice, dry toast or crackers, bananas, and applesauce. Do not eat spicy foods, other fruits, alcohol, and drinks that have caffeine until 48 hours after all symptoms have gone away.
- Do not eat foods that are high in fat. Foods high in fat may increase the abdominal pain.
- Do not use aspirin or other nonsteroidal anti-inflammatory medicines, such as ibuprofen and naproxen. These medicines may irritate the stomach and increase the pain.

Symptoms to watch for during home treatment

Call the doctor if any of the following occur during home treatment:

- Pain increases, does not improve, or localizes to one specific area of the abdomen.
- Other symptoms develop, such as diarrhea, nausea, vomiting, or a fever.
- Symptoms become more severe or frequent.

Prevention

Abdominal pain can often be prevented.

- Develop regular bowel habits to prevent abdominal pain caused by constipation.
- Develop regular eating habits. Overeating is a common cause of abdominal discomfort. Eat slowly and stop when you feel full.
- To prevent abdominal pain caused by swallowing air (aerophagia), do not chew gum or drink carbonated beverages.
- Prevent abdominal injuries by wearing the seat belt safely and correctly every time you drive or are a passenger in a car.
    - Wear both the lap and shoulder belts. The shoulder strap should cross the collarbone, and the lap belt should fit low and tight.
    - Do not wear the shoulder strap slipped behind the back or under the arm. This dangerous habit can cause severe injury, especially in cars with air bags.

2. Constipation

Constipation occurs when stools become hard or difficult to pass. While uncomfortable, constipation can usually be cured through home treatment and is often caused by changes in diet, not taking in enough fluids and certain medicines.

a. Constipation: Ages 11 and Younger

Some parents are overly concerned about how often their child has bowel movements, because they have been taught that a healthy child has a bowel movement every day. This is not true. The frequency of bowel movements is not as important as whether the child can pass stools easily. The child is not constipated if his or her stools are soft and pass easily, even if it has been a few days since the last bowel movement.

Newborns younger than 2 weeks should have at least 1 or 2 bowel movements a day. Babies older than 2 weeks can go 2 days and sometimes longer between bowel movements. It's usually okay if it takes longer than 2 days, especially if the baby is feeding well and seems comfortable. Breastfed babies are more likely to have frequent stools and may have a stool as often as every feeding. Constipation is likely to occur when a baby changes from breast milk to formula, especially if this change happens during the first 2 to 3 weeks of life.

As babies grow older, the number of bowel movements they have each day gets less and the size of their stools gets bigger. A child age 3 or 4 years may normally have as many as 3 bowel movements a day or as few as 3 a week.

It is important for parents to recognize there are many "normal" patterns for bowel movements in children. Some children may appear to have trouble passing a stool. The child's face may turn red, and he or she may strain to pass stool. If the stool is soft and the child does not seem to have other problems, this is not a concern.

Most children will occasionally become constipated. The problem is usually short-lived and does not cause long-term problems. Home treatment is usually all that is needed to relieve occasional constipation. Causes of constipation include:

- Changes in diet, such as when a child starts eating more adult foods.
- Not drinking enough fluids. Sometimes the normal amount of fluid a child drinks is not enough, such as when the weather gets hot or the child increases his or her physical activities.
- Not taking the time to have a bowel movement. A child may be so interested in play that he or she ignores the need to have a bowel movement.
- Reluctance to use the bathroom. A child might become constipated when he or she is in a new environment, such as when travelling.
- Changes in daily routine, such as when travelling or after starting school.
- Medicines. Many medicines can cause constipation.

- Constipation may occur with cramping and pain if the child is straining to pass hard, dry stools. He or she may have some bloating and nausea. There may also be small amounts of bright red blood on the stool caused by slight tearing (anal fissure) as the stool is pushed through the anus. All of these symptoms should stop when the constipation is relieved.

Chronic constipation

For reasons that can't always be identified, some children often develop constipation that does not get better or go away with treatment (chronic constipation). The most significant factor may be the painful passing of a hard, dry stool. After a while, the child may be unable to resist the urge to have a bowel movement and will pass a large mass of stool. The child may have to "push hard" during the bowel movement, which may be painful. Passing the stool relieves the pressure and pain until another mass of stool collects, and the cycle is repeated. Fear of pain may cause the child to try to hold the bowel movement.

Other causes of chronic constipation may include:

- A crack (fissure) around the anus, which can make bowel movements painful and cause the child to resist passing stools. Fissures are a common problem that gets worse every time the child passes a large stool.
- A brief illness with poor food intake, fever, and little or no physical activity, which may upset normal bowel habits.
- Emotional problems or toilet training problems, which can lead to voluntarily withholding stools. A child may have fought the toilet training process or been pushed too fast. Struggling with parents for control may cause a child to hold stools back as long as possible.
- Change in environment. At school, children may withhold stools because they are afraid or embarrassed to use school bathrooms, their schedules are too busy for them to take time for a bowel movement, or school activities interrupt their normal bowel movement time.
- The child may be unable or unwilling to pass the stool regardless of its size. Liquid or loose stool may leak out, soiling the child's underwear. When this occurs in a child who is past the age of normal toilet training, it is called encopresis.

Chronic constipation usually requires several months of treatment and cooperation between the parents, the child, and the doctor to overcome the problem. Don't be discouraged if the problem comes back during these months. The rectum is made of muscle tissue; when a child has had chronic constipation, the muscle becomes stretched. It may take several months to get the muscle back into shape.

In rare cases, constipation in children may be caused by other health problems, such as:

- Cystic fibrosis .
- Hirschsprung's disease .
- Lead poisoning .
- Over activity of the parathyroid gland (hyperparathyroidism).
- Underactivity of the thyroid gland (hypothyroidism).

- Spinal cord injury.

Home Treatment

Constipation can usually be treated effectively at home.

- Make sure the child is drinking adequate amounts of fluids.
- If you are switching from breast milk to formula, give the baby no more than 1 fl oz (30 mL) to 2 fl oz (60 mL) of water and no more than 2 times each day for the first 2 to 3 weeks. Be sure to give the baby the suggested amount of formula for feedings plus the extra water between feedings. Do not give extra water for longer than 3 weeks unless the doctor tells you to. Do not give plain water to a baby younger than 2 months.
- If the child is older than 6 months, add fruit juices, such as apple, pear, or prune juice, to relieve the constipation.
  - After age 6 months, give 0.5 Tbsp (7 mL) to 2 Tbsp (30 mL) of prune juice. Increase the amount slowly over time.
  - At age 9 months, add 1.5 Tbsp (22 mL) to 3 Tbsp (45 mL) of strained prunes per day.
- If fruit juices do not help, add baby foods with a high fiber content twice a day. High-fiber baby foods include cooked dried beans or peas (legumes), apricots, prunes, peaches, pears, plums, and spinach.
- For children age 12 months and older, add high fiber foods. A diet with enough fiber (20 to 35 grams each day) helps the body form soft, bulky stool.
  - Give the child at least 1 cup of fruit a day. Choose whole fruit instead of fruit juice.
  - Give the child at least 1 cup of vegetables a day.
  - Increase the amount of high fiber foods, such as bran flakes, whole grain roti, oatmeal, brown rice, and beans. Offer the child whole wheat bread instead of white bread.
  - Limit foods that have little or no fiber, such as ice cream, cheese, meat, and processed foods, if the child gets constipated easily.
- Gently massage the child's belly. This may help relieve discomfort. You can also have the child lie on his or her back, legs flexed onto his or her belly, and rotate his or her legs in a clockwise direction.
- If the child is having rectal pain because he or she is unable to have a bowel movement, try the following:
  - A warm bath in the tub. This may help relax the muscles that normally keep stool inside the rectum (anal sphincter) and help pass the stool.
  - If the child is age 6 months or older and the warm bath does not work, use 1 glycerin suppository to lubricate the stool, making it easier to pass. Use glycerin suppositories only once or twice. If constipation is not relieved or develops again, discuss the problem with the doctor.
- Do not give laxatives or enemas to children without first talking to the doctor. Children should not need an enema or laxatives to have a bowel movement.

Symptoms to watch for during home treatment

Call the doctor if any of the following occur during home treatment:

- Constipation or changes in the stool persist after **48 hours** of home treatment in a baby younger than 3 months.
- Constipation persists after **1 week** of home treatment in a child age 3 months to 11 years.
- Rectal pain develops or increases.
- Blood in the stool develops or increases.
- The child's symptoms become more severe or frequent.

Prevention

Diet

For babies, younger than 12 months:

- Breastfeed the baby. Constipation is rare in breastfed babies.
- Make sure you are adding the correct amount of water to the baby's formula.
- For children age 12 months and older:

- Make sure the child is drinking enough fluids. When the weather gets hot or when the child is getting more exercise, make sure he or she is drinking more fluid.
- Add high-fiber foods. A diet with enough fiber (20 to 35 grams each day) helps the body form soft, bulky stool.
  - Give the child at least 1 cup of fruit a day. Choose whole fruit instead of fruit juice.
  - Give the child at least 1 cup of vegetables a day.
- Increase the amount of high fiber foods, such as bran flakes, bran muffins, oatmeal, brown rice, and beans. Offer the child whole wheat bread instead of white bread.
- Limit foods that have little or no fiber, such as ice cream, cheese, meat, and processed foods, if the child gets constipated easily.
- Set a good example for the child by drinking plenty of fluids and eating a high-fiber diet.

Toilet training

Constipation sometimes becomes a problem when children start toilet training:

- Encourage the child to go when he or she feels the urge. The bowels send signals when a stool needs to pass. If the child ignores the signal, the urge will go away, and the stool will eventually become dry and difficult to pass.
- Set aside relaxing times for having bowel movements. Urges usually occur sometime after meals. Establishing a daily routine for bowel movements, such as after breakfast, may help.
- Make sure the child has good foot support while he or she is on the toilet. This will help flex the child's hips and place the pelvis in a more normal "squatting" position for having a bowel movement.

- Make sure the child gets plenty of exercise throughout the day. Set a good example for the child by following healthy routines of eating, exercising, and going to the toilet.

b. Constipation, Age 12 and Older

Some people are overly concerned with the frequency of their bowel movements, because they have been taught that a healthy person has a bowel movement every day. This is not true. Most people pass stools anywhere from 3 times a day to 3 times a week. If the stools are soft and pass easily, you are not constipated.

Constipation is present if you have 2 or fewer bowel movements each week **or** you do not take laxatives and have 2 or more of the following problems at least 25% of the time:

- Straining
- Feeling that you do not completely empty the bowels
- Hard stools, or stools that look like pellets
- A feeling of being blocked up
- You can't pass stools unless you put a finger in the rectum or use manual pressure to pass a stool.

Constipation may occur with cramping and pain in the rectum caused by the strain of trying to pass hard, dry stools. You may have some bloating and nausea. You may also have small amounts of bright red blood on the stool or on the toilet tissue, caused by bleeding hemorrhoids or a slight tearing of the anus (anal fissure) as the stool is pushed through the anus. This should stop when the constipation is controlled.

Constipation can mean the slow movement of stool through the intestines or problems releasing a stool.

Slow transit constipation

Lack of fiber is a common cause of constipation. Other causes include:

- Irritable bowel syndrome .
- Travel or other change in daily routine.
- Lack of exercise.
- Immobility caused by illness or aging.
- Medicine use.
- Overuse of laxatives.
- Pregnancy.

Constipation is sometimes a sign of another health problem, such as diabetes, hypothyroidism, or hypercalcemia.

Outlet delay constipation

Constipation is sometimes caused by poor muscle tone in the pelvic area (outlet delay). Excessive straining, needing manual pressure on the vaginal wall, or feelings of incomplete emptying may be a symptom of this type of constipation. Outlet delay constipation is caused by:

- Physical disorders that cause loss of function, such as colon cancer, uterine prolapse or rectal prolapse, scarring (adhesions), or injury caused by physical or sexual abuse.
- Nervous system diseases, such as Parkinson's disease, multiple sclerosis, or stroke.
- Spinal cord injury.
- Pain from hemorrhoids or anal fissures.
- Delaying bowel movements because of convenience issues or because having a bowel movement causes pain.

Constipation is more common in people older than 65. People in this age group are more likely to have poor dietary habits and increased medicine use. Older adults also often have decreased muscular activity of the intestinal tract, which increases the time it takes for stool to move through the intestines. Physical problems, such as arthritis, may make sitting on the toilet uncomfortable or painful. Women report problems with constipation more often than men.

If a stool becomes lodged in the rectum (impacted), mucus and fluid may leak out around the stool, sometimes leading to leakage of fecal material (fecal incontinence). You may experience this as constipation alternating with episodes of diarrhea.

Home Treatment

Constipation can be treated at home.

- First:
  - Try gentle exercise. Take a short walk each day. Gradually increase the walking time until you are walking for at least 20 minutes.
  - Make sure you drink enough fluids. Most adults should try to drink between 8 and 10 glasses of water or non-caffeinated beverages each day. Avoid alcoholic beverages and caffeine, which can increase dehydration. If you have heart failure or kidney failure, talk to the doctor about what amount of fluid is right for you.
  - Include fruits, vegetables, and fiber in the diet each day. Have a bran muffin or bran cereal for breakfast, and try eating a piece of fruit for a mid-afternoon snack.
  - Use the toilet when you feel the urge. Or when you can, schedule time each day for a bowel movement. A daily routine may help. Take the time and do not strain when having a bowel movement. But do not sit on the toilet too long.
- Support the feet with a small step stool [about 6 in. (15 cm)] when you sit on the toilet. This will help flex the hips and place the pelvis in a more normal "squatting" position for having a bowel movement.
- If you are still constipated:

  - Add some processed or synthetic fiber to the diet each day.
  - Try a stool softener, if the stools are very hard.
  - Try a rectal glycerin suppository. Follow the directions on the label. Do not use more often than recommended on the label.
- You may at times need to try a laxative. If the teen has constipation problems, talk to the teen's doctor before trying laxatives.
  - Osmotic laxatives and non absorbable sugars (such as lactulose or sorbitol) hold fluids in the intestine. They also draw fluids into the intestine from other tissue and blood vessels. This extra fluid in the intestines makes the stool softer and easier to pass. Drink plenty of water when you use this type of laxative.
  - Stimulant laxatives speed up the movement of stool through the intestine. Use these preparations sparingly. Overuse of stimulant laxatives decreases the tone and sensation in the large intestine, causing dependence on using laxatives. Regular use may interfere with the body's ability to absorb vitamin D and calcium, which can weaken the bones. Do not use laxatives for longer than 2 weeks without consulting the doctor.
- If you are still constipated, check the symptoms to determine if and when you need to see the doctor.
- Talk to the doctor before using an enema. The doctor may need to check the symptoms or may suggest a different way to treat the constipation.

Symptoms to watch for during home treatment

- Constipation occurs or continues after 1 week of home treatment.
- Rectal pain develops or increases.
- Blood in the stool develops or increases.
- Uncontrolled leakage of stool occurs.
- The symptoms become more severe or more frequent.

If you have any of these symptoms, you need to be evaluated by a doctor.

Prevention

- Drink plenty of fluids, enough so that the urine is light yellow or clear like water.
- Add high-fiber foods to the diet. Try to get 20 to 35 grams of fiber a day. Packaged foods and fiber supplements include the amount of fiber content in the nutrition information. You should increase the amount of fiber in the diet slowly so that the stomach can adjust to the change. Adding too much fiber too quickly may cause stomach upset and gas.
  - Eat at least 1½ to 2 cups of fruit a day. Choose whole fruit instead of fruit juice.
  - Eat at least 2 to 3 cups of vegetables a day.
- Increase the amount of high-fiber foods, such as bran flakes, whole wheat roti, oatmeal, brown rice, beans, and lentils. Eat brown rice, or millet instead of white rice.

  - Use whole wheat bread instead of white bread. Choose whole-grain breads and cereals; buy bread that lists whole wheat, stone-ground wheat, or cracked wheat in the ingredients.
  - Snack on unbuttered, unsalted popcorn.
  - Add 2 Tbsp of wheat bran to cereal or soup. If you do this, start slowly with 1 tsp a day. Gradually increase the amount to 2 Tbsp a day.
  - Mix 2 Tbsp of psyllium (isaphgul) with a fluid, and drink it.
- Exercise more. A walking program would be a good start.
- Set aside relaxing times for having bowel movements. Urges usually occur sometime after meals. Establishing a daily routine for bowel movements, such as after breakfast, may help.
- Go when you feel the urge. The bowels send signals when a stool needs to pass. If you ignore the signal, the urge will go away, and the stool will eventually become dry and difficult to pass.

3. Cough

Coughing is the body's way of removing foreign material or mucus from the lungs and upper airway passages or of reacting to an irritated airway. Coughs have distinctive traits you can learn to recognize. A cough is only a symptom, not a disease, and often the importance of a cough can be determined only when other symptoms are evaluated.

Many coughs are caused by a viral illness. Antibiotics are not used to treat viral illnesses and do not alter the course of viral infections. Unnecessary use of an antibiotic exposes you to the risks of an allergic reaction and antibiotic side effects, such as nausea, vomiting, diarrhea, rashes, and yeast infections. Antibiotics also may kill beneficial bacteria and encourage the development of dangerous antibiotic-resistant bacteria.

a. Coughs, Age 11 and Younger

Productive coughs

A productive cough produces phlegm or mucus (sputum). The mucus may have drained down the back of the throat from the nose or sinuses or may have come up from the lungs. A productive cough generally should not be suppressed; it clears mucus from the lungs. There are many causes of a productive cough, such as:

- Viral illnesses. It is normal to have a productive cough when you have a common cold. Coughing is often triggered by mucus that drains down the back of the throat.
- Infections. An infection of the lungs or upper airway passages can cause a cough. A productive cough may be a symptom of pneumonia, bronchitis, sinusitis, or tuberculosis.

- Chronic lung disease. A productive cough could be a sign that a lung disease is getting worse or that the child has an infection.
- Stomach acid backing up into the esophagus. This type of coughing may be a symptom of gastroesophageal reflux disease (GERD) and may awaken the child from sleep.
- Nasal discharge (postnasal drip) draining down the back of the throat. This can cause a productive cough or make the child feel the need to clear his or her throat frequently. Experts disagree about whether a postnasal drip or the viral illness that caused it is responsible for the cough.

Nonproductive coughs

A nonproductive cough is dry and does not produce sputum. A dry, hacking cough may develop toward the end of a cold or after exposure to an irritant, such as dust or smoke. There are many causes of a nonproductive cough, such as:

- Viral illnesses. After a common cold, a dry cough may last several weeks longer than other symptoms and often gets worse at night.
- Bronchospasm. A nonproductive cough, particularly at night, may mean spasms in the bronchial tubes (bronchospasm) caused by irritation.
- Allergies. Frequent sneezing is also a common symptom of allergic rhinitis.
- Exposure to dust, fumes, and chemicals.
- Asthma . A chronic dry cough may be a sign of mild asthma. Other symptoms may include wheezing, shortness of breath, or a feeling of tightness in the chest.
- Blockage of the airway by an inhaled object, such as food or a pill.

Children may develop coughs from diseases or causes that usually do not affect adults, such as:

- Croup .
- Infection of the lower respiratory system (such as bronchiolitis or respiratory syncytial virus [RSV]).
- Blockage of the airway by an inhaled object, such as food, a piece of a balloon, or a small toy.
- Exposure to secondhand smoke from parents or caregivers who smoke.
- Emotional or psychological problems. A dry, nonproductive "psychogenic cough" is seen more frequently in children than in adults.
- Many coughs are caused by a viral illness. Antibiotics are not used to treat viral illnesses and do not change the course of viral infections. Unnecessary use of an antibiotic exposes the child to the risks of an allergic reaction and antibiotic side effects, such as nausea, vomiting, diarrhea, rashes, and yeast infections. Antibiotics also may kill beneficial bacteria and encourage the development of dangerous antibiotic-resistant bacteria.

A careful evaluation of the child's health may help you identify other symptoms. Remember, a cough is only a symptom, not a disease, and often the importance of a cough can only be determined when other symptoms are evaluated. Coughs occur with bacterial and viral respiratory infections.

Home Treatment

- Prevent dehydration. Fluids may help soothe an irritated throat. Honey or lemon juice in hot water or tea may help a dry, hacking cough. **Do not give honey to children younger than 1 year of age**. It may contain bacteria that are harmful to babies.
- Be careful with cough and cold medicines. Don't give them to children younger than 6, because they don't work for children that age and can even be harmful. For children 6 and older, always follow all the instructions carefully. Make sure you know how much medicine to give and how long to use it. And use the dosing device if one is included.
- If the child's doctor tells you to give a medicine, be sure to follow what he or she tells you to do. How much medicine to take and how often to take it may be very different for children than for adults.
- Do not give the child leftover antibiotics, or antibiotics or medicines that were prescribed for someone else.
- If the child has a barking cough during the night, you can help him or her breathe better by following the home treatment for a barking cough.
- Hold the child in a calming manner.
- Keep the child quiet, if possible. Crying can make breathing more difficult. Try rocking or distracting the child with a book or game.
- Use a humidifier to add moisture to the air. Do not use a hot vaporizer. Use only water in the humidifier. Hold the child in the lap, and let the cool vapor blow directly into the child's face.
- If there is no improvement after several minutes, take the child into the bathroom and turn on the shower to create steam. Close the door and stay in the room while he or she breathes in the moist air for several minutes. Make sure the child is not burned by the hot water or steam. Do not leave the child alone in the bathroom.
- If there is still no improvement, bundle the child up and go outside in the cool night air.

Prevention

There is no sure way to prevent a cough. To help reduce the child's risk:

- Make sure the child washes his or her hands often during the cold and flu season. This helps prevent the spread of a virus that may cause a cold or influenza.
- If the child goes to a day care center, ask the staff to wash their hands often to prevent the spread of infection.
- Make sure that the child gets all of his or her vaccinations, especially for diphtheria, tetanus, and pertussis (DTaP) and for *Haemophilus influenzae* type b (Hib).
- Help the child avoid secondhand smoke. Don't allow smoking in the home or around the child.
- Try to avoid people who have colds or flu. If one of the children is sick, separate him or her from other children in the home, if possible. Put the child in a room alone to sleep.

b. Age 12 and Older

Productive coughs

A productive cough produces phlegm or mucus (sputum). The mucus may have drained down the back of the throat from the nose or sinuses or may have come up from the lungs. A productive cough generally should not be suppressed—it clears mucus from the lungs. There are many causes of a productive cough, such as:

- Viral illnesses. It is normal to have a productive cough when you have a common cold. Coughing is often triggered by mucus that drains down the back of the throat.
- Infections. An infection of the lungs or upper airway passages can cause a cough. A productive cough may be a symptom of pneumonia, bronchitis, sinusitis, or tuberculosis.
- Chronic lung disease. A productive cough could be a sign that a disease such as chronic obstructive pulmonary disease (COPD) is getting worse or that you have an infection.
- Stomach acid backing up into the esophagus. This type of coughing may be a symptom of gastroesophageal reflux disease (GERD) and may awaken you from sleep.
- Nasal discharge (postnasal drip) draining down the back of the throat. This can cause a productive cough or the feeling that you constantly need to clear the throat. Experts disagree about whether a postnasal drip or the viral illness that caused it is responsible for the cough.
- Smoking or other tobacco use. Productive cough in a person who smokes or uses other forms of tobacco is often a sign of lung damage or irritation of the throat or esophagus.

Nonproductive coughs

A nonproductive cough is dry and does not produce sputum. A dry, hacking cough may develop toward the end of a cold or after exposure to an irritant, such as dust or smoke. There are many causes of a nonproductive cough, such as:

- Viral illnesses. After a common cold, a dry cough may last several weeks longer than other symptoms and often gets worse at night.
- Bronchospasm. A nonproductive cough, particularly at night, may mean spasms in the bronchial tubes (bronchospasm) caused by irritation.
- Allergies. Frequent sneezing is also a common symptom of allergic rhinitis.
- Medicines called ACE inhibitors that are used to control high blood pressure. Examples of ACE inhibitors , enalapril maleate, and lisinopril .
- Exposure to dust, fumes, and chemicals in the work environment.
- Asthma_. A chronic dry cough may be a sign of mild asthma. Other symptoms may include wheezing, shortness of breath, or a feeling of tightness in the chest. Blockage of the airway by an inhaled object, such as food or a pill.

Home Treatment

Coughing is the body's way of removing foreign substances and mucus from the lungs and upper airway passages. Productive coughs are often useful, and you should not try to eliminate them. Sometimes, though, coughs are severe enough to impair breathing or prevent rest. Home treatment can help you feel more comfortable when you have a cough.

Home treatment for adults

- Prevent dehydration. Fluids may help thin secretions and soothe an irritated throat. Dry, hacking coughs respond to honey in hot water, tea, or lemon juice.
- Elevate the head with extra pillows at night to ease a dry cough.
- Try a cough drop to soothe an irritated throat. Expensive medicine-flavored cough drops are no better than inexpensive candy-flavored drops or hard candy. Most cough drops have no effect on the cough-producing process.
- Use a humidifier to add moisture to the air. Use only water in the humidifier.
- Quit smoking and do not use other forms of tobacco, especially while you have a cough.
- Avoid exposure to inhaled irritants, such as smoke, dust, or other pollutants, or wear a face mask that is appropriate for the exposure. Many kinds of face masks are available. Check with the doctor or pharmacist to determine which type of face mask will provide you with the most benefit.

Cough preparations may help the cough. Avoid cold remedies that combine medicines to treat many symptoms. It is generally better to treat each symptom separately. There are two kinds of cough medicines: expectorants and suppressants.

- **Expectorants** help thin the mucus and make it easier to cough mucus up when you have a productive cough.
  - Use an expectorant if you have a cough that produces thick mucus and you are having trouble coughing the mucus up. Don't depend entirely on an expectorant to thin the mucus. Drink plenty of water also.
  - Look for expectorants containing guaifenesin.
- **Suppressants** control or suppress the cough reflex and work best for a dry, hacking cough that keeps you awake.
  - Use cough suppressants wisely. Don't suppress a productive cough too much, unless it is keeping you from getting enough rest. Coughing is useful because it brings up mucus from the lungs and helps prevent bacterial infections. People with asthma and other lung diseases need to cough.
  - If you have a dry, hacking cough, ask the doctor about an effective cough suppressant medicine. Studies show that over-the-counter cough medicines do not work very well. And some of these medicines can cause problems if you use too much of them. It is important to use medicines correctly and to keep them out of the reach of children to prevent accidental use.

Cough preparation precautions

- Cough preparations can cause problems for people with other health problems, such as asthma, heart failure, high blood pressure, glaucoma, or an enlarged prostate. Cough preparations may also interact with other medicines, such as sedatives and certain antidepressants. Read the package carefully or ask the pharmacist or doctor to help you choose one.

- Use cough preparations with caution if you are older than 60 or if you have chronic respiratory problems.
- Read the label so you know what you are taking. Some cough preparations contain a large percentage of alcohol. Others contain codeine. There are many choices. Ask the pharmacist to advise you.
- Do not take someone else's prescription cough medicine.

Symptoms to watch for during home treatment

Contact doctor if any of the following occur during home treatment:

- Other symptoms develop, such as moderate to severe chest wall pain with coughing, trouble breathing, a productive cough, or fever.
- You start coughing up blood.
- A cough lasts longer than 2 weeks without other respiratory symptoms.
- Symptoms become more severe or more frequent.

Prevention

There is no sure way to prevent a cough. To help reduce the risk:

- Wash the hands frequently during the cold and flu season. This helps prevent the spread of a virus that may cause a cold or influenza.
- Avoid people who have a cold or influenza if possible.
- Don't smoke or use other forms of tobacco. A dry, hacking "smoker's cough" means the lungs are constantly irritated.
- Avoid exposure to second hand smoke, both at home and in the workplace.
- Increase the fluid intake. This helps keep the mucus thin and helps you cough it up. It also helps prevent dehydration.
- Get a flu shot (influenza vaccine) each year.
- Get a pneumococcal shot if you are age 65 or older; if you have chronic lung disease, such as asthma or chronic obstructive pulmonary disease (COPD); if you smoke; or if you have a health risk that increases the seriousness of the symptoms.
- Make sure the immunizations are current, such as pertussis to reduce the risk of getting whooping cough.

4. Diarrhea

Diarrhea occurs when there is an increase in the number of bowel movements or bowel movements are more watery and loose than normal. When the intestines push stools through the bowel before the water in the stool can be reabsorbed, diarrhea occurs. It can also occur when inflammation of the bowel

lining causes excess fluid to leak into the stool. Abdominal cramps, nausea, vomiting, or a fever may occur along with the diarrhea.

a. Age 11 and Younger

Dietary changes

A child may develop diarrhea from a change in his or her diet. A baby's or child's digestive tract may not tolerate large amounts of juice, fruit, or even milk. Diarrhea may be caused by an increase in the amount of juice or fruit a child drinks or eats. Diarrhea that is caused by a change in the child's diet is not usually serious.

Infection

Diarrhea is often caused by a viral or bacterial infection, such as rotavirus, stomach flu (gastroenteritis), or food poisoning. Diarrhea is the body's way of quickly clearing any viruses, bacteria, or toxins such as botulism from the digestive tract. Most cases of diarrhea are caused by a viral infection and will usually clear up in a few days.

Diarrhea may also be caused by a parasitic infection, such as Giardia lamblia. This parasite, as well as other viral and bacterial infections, may be spread by drinking untreated water, unpasteurized dairy products, or by poor hand-washing.

Other causes

On rare occasions, diarrhea can be a symptom of a more serious condition, such as:

- A problem in the digestive tract, such as inflammatory bowel disease or intussusception.
- Diseases that interfere with the normal digestion of food (malabsorption), such as cystic fibrosis or celiac disease.

Children, especially those younger than 6 months of age and those with other health risks, need special attention when they have diarrhea because they can quickly become dehydrated. Careful observation of the child's appearance and how much fluid he or she is drinking can help prevent problems.

Check the child's symptoms to decide if and when the child should see a doctor.

Note: Normal stool during infancy may be runny or pasty, especially if the baby is breastfed. The presence of mucus in the stool is not uncommon. Unless there is a change in the baby's normal habits, loose and frequent stools are not considered to be diarrhea.

Home treatment

It's important to take action to prevent dehydration.

Newborns and babies younger than 1 year of age

Don't wait until you see signs of dehydration in the baby. These signs include the baby being thirstier than usual and having less urine than usual.

- If you breastfeed the baby, nurse him or her more often. Offer each breast to the baby for 1 to 2 minutes every 10 minutes.
- If you use a bottle to feed the baby, increase the number of feedings to make up for lost fluids. The amount of extra fluid the baby needs depends on the baby's age and size. For example, a newborn may need as little as 1 fl oz (30 mL) at each extra feeding, while a 12-month-old baby may need as much as 3 fl oz (90 mL) at each extra feeding.
- Ask the doctor if you need to use an oral rehydration solution (ORS) if the baby still isn't getting enough fluids from formula or the breast. The amount of ORS the baby needs depends on the baby's age and size. You can give the ORS in a dropper, spoon, or bottle.
- If the baby has started eating cereal, you may replace lost fluids with cereal. You also may feed the baby strained bananas and mashed potatoes if the child has had these foods before.

Children ages 1 through 11

- Make sure the child is drinking often. Frequent, small amounts work best.
- Allow the child to drink as much fluid as he or she wants. Encourage the child to drink extra fluids. **Note**: Do not give the child fruit juice or carbonated drinks. Fruit juice and carbonated drinks contain too much sugar and not enough of the essential minerals (electrolytes) that are being lost. Diet carbonated drinks lacks calories that the child needs.
- Cereal mixed with milk or water may also be used to replace lost fluids.
- If the child still is not getting enough fluids, you can try an oral rehydration solution (ORS).
- An effective drink i.e. sugar salt solution (SSS) for diarrhea can also be made by using eight level teaspoons of sugar and one of salt dissolved in one litter of clean water.
- Give the child frequent small meals, at least 6 a day, while he or she is having diarrhea.
  - The best foods for the child are easily digestible foods, such as rice, breads, cooked beans, mashed potatoes, cooked carrots and bananas.
  - Salty crackers can help the child replace the salt lost from diarrhea.
  - Foods containing large amounts of sugar or fat should be avoided.

General tips

- **Do not withhold food from the child**. Studies have shown that children who are fed easily digestible foods have shorter episodes of diarrhea.
- If the child drinks cow's milk, he or she may continue to drink it.
- Do not give the child prescription or nonprescription medicine to stop diarrhea unless you are told to do so by the child's doctor.
- Protect the diaper area with zinc oxide or another cream. Diaper rash is common after diarrhea.
- Wash the hands and the child's hands thoroughly after each diaper change and before each feeding.

- Until the doctor has assured you that the child's diarrhea is not infectious, the child should not attend school or day care.
- Learn how to clean up diarrhea safely. Protect the hands with gloves while cleaning up.
- Wash the hands after you are done cleaning up.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Blood in diarrhea develops.
- Signs of dehydration develop. These include the child being thirstier than usual and having less urine than usual.
- The child has diarrhea and a fever.
- Symptoms become more severe or frequent.

Prevention

Do not allow the child to drink untreated or unfiltered water from a lake or stream or unpasteurized milk. Untreated water and unpasteurized milk are sources for viral, bacterial, and parasitic infections, such as Giardia lamblia. Avoid having the child brush his or her teeth with untreated water. Even a small amount of untreated water can contain enough parasites, virus, and bacteria to cause diarrhea. Diarrhea can spread because of poor hygiene.

- Practice good hand-washing.
  - Be sure to wash the hands and the child's hands after each diaper change or trip to the bathroom.
  - Teach the child to wash his or her hands after using the bathroom and before every meal.
  - Do not place soiled diapers on surfaces that are used to prepare or serve food.
- If the child attends school or day care, keep the child at home until the doctor has determined that his or her diarrhea can't be passed to others (is not infectious).

Food poisoning is a common cause of diarrhea in children and adults. Most cases of food poisoning at home may be prevented by taking a few precautions when preparing and storing food. Perishable foods, such as eggs, meats, poultry, fish, shellfish, milk, and milk products, should be treated with extra care. Also, precautions should be taken if you are pregnant, you have an impaired immune system or a chronic illness, or you are preparing foods for other high-risk groups, such as young children or older people.

The following steps are recommended to prevent food poisoning:

- Prepare foods safely.
- Shop safely.
- Cook foods safely.
- Store foods safely.
- Follow labels on food packaging.
- Serve foods safely.
- When in doubt, throw it out.

When you travel in wilderness areas or to other countries of the world, it is common to get traveler's diarrhea from food or water because the methods of food preparation are different.

Rotavirus vaccine helps protect babies and young children from getting a rotavirus infection, which can cause diarrhea and dehydration. Talk to the child's doctor about this vaccine for the child.

b. Age 12 and Older

Diarrhea is one of the most commonly occurring health problems affecting all ages. Most adults will have 4 episodes of diarrhea each year. Diarrhea that comes on suddenly may last up to 14 days. Diarrhea has many causes.

- Diarrhea is often caused by stomach flu (gastroenteritis) or food poisoning. Diarrhea is the body's way of quickly clearing viruses, bacteria, or toxins from the digestive tract. Since most cases of diarrhea are viral, they will clear up in a few days with good home treatment. E. coli is a common bacteria that causes diarrhea. *E. coli* infection is related to improper food preparation.
- Drinking untreated water or unpasteurized dairy products can cause viral, bacterial, or parasitic infections, such as Giardia lamblia. *Giardia lamblia* parasite can cause diarrhea that develops 1 to 4 weeks later. These infections can also occur when you use untreated water to brush the teeth, wash the dishes or vegetables, or make ice for drinks.
- Many prescription and nonprescription medicines can cause diarrhea.
  - Antibiotics may cause mild diarrhea that usually clears up without treatment. A more serious type of diarrhea caused by the bacteria *Clostridium difficile* (sometimes called C-diff) may occur while taking an antibiotic or shortly after finishing the antibiotic.
  - Laxatives may cause diarrhea.
- Using too much of products that contain sorbitol (such as chewing gum) or fructose can cause diarrhea.
- Some people get diarrhea while travelling (traveler's diarrhea).
- For some people, emotional stress, irritable bowel syndrome, anxiety, or food digestion problems (such as lactose intolerance) cause diarrhea.
- Repeated episodes of diarrhea may be caused by inflammatory bowel disease.
- Diarrhea may also be caused by malabsorption problems and certain types of cancer.
- Diarrhea may develop after stomach, bowel, or gallbladder surgery, or after bariatric surgery for obesity.

Many times, the exact cause of diarrhea is hard to determine. Almost everyone has an occasional bout of diarrhea. Although diarrhea is annoying, most cases are not serious and will clear up with home treatment.

Home Treatment

Home treatment can help you treat the diarrhea and avoid other related problems, such as dehydration.

- Take frequent, small sips of water or a rehydration drink and small bites of salty crackers.
  - Try to increase the fluid intake to at least 1 qt (1 L) per hour for 1 to 2 hours, or longer if you keep having large amounts of diarrhea. **Note**: If you have kidney, heart, or liver disease and have to limit fluids, talk with the doctor before you increase the amount of fluids you drink.
- Begin eating mild foods the next day or sooner, depending on how you feel.
  - Avoid spicy foods, fruits, alcohol, and caffeine until 48 hours after all symptoms have disappeared.
  - Avoid chewing gum that contains sorbitol.
  - Avoid milk for 3 days after symptoms disappear. You can eat cheese or yogurt with probiotics.

Nonprescription medicines for diarrhea

Pregnant women must talk with the doctor before taking any medicines for diarrhea. Nonprescription medicines may be helpful in treating the diarrhea. Follow these tips when taking a nonprescription medicine for diarrhea:

- Use nonprescription antidiarrheal medicine if you have diarrhea for longer than 6 hours. Do not use nonprescription antidiarrheal medicines if you have bloody diarrhea, a high fever, or other signs of serious illness.
- Read and follow all label directions on the nonprescription medicine bottle or box. Be sure to take the recommended dose.
- Long-term use of nonprescription antidiarrheal medicine is not recommended. To avoid constipation, stop taking antidiarrheal medicines as soon as stools thicken.
- If the child or teen gets chickenpox or flu, do not treat the symptoms with over-the-counter medicines that contain bismuth subsalicylate. Subsalicylate has been linked to Reye syndrome, a rare but serious illness. If the child has taken this kind of medicine and he or she has changes in behavior with nausea and vomiting, call the doctor. These symptoms could be an early sign of Reye syndrome.
- There are several types of antidiarrheal medicines: those that absorb water and thicken the stool, and those that slow intestinal spasms.

- Thickening mixtures absorb water. This helps bulk up the stool and make it firmer.

- Antispasmodic antidiarrheals, slow intestinal spasms. Some products contain both thickening and antispasmodic ingredients.

- Probiotics, such as *Lactobacillus*, are available in either pills or powder. This bacteria occurs naturally in the intestine and may help with digestion. When diarrhea is present, the number of these bacteria is reduced.

General tips

Learn how to clean up diarrhea safely. Protect the hands with gloves while cleaning up. Wash the hands after you are done cleaning up.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Signs of dehydration develop.
- Severe diarrhea (10 or more loose watery stools in 24 hours) develops.
- Black or bloody stools develop.
- A fever develops.
- The symptoms become more severe or more frequent.

Prevention

Food poisoning is a common cause of diarrhea in children and adults. Most cases of food poisoning may be prevented by taking a few precautions when preparing and storing food at home. Perishable foods, such as eggs, meats, poultry, fish, milk, and milk products, should be treated with extra care. Also, precautions should be taken if you are pregnant, have an impaired immune system or a chronic illness, or are preparing foods for other high-risk groups, such as young children or older adults.

The following steps are recommended to prevent food poisoning:

- Prepare foods safely.
- Shop safely.
- Cook foods to a safe temperature.
- Store foods safely.
- Follow labels on food packaging.
- Serve foods safely.
- When in doubt, throw it out.

When you travel in wilderness areas or to other countries of the world, it is common to get traveler's diarrhea from food or water because the methods of food preparation are different.

5. Ear Problems

a. Age 11 and younger

Ear pain in children may be a sign of an infection in the space behind the eardrum (middle ear). Ear infections (otitis media) most commonly occur when cold symptoms, such as a runny or stuffy nose and a cough, have been present for a few days.

An ear infection may occur when the eustachian tube swells and closes and fluid accumulates in the middle ear. The combination of fluid and germs (from bacteria or viruses) creates a perfect environment for an infection. Swelling from the infection can cause pain from increased pressure on the eardrum. The pressure can cause the eardrum to rupture (perforate). A single eardrum rupture is not serious and does not cause hearing loss. Repeated ruptures may lead to hearing loss.

Middle ear infections are more common in children than in adults. Young children have short, soft, more horizontal eustachian tubes that are more easily blocked than those of older children and adults.

Ear infection is the most commonly diagnosed bacterial infection in children younger than age 7. Almost all children will have at least one ear infection by the time they are 7 years old. Most ear infections occur in babies between the ages of 6 months to 3 years. After age 7, ear problems may be related to inflammation, infection, or fluid buildup in the middle or external ear. Ear infections are more common in boys than in girls, and they most often occur in children who:

- Spend time in day care settings.
- Are bottle-fed.
- Use a pacifier.
- Live in households where parents or caregivers smoke.
- Have had a previous ear infection.
- Have problems present since birth (congenital abnormalities), such as cleft lip, cleft palate, or Down syndrome.
- Have allergies.

Fluid often remains in the middle ear (serous otitis, or middle ear effusion) after an ear infection. This may cause no symptoms, or it may cause a muffling of sound, decreased hearing, and mild discomfort. The body usually reabsorbs fluid behind the eardrum within 3 months, and hearing returns to normal. Recurrent ear infections and persistent effusion may occur in some children.

Even though ear infections are a common cause of ear pain, not all ear pain means an infection. Other common causes of apparent ear pain in young children include:

- Teething.
- A sore throat.
- An accumulation of earwax.

- An object in the ear.
- Air pressure changes, such as flying in an airplane.
- Fluid buildup without infection (serous otitis).
- When evaluating ear pain in a child, remember that ear infections commonly occur after symptoms of a cold have been present for a few days. When other symptoms, such as fever, are present, ear pain or drainage may be less important than the other symptoms.

Ear problems caused by an injury to the ear can occur at any age. Common injuries include the following:

- A fall or a forceful, direct blow to the side of the head can burst the eardrum or damage the tiny bones in the inner ear that send sound to the brain.
- An injury during contact sports can cause an injury, such as "cauliflower" ear from wrestling.
- Loud noises or explosions can damage the eardrum (acoustic trauma).
- Atmospheric pressure changes (barotrauma) can cause problems with the eustachian tube and trap air in or keep air out of the middle ear. Middle ear problems can be severe (for example, the eardrum can burst or the middle ear can fill with blood or pus) or mild and only be felt as changes in pressure.
- Cuts or scrapes may injure the outside of the ear or ear canal.
- Cleaning the ear canal too often, too forcefully, or with a cotton swab, bobby pin, or sharp fingernail can cause irritation or injury.
- Burns or frostbite can cause ear injuries (thermal injuries).
- Objects placed in the ear can cause injury to the ear canal or the eardrum (tympanic membrane).

Home Treatment

When ear discomfort or pain is, mild or comes, and goes and occurs without other symptoms, home treatment may be all that is needed to relieve the child's discomfort. Home treatment measures include the following:

- Encourage the child to swallow more often. The discomfort may be caused by a blocked eustachian tube that can occur with mild irritation in the ear canal. Let a child younger than age 12 months' drink from a bottle or cup to try to help open the eustachian tube.
- Some babies and children who have ear pain are more comfortable in an upright position. Allow the child to rest in the position that is most comfortable.
- To relieve moderate to severe ear pain while waiting to see the doctor, or to relieve a red, swollen external ear:
    - Apply heat to the ear to ease pain. Use a warm washcloth. Be careful not to burn the skin around the ear. There may be some drainage when the heat melts earwax.
    - Encourage the child to rest as much as possible

Prevention

There are many steps you can take to help prevent ear problems and injuries.

- Breastfeed the baby. Breastfed babies may have fewer ear infections.
- Avoid exposing children to cigarette smoke. Children exposed to secondhand smoke have more frequent ear infections. If you smoke and are unable to stop, smoke outside, away from the child.
- Do not put the baby to bed with a bottle.
- Do not allow the baby to hold his or her own bottle.
- When the toddler is using a bottle or sippy cup, have him or her stay seated. This can help prevent injuries that might occur if the child were to fall while walking and holding a bottle or a cup.
- Feed babies in an upright position to prevent milk from getting into the area around the eustachian tubes. Do not allow infants to fall asleep with a bottle. (Nursing babies may fall asleep at the breast.)
- Being in day care increases the child's chance of getting an ear infection, so:
  - Choose a day care setting with 6 or fewer children.
  - Make sure that day care workers wash their hands before and after each diaper change.
  - Have day care workers wash toys often.
- Limit the use of a pacifier after age 6 months to moments when the child is falling asleep. Babies who use pacifiers after 12 months of age are more likely to get ear infections.
- Teach the children to blow their noses gently. This is a good idea for adults too. Wash the hands and teach the child to wash his or her hands after blowing. This helps prevent the spread of germs that can cause infection.
- Wash the hands before and after every diaper change and teach the child to wash his or her hands after using the toilet.
- When possible, limit the child's contact with other children who have colds.
- Try to keep soap and shampoo out of the ear canal. Soap and shampoo can cause itching, which can be mistaken for ear pain if the child is scratching or pulling at his or her ears.
- If the child has tubes in his or her ears, try to keep water from getting in the ear when the child takes a bath or a shower or goes swimming. The ear could get infected if any germs in the water get into the ear. If the doctor says it's okay, the child may use earplugs. Or the doctor may have other advice for you. He or she can tell you when the hole in the eardrum has healed and when it's okay to go back to regular water activities.
- The *Haemophilus influenzae* type b (Hib) vaccine prevents ear infections caused by this bacteria. Pneumococcal vaccine also prevents some ear infections in children.
- Do not insert anything, such as a cotton swab or a bobby pin, into the ear. Gently cleanse the outside of the child's ear with a warm washcloth.

b. Age 12 and Older

Ear problems may be caused by many different health problems. Ear pain at any age may be a symptom of:

- Infection of the middle ear (acute otitis media).
- Inflammation or infection of the ear canal (otitis externa).

- Buildup of fluid behind the eardrum (otitis media with effusion), without infection.

Ear problems caused by an injury to the ear can occur at any age. Common injuries include the following:

- A fall or a forceful, direct blow to the side of the head can burst the eardrum or damage the tiny bones in the inner ear that send sound to the brain.
- An injury during contact sports can cause an injury, such as "cauliflower" ear from wrestling.
- Loud noises or explosions can damage the eardrum (acoustic trauma).
- Atmospheric pressure changes (barotrauma) can cause problems with the eustachian tube and trap air in or keep air out of the middle ear. Middle ear problems can be severe (for example, the eardrum can burst or the middle ear can fill with blood or pus) or mild and only be felt as changes in pressure.
- Cuts or scrapes may injure the outside of the ear or ear canal.
- Cleaning the ear canal too often, too forcefully, or with a cotton swab, bobby pin, or sharp fingernail can cause irritation or injury.
- Burns or frostbite can cause ear injuries (thermal injuries).
- Objects placed in the ear can cause injury to the ear canal or the eardrum (tympanic membrane).

Hearing loss often comes with age. As people get older, ear problems are more likely to be related to:

- Heredity. The age of onset and how quickly the hearing loss progresses can often be determined by studying family members with hearing loss.
- The buildup of earwax.
- Exposure to loud noises, such as setting off an air bag during a car crash, machines at work, power tools, gunshots, or loud music.
- Other serious medical problems, such as Ménière's disease or an acoustic neuroma.
- Skin reaction (dermatitis) on the outside of the ear or in the ear canal from perfume, hair dye, or wearing hearing aids.

The ear shares nerves with other parts of the face, eyes, jaw, teeth, and upper neck. Pain that feels as if it is in the ear may be coming from another part of the head or neck. This is called referred ear pain and is more common in older adults. Causes of referred ear pain can include dental problems, jaw pain (temporomandibular disorder), salivary gland infection, or a sinus infection.

Home Treatment

Home treatment may be all that is needed to relieve minor or intermittent ear discomfort.

- To ease ear pain, apply a warm washcloth. There may be some drainage from the ear when the heat melts earwax.
  - Do not use a heating pad when you are in bed. You may fall asleep and burn yourself.
  - Do not use a heating pad on a child.

- Try an ice or cold pack to reduce swelling from a minor injury or sunburn. Apply for 15 minutes 3 or 4 times a day during the first 48 hours after the injury. The sooner you apply a cold pack, the less swelling you are likely to have. Place a cloth between the ice and the skin.
- Oral or nasal decongestants may relieve ear pain, especially if the pain is related to fluid behind the eardrum (otitis media with effusion). Avoid products that contain antihistamines, which tend to cause more blockage, unless allergies seem to be the problem.
- Chewing gum may help relieve pressure changes in the ear, such as when flying in an airplane.
- Try a nonprescription earwax remover if the ear feels plugged but you do not have obvious signs of infection. Be sure to follow the label directions carefully.
- **Do not use ear candles**. They have no proven benefit in the removal of earwax or the treatment of other ear problems, and they can cause serious injury.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Pain develops or increases.
- Fever or other signs of ear infection develop.
- New or different drainage from the ear develops.
- Other symptoms develop, such as hearing loss or vertigo.
- The symptoms become more severe or frequent

Prevention

You may be able to prevent ear problems.

- Teach the children to blow their noses gently. Remember to do this yourself also.
- Keep soap and shampoo out of the ear canal. These products can cause itching, which can be mistaken for an ear infection because of the need to scratch or pull at the ears.
- Do not put cotton swabs, bobby pins, or other objects (especially if they are sharp) in the ear canal.
- Limit the contact with others who have colds, when possible.
- Protect the ears from sunburn and frostbite.
- Apply sunscreen to the ears and wear a hat that shades the ears in the summer.
- Wear a hat that covers the ears in the winter.
- Limit or avoid exposure to loud noises such as music, power tools, gunshots, and industrial machinery.
- Wear protective earplugs or earmuffs if you can't avoid loud noises.
  - Avoid the prolonged use of earplugs. They can cause irritation, itching, and can plug the ear with wax.
  - Do not use wadded-up tissue or cotton balls. These do not protect adequately against loud noises (especially the more dangerous high frequencies) and they may become lodged in the ear canal.

- Avoid exposing children to cigarette smoke, which is linked with more frequent ear infections. If you smoke and are unable to stop, smoke outside, away from children.
- Stop smoking. Smoking irritates the mucous membranes that line the nose, sinuses, and lungs, and it may contribute to inflammation or infection of the ear.
- Take good care of the teeth. Daily brushing and flossing, along with regular dental checkups, helps prevent tooth decay, infections, and other dental problems that can lead to referred ear pain.
- If you wear hearing aids, be sure to follow the manufacturer's recommendations carefully for cleaning and storing them.

6. Fever

a. Age 11 and younger

Fever is the body's normal and healthy reaction to infection and other illnesses, both minor and serious. Fevers help the body fight infection. Fever is a symptom, not a disease. In most cases, fever means the child has a minor illness. Often you must look at child's other symptoms to determine how serious the illness is. Although it may be scary when the child's temperature goes up, fever is not harmful.

Normal body temperature

The average normal body temperature is about 98.6°F (37°C). It usually rises during the day from a low of 97.4°F (36.3°C) in the morning to a high of 99.6°F (37.6°C) in the late afternoon. Each child has a normal temperature range that may be different from another child's. Mild increases to 100.4°F (38°C) can be caused by exercising, wearing too many clothes, taking a hot bath, or being outside in hot weather.

Fever

Temperature varies depending on how you take it. The most common ways to measure it are:

- Under the tongue.
- In the armpit.
- In the rectum.
- In the ear.

You can also use:

- Forehead thermometers.
- Pacifier thermometers.

Some methods may not be as reliable or accurate as others. If you think the child has a fever but you are not able to measure his or her temperature, it is important to look for other symptoms of illness.

Children tend to run higher fevers than adults. The degree of fever may not indicate how serious the child's illness is. With a minor illness, such as a cold, a child may have a temperature of 104°F (40°C), while a very serious infection may not cause a fever or may cause only a mild fever. With many illnesses, a fever temperature can go up and down very quickly and often, so be sure to look for other symptoms along with the fever.

Babies with a fever often have an infection caused by a virus, such as a cold or the flu. Infections caused by bacteria, such as a urinary infection or bacterial pneumonia, also can cause a fever. Babies younger than 3 months should be seen by a doctor anytime they have a fever because they can get extremely sick quickly.

A fever in a healthy child is usually not dangerous, especially if the child does not have other symptoms and the fever goes away in 3 to 4 days. Most children who have a fever will be fussy and play less and may not eat as much as usual.

High fevers may make the child uncomfortable, but they rarely cause serious problems. There is no medical evidence that fevers from infection cause brain damage. The body limits a fever caused by infection from rising above 106°F (41.1°C). But outside heat—such as from being in a car that is parked in the sun—can cause body temperature to rise above 107°F (41.7°C), and brain damage can occur.

Childhood immunizations can reduce the risk for fever-related illnesses, such as *Haemophilus influenzae* type b (Hib) infection. Although no vaccine is 100% effective, most routine childhood immunizations are effective for 85% to 95% of the children who receive them.

Causes of fever

It is not unusual for a preschool-aged child to have 7 to 10 viral infections in a year. Each new viral infection may cause a fever. It may seem that a fever is ongoing, but if 48 hours pass between fevers, then the new fever is most likely from a new illness.

Common causes of fever include:

- Viral infections , such as colds, flu, and chickenpox.
- Bacterial infections , such as a urinary tract infection.
- Immunizations.

Teething may cause a mild increase in the child's temperature. But if the temperature is higher than 100.4°F (38°C), look for symptoms that may be related to an infection or illness.

A fever that increases quickly may lead to a fever seizure in some children. After a fever has reached a high temperature, the risk of a seizure is less. Fever seizures can be frightening to see, but they usually do not cause other problems, such as brain damage, intellectual disability, or learning problems.

Low body temperature

An abnormally low body temperature (hypothermia) can be serious, even life-threatening. Low body temperature may occur from cold exposure, shock, alcohol or drug use, or certain metabolic disorders, such as diabetes or hypothyroidism. A low body temperature may also be present with an infection, particularly in newborns, older adults, or people who are frail. An overwhelming infection, such as sepsis, may also cause an abnormally low body temperature.

Home Treatment

It can be hard to know whether you should call the doctor when the child has a fever, especially during the cold and flu season. The degree of the fever may not be related to the seriousness of the illness. The way the child looks and acts is a better guide than the thermometer. Most children will be less active when they have a fever.

If the child is comfortable and alert, is eating well, is drinking enough fluids, is urinating normal amounts, and seems to be improving, home treatment without medicine is all that is needed for a fever. Dress the child lightly, and do not wrap him or her in blankets. Dressing lightly will help the child's body cool down.

Try these home treatment measures to make sure the child is drinking enough fluids and does not get dehydrated while he or she has a fever.

Newborns and babies younger than 1 year of age

Don't wait until you see signs of dehydration in the baby. These signs include the baby being thirstier than usual and having less urine than usual.

- If you breastfeed the baby, nurse him or her more often. Offer each breast to the baby for 1 to 2 minutes every 10 minutes.
- If you use a bottle to feed the baby, increase the number of feedings to make up for lost fluids. The amount of extra fluid the baby needs depends on the baby's age and size. For example, a newborn may need as little as 1 fl oz (30 mL) at each extra feeding, while a 12-month-old baby may need as much as 3 fl oz (90 mL) at each extra feeding.
- Ask the doctor if you need to use an oral rehydration solution (ORS) if the baby still isn't getting enough fluids from formula or the breast. The amount of ORS the baby needs depends on the baby's age and size. You can give the ORS in a dropper, spoon, or bottle.
- If the baby has started eating cereal, you may replace lost fluids with cereal. You also may feed the baby strained bananas and mashed potatoes if the child has had these foods before.

Children ages 1 through 11

- Make sure the child is drinking often. Frequent, small amounts work best.
- Allow the child to drink as much fluid as he or she wants. Encourage the child to drink extra fluids. **Note**: Do not give the child fruit juice or carbonated drinks. Fruit juice and carbonated drinks contain too much sugar and not enough of the essential minerals (electrolytes) that are being lost. Diet drinks lacks calories that the child needs.
- Cereal mixed with milk or water may also be used to replace lost fluids.

- If the child still is not getting enough fluids, you can try an oral rehydration solution (ORS).

Keep child comfortable

Lowering the child's temperature is important when the fever is causing discomfort. If the child is uncomfortable:

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat child's fever or pain:
▪ Acetaminophen ▪ Ibuprofen ▪ Talk to the child's doctor before switching back and forth between doses of acetaminophen and ibuprofen. When you switch between two medicines, there is a chance the child will get too much medicine.
Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all labels on the medicine bottle and box. ▪ Give, but do not exceed, the maximum recommended doses. ▪ Do not give the child a medicine if he or she has had an allergic reaction to it in the past. ▪ Do not give aspirin to anyone younger than age 20 unless directed to do so by the child's doctor. ▪ Do not give naproxen to children younger than age 12 unless the child's doctor tells you to.

- Try giving the child a sponge bath with lukewarm water. **Do not use cold water, ice, or rubbing alcohol**.
- Encourage quiet activities.
- Watch for signs of dehydration. These include the child being thirstier than usual and having darker urine than usual.

Symptoms to watch for during home treatment

Contact doctor if any of the following occur during home treatment:

- Level of consciousness changes.
- The child has signs of dehydration and is not able to drink enough to replace lost fluids. Signs of dehydration include being thirstier than usual and having darker urine than usual.
- Other symptoms develop, such as pain in one area of the body, shortness of breath, or urinary symptoms.

- Symptoms become more severe or frequent.

Prevention

The best way to prevent fevers is to reduce the child's exposure to infectious diseases. Hand-washing is the single most important prevention measure for people of all ages.

Childhood immunizations can reduce the risk for fever-related illnesses, such as *Haemophilus influenzae* type b (Hib) infection. Although no vaccine is 100% effective, most routine childhood immunizations are effective for 85% to 95% of the children who receive them.

b. Ages 12 and older

Fever is the body's normal and healthy reaction to infection and other illnesses, both minor and serious. It helps the body fight infection. Fever is a symptom, not a disease. In most cases, having a fever means you have a minor illness. When you have a fever, the other symptoms will help you determine how serious the illness is.

Normal body temperature

Most people have an average body temperature of about 98.6°F (37°C), measured orally (a thermometer is placed under the tongue). The temperature may be as low as 97.4°F (36.3°C) in the morning or as high as 99.6°F (37.6°C) in the late afternoon. The temperature may go up when you exercise, wear too many clothes, take a hot bath, or are exposed to hot weather.

Fever temperatures

A fever is a high body temperature. A temperature of up to 102°F (38.9°C) can be helpful because it helps the body fight infection. Most healthy children and adults can tolerate a fever as high as 103°F (39.4°C) to 104°F (40°C) for short periods of time without problems. Children tend to have higher fevers than adults.

The degree of fever may not show how serious the illness is. With a minor illness, such as a cold, you may have a temperature, while a very serious infection may cause little or no fever. It is important to look for and evaluate other symptoms along with the fever.

If you are not able to measure the temperature with a thermometer, you need to look for other symptoms of illness. A fever without other symptoms that lasts 3 to 4 days, comes and goes, and gradually reduces over time is usually not a cause for concern. When you have a fever, you may feel tired, lack energy, and not eat as much as usual. High fevers are not comfortable, but they rarely cause serious problems.

Oral temperature taken after smoking or drinking a hot fluid may give you a false high temperature reading. After drinking or eating cold foods or fluids, an oral temperature may be falsely low.

Causes of fever

Viral infections, such as colds and flu, and bacterial infections, such as a urinary tract infection or pneumonia, often cause a fever.

Travel outside the native country can expose you to other diseases. Fevers that begin after travel in other countries need to be evaluated by the doctor.

Fever and respiratory symptoms are hard to evaluate during the flu season. A fever of 102°F (38.9°C) or higher for 3 to 4 days is common with the flu. Recurrent fevers are those that occur 3 or more times within 6 months and are at least 7 days apart. Each new viral infection may cause a fever. It may seem that a fever is ongoing, but if 48 hours pass between fevers, then the fever is recurring. If you have frequent or recurrent fevers, it may be a symptom of a more serious problem. Talk to the doctor about the fever.

Treating a fever

In most cases, the illness that caused the fever will clear up in a few days. You usually can treat the fever at home if you are in good health and do not have any medical problems or significant symptoms with the fever. Make sure that you are taking enough foods and fluids and urinating in normal amounts.

Low body temperature

An abnormally low body temperature (hypothermia) can be serious, even life-threatening. Low body temperature may occur from cold exposure, shock, alcohol or drug use, or certain metabolic disorders, such as diabetes or hypothyroidism. A low body temperature may also be present with an infection, particularly in newborns, older adults, or people who are frail. An overwhelming infection, such as sepsis, may also cause an abnormally low body temperature.

Home Treatment

It's easy to become dehydrated when you have a fever. In the early stages, you may be able to correct mild to moderate dehydration with home treatment measures. It is important to control fluid losses and replace lost fluids. If you become mildly to moderately dehydrated:

- Stop the activity and rest.
- Drink a rehydration drink, water, juice, or sports drink to replace fluids and minerals. Drink 2 qt (2 L) of cool liquids over the next 2 to 4 hours. You should drink at least 10 glasses of liquid a day to replace lost fluids. You can make an inexpensive rehydration drink at home. But only **give this homemade drink to children younger than 12 when ORS is inaccessible**. Measure all ingredients precisely. Small variations can make the drink less effective or even harmful. Mix the following:
    - 1 quart (1 L) purified water
    - ½ teaspoon (2.5 mL) salt
    - 6 teaspoons (30 mL) sugar

Rest and take it easy for 24 hours, and continue to drink a lot of fluids. Although you will probably start feeling better within just a few hours, it may take as long as a day and a half to completely replace the fluid that you lost.

Many people find that taking a lukewarm [80°F (27°C) to 90°F (32°C)] shower or bath makes them feel better when they have a fever. Do not try to take a shower if you are dizzy or unsteady on the feet. Increase the water temperature if you start to shiver. Shivering is a sign that the body is trying to raise its temperature. **Do not** use rubbing alcohol, ice, or cold water to cool the body.

Dress lightly when you have a fever. This will help the body cool down. Wear light pajamas or a light undershirt. Do not wear very warm clothing or use heavy bed covers. Keep room temperature at 70°F (21°C) or lower.

If you are not able to measure the temperature, you need to look for other symptoms of illness every hour while you have a fever and follow home treatment measures.

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat fever or pain:
▪ Acetaminophen ▪ Nonsteroidal anti-inflammatory drugs (NSAIDs): – Ibuprofen – Naproxen – Aspirin

Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all directions on the medicine bottle and box. ▪ Do not take more than the recommended dose. ▪ Do not take a medicine if you have had an allergic reaction to it in the past. ▪ If you have been told to avoid a medicine, call the doctor before you take it. ▪ If you are or could be pregnant, do not take any medicine other than acetaminophen unless the doctor has told you to. ▪ Do not give aspirin to anyone younger than age 20 unless the doctor tells you to.

Be sure to check the temperature every 2 to 4 hours to make sure home treatment is working.

Symptoms to watch for during home treatment

Contact doctor if any of the following occurs during home treatment:

- Level of consciousness changes.
- You have signs of dehydration and you are unable to drink enough to replace lost fluids. Signs of dehydration include being thirstier than usual and having darker urine than usual.
- Other symptoms develop, such as pain in one area of the body, shortness of breath, or urinary symptoms.
- Symptoms become more severe or frequent.

Prevention

The best way to prevent fevers is to reduce the exposure to infectious diseases. Hand-washing is the single most important prevention measure for people of all ages.

Immunizations can reduce the risk for fever-related illnesses, such as the flu. Although no vaccine is 100% effective, most routine immunizations are effective for 85% to 95% of the people who receive them.

7. Nausea and Vomiting

a. Age 11 and younger

Vomiting occurs when a child's stomach contents are forced up the esophagus and out of the mouth. Although nausea may accompany vomiting in adults and older children, children younger than age 3 are usually not able to tell you if they are having nausea. Most of the time vomiting is not serious. Home treatment will often ease the child's discomfort.

Vomiting in a baby should not be confused with spitting up. Vomiting is forceful and repeated. Spitting up may seem forceful but it usually occurs shortly after feeding, is effortless, and causes no discomfort.

Causes of vomiting

A baby may spit up for no reason at all. Overfeeding, not burping the baby after feeding, intolerance to milk or formula, and exposure to tobacco smoke are other reasons why the baby may spit up.

Most vomiting in children is caused by a viral stomach illness (gastroenteritis). A child with a stomach illness also may have other symptoms, such as diarrhea, fever, and stomach cramps. With home treatment, the vomiting usually will stop within 12 hours. Diarrhea may last for a few days or more.

Rotavirus is a virus that can cause severe vomiting and diarrhea. Rotavirus vaccine helps protect against rotavirus disease.

Vomiting can also be caused by an infection in another part of the body, such as strep throat, pneumonia, or a urinary tract infection. In rare cases, vomiting can be a symptom of a serious condition,

such as a blockage of the digestive tract (pyloric stenosis), an infection (meningitis) of the fluid (cerebrospinal fluid) and tissues (meninges) that surround the brain and spinal cord, or Reye syndrome.

When a toddler vomits, it is important to make sure he or she has not swallowed medicines, household liquids, or other poisons. Look around the house for empty containers and spills. There may be pills in the child's vomit, or the vomit may have an unusual appearance, color, or odor.

A child who falls down and forcefully hits his or her head or belly may vomit because of an injury to those areas. Check the child's body for bruises and other injuries.

Babies and children younger than 1 year old need special attention if they continue to vomit. They can quickly become dehydrated. It is important to replace lost fluids when the child is vomiting. Watch the child carefully, and pay close attention to the amount of fluid he or she is able to drink. Look for early symptoms of dehydration:

- The mouth and eyes may be drier than usual.
- The urine may be less than usual.
- He or she may feel cranky, tired, or dizzy.

Also, be sure to notice the color of the vomit, and count the number of times the child vomits. If the child vomits so frequently that you can't get him or her to drink or vomits every time he or she takes a drink, the risk of dehydration is greater.

Home Treatment

Newborns and babies younger than 1 year of age

Don't wait until you see signs of dehydration in the baby. These signs include the baby being thirstier than usual and having less urine than usual.

- If you breastfeed the baby, nurse him or her more often. Offer each breast to the baby for 1 to 2 minutes every 10 minutes.
- If you use a bottle to feed the baby, increase the number of feedings to make up for lost fluids. The amount of extra fluid the baby needs depends on the baby's age and size. For example, a newborn may need as little as 1 fl oz (30 mL) at each extra feeding, while a 12-month-old baby may need as much as 3 fl oz (90 mL) at each extra feeding.
- Ask the doctor if you need to use an oral rehydration solution (ORS) if the baby still isn't getting enough fluids from formula or the breast. The amount of ORS the baby needs depends on the baby's age and size. You can give the ORS in a dropper, spoon, or bottle.
- If the baby has started eating cereal, you may replace lost fluids with cereal. You also may feed the baby strained bananas and mashed potatoes if the child has had these foods before.

Children ages 1 through 11

- Make sure the child is drinking often. Frequent, small amounts work best.

- Allow the child to drink as much fluid as he or she wants. Encourage the child to drink extra fluids. **Note**: Do not give the child fruit juice or carbonated drinks. Fruit juice and carbonated drinks contain too much sugar and not enough of the essential minerals (electrolytes) that are being lost. Diet carbonated drinks lacks calories that the child needs.
- Cereal mixed with milk or water may also be used to replace lost fluids.
- If the child still is not getting enough fluids, you can try an oral rehydration solution (ORS).
- Gradually start to offer the child regular foods after 6 hours with no vomiting.
  - Offer the child solid foods if he or she was eating solids before. Offer crackers, toast, broths, mild soups, mashed potatoes, rice, and breads to the older child.
  - Avoid high-fiber foods, such as beans, and foods with a lot of sugar, such as candy or ice cream.

If the child also has diarrhea, try home treatment for diarrhea.

Symptoms to watch for during home treatment

Contact doctor if any of the following occur during home treatment:

- Dehydration develops. Signs include the child being thirstier than usual and having less urine than usual.
- The child's vomiting returns or becomes severe.
- Blood or yellow or green liquid (bile) is present in the child's vomit.
- The child's vomiting does not get better.
- The child's symptoms become more severe or frequent.

Prevention

Babies

It is normal for babies to spit up after a feeding. Vomiting after a single feeding may happen sometimes and does not mean the baby has a problem. Repeated vomiting after feedings is more of a concern. The following tips may help the baby spit up less often. If this advice does not help, talk with the doctor.

- Feed the baby smaller amounts at each feeding.
- Feed the baby slowly.
- Hold the baby during feedings.
  - Do not prop the baby's bottle.
  - Do not place the baby in an infant seat during feedings.
- Try a new type of bottle or use a nipple with a smaller opening to reduce air intake.
- Limit active and rough play after feedings.
- Try putting the baby in different positions during and after feeding.
- Burp the baby frequently during feedings.
- Consider talking to the doctor about starting the baby on hypoallergenic formula. About 1% of babies who spit up are allergic to milk protein.

- Do not add cereal to formula without first consulting the child's doctor.
- Do not smoke when you are feeding the baby. Children who are exposed to tobacco smoke are more likely to develop illnesses that cause vomiting. If you smoke, quit. If you can't quit, do not smoke when you are holding or feeding the baby or when you are in the house or the car.
- Consider getting the child the rotavirus vaccine.

Toddlers

- Limit active and rough play after feedings.
- Teach the children how to wash their hands well, especially if there is an illness in the house.

b. 12 years and older

Nausea is a sick feeling in the pit of the stomach. When you are nauseated, you may feel weak and sweaty and have too much saliva in the mouth. You may even vomit. This forces the stomach contents up the esophagus and out of the mouth. Most of the time, nausea and vomiting are not serious. Home treatment will often help you feel better.

Nausea and vomiting can be a symptom of another illness. Nausea and vomiting may be caused by:

- Illness caused by a virus, such as viral stomach illness (gastroenteritis).
- Food poisoning .
- Medicines, such as antibiotics, birth control pills, or heart medicines.
- Pregnancy. "Morning sickness" may be one of the first symptoms.
- Problems with abdominal (belly) organs.
- Migraine headache .
- Heart attack .
- Head injury.
- Alcohol or drug abuse or withdrawal.
- Eating disorders, such as anorexia or bulimia.
- Disorders of the inner ear, such as labyrinthitis, Ménière's disease, or motion sickness.
- Radiation therapy .

Nausea or vomiting also may be a symptom of a problem or a disease, such as:

- Liver disease (hepatitis or cirrhosis).
- Inflammation of the pancreas (pancreatitis).
- Inflammation or irritation of the lining of the stomach (gastritis).
- Ulcer disease of the stomach or small intestine (peptic ulcers).
- Gallbladder problems (cholecystitis).
- Inflammation of the appendix (appendicitis).
- Kidney stones .
- Kidney disease (pyelonephritis or chronic kidney disease).

- Urinary problems, such as a urinary tract infection (UTI).
- Bowel problems, such as a bowel obstruction.
- Infection in or around the brain, such as meningitis, encephalitis, or a brain tumor.

Nausea and vomiting can quickly cause dehydration. Older adults have an increased chance of becoming dehydrated.

Home Treatment

Home treatment may be all that is needed to treat occasional nausea.

- Watch for dehydration, and treat it early. Signs of dehydration include being thirstier than usual and having less urine than usual. Older adults and young children can quickly become dehydrated.
- Don't use aspirin or a nonsteroidal anti-inflammatory drug (NSAID), such as ibuprofen, to treat belly pain.
- Take an over-the-counter antinausea medicine, such as meclizine or dimenhydrinate, or an antihistamine. Don't give antihistamines to the child unless you've checked with the doctor first.
- Try acupressure:
  - Place the tip of the right index finger on the underside of the left wrist, about 1.5 in. (4 cm) from the hand. Acupressure points are very small, so you may need to try this method more than one time.
  - Apply moderate pressure for 2 to 3 minutes.
  - Repeat as needed.
  - Acupressure bands, which are available for motion sickness, may help reduce nausea.
- Suck on peppermint candy, or chew a stick of peppermint gum. Peppermint may relax tight muscles in the stomach and help decrease the stomach contractions that may be causing the nausea.

If you are vomiting:

- Rest in bed until you are feeling better.
- Sip a rehydration drink to restore lost fluids and nutrients.
- After vomiting has stopped for 1 hour, drink 1 fl oz (30 mL) of a clear liquid every 20 minutes for 1 hour. Clear liquids include apple or grape juice mixed to half strength with water, rehydration drinks, weak tea with sugar, clear broth, and gelatin dessert. Avoid orange juice, grapefruit juice, tomato juice, and lemonade. Avoid apple and grape juice if you also have diarrhea. Do not drink milk products, alcohol, or carbonated drinks such as sodas.
- If you do not have any more vomiting, increase the amount of fluid you drink to 8 fl oz (240 mL) during the second hour. If you are not vomiting after the second hour, make sure that you continue to drink enough to prevent dehydration.
- When you are feeling better, begin eating clear soups, mild foods, and liquids until all symptoms are gone for 12 to 48 hours. Gelatin dessert, dry toast, crackers, and cooked cereal are good choices. Try to stay away from strong food odors, which can make nausea worse.

- The acid in vomit can erode dental enamel and cause tooth decay (cavities). Rinse the mouth with water after you vomit. Brush the teeth if you can.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Dehydration develops. Signs of dehydration include being thirstier than usual and having less urine than usual.
- A stiff neck develops.
- Severe vomiting develops.
- Vomit contains blood or material that looks like coffee grounds.
- Vomiting with fever of 103°F (39.4°C) or higher occurs or fever lasts longer than 2 days.
- Belly pain develops or gets worse.
- The symptoms become more severe or more frequent.

Prevention

Food poisoning

Food poisoning is one of the most common causes of nausea and vomiting in adults. To prevent food poisoning:

- Follow the 2-40-140 rule. Don't eat meats, dressing, salads, or other foods that have been kept between 40°F (4.4°C) and 140°F (60°C) for more than 2 hours.
- Be especially careful with large cooked meats, such as the holiday turkey, which require a long time to cool. Thick parts of the meat may stay over 40°F (4.4°C) long enough to allow bacteria to grow.
- Use a thermometer to check the refrigerator. It should be between 34°F (1.1°C) and 40°F (4.4°C).
- Defrost meats in the refrigerator or the microwave, not on the kitchen counter.
- Wash the hands, cutting boards, and countertops often. After handling raw meats, especially chicken, wash the hands and utensils before preparing other foods.
- Reheat meats to over 140°F (60°C) for at least 10 minutes to destroy bacteria. Even then the bacteria may not be destroyed.
  - Cook all meats to the recommended temperature. See how to cook foods to prevent food poisoning.
  - Cook hamburger well done. Cook chicken until the juices run clear.
  - Cover meats and poultry during microwave cooking to heat the surface of the meat.
- Do not eat raw eggs or uncooked sauces made with eggs.
- Keep party foods on ice.
- When you eat out, avoid rare and uncooked meats or seafood. Eat salad bar and deli items before they get warm.
- Discard any cans or jars with bulging lids or leaks.
- Follow home canning and freezing instructions carefully. Contact the county agricultural extension office for advice.

- If you think that food may have been stored in the refrigerator for too long, don't take the chance. Throw it out.

8. Pink Eye

Pinkeye (also called conjunctivitis) is redness and swelling of the conjunctiva, the mucous membrane that lines the eyelid and eye surface. The lining of the eye is usually clear. If irritation or infection occurs, the lining becomes red and swollen. Pinkeye is very common. It usually is not serious and goes away in 7 to 10 days without medical treatment.

Most cases of pinkeye are caused by:

- Infections caused by viruses or bacteria.
- Dry eyes from lack of tears or exposure to wind and sun.
- Chemicals, fumes, or smoke (chemical conjunctivitis).
- Allergies.

Viral and bacterial pinkeye are contagious and spread very easily. Since most pinkeye is caused by viruses for which there is usually no medical treatment, preventing its spread is important. Poor hand-washing is the main cause of the spread of pinkeye. Sharing an object, such as a washcloth or towel, with a person who has pinkeye can spread the infection.

Viral pinkeye

Viral pinkeye is often caused by an adenovirus, which is a common respiratory virus that can also cause a sore throat or upper respiratory infection. The herpes virus can also cause viral pinkeye.

Symptoms of viral pinkeye include:

- Redness in the white of the eye.
- Swelling of the eyelids.
- Itching or burning feeling of the eyelids.
- Swollen and tender areas in front of the ears.
- A lot of tearing.
- Clear or slightly thick, whitish drainage.

Viral pinkeye symptoms usually last 5 to 7 days but may last up to 3 weeks and can become ongoing or chronic. Pinkeye may be more serious if you:

- Have a condition that decreases the body's ability to fight infection (impaired immune system).
- Have vision in only one eye.

- Wear contact lenses.

If the pinkeye is caused by a virus, the person can usually return to day care, school, or work when symptoms begin to improve, typically in 3 to 5 days. Medicines are not usually used to treat viral pinkeye, so it is important to prevent the spread of the infection. Pinkeye caused by a herpes virus, which is rare, can be treated with an antiviral medicine. Home treatment of viral pinkeye symptoms can help you feel more comfortable while the infection goes away.

Bacterial pinkeye

An infection may develop when bacteria enter the eye or the area around the eye. Some common infections that cause pinkeye include:

- Staph infection.
- *Haemophilus influenzae* type b (Hib).
- Cat-scratch disease .
- Gonorrhea .

Symptoms of bacterial pinkeye include:

- Redness in the white of the eye.
- Gray or yellow drainage from the eye. This drainage may cause the eyelashes to stick together.
- Mild pain .
- Swelling of the upper eyelid, which may make the lid appear to droop (pseudoptosis).

Bacterial pinkeye may cause more drainage than viral pinkeye. Bacterial infections usually last 7 to 10 days without antibiotic treatment and 2 to 4 days with antibiotic treatment. The person can usually return to day care, school, or work 24 hours after an antibiotic has been started if symptoms have improved. Prescription antibiotic treatment usually kills the bacteria that cause pinkeye.

Red eye

Red eye is a more general term that includes not only pinkeye but also many other problems that cause redness on or around the eye, not just the lining. Pinkeye is the main cause of red eye. Red eye has other causes, including:

- Foreign bodies, such as metal or insects.
- Scrapes, sores, or injury to or infection of deeper parts of the eye (for example, uveitis, iritis, or keratitis).
- Glaucoma .
- Infection of the eye socket and areas around the eye.

Swollen, red eyelids may also be caused by styes, a lump called a chalazion, inflammation of the eyelid (blepharitis), or lack of tears (dry eyes).

Home Treatment

Home treatment for pinkeye will help reduce the pain and keep the eye free of drainage. If you wear contacts, remove them and wear glasses until the symptoms have gone away completely. Thoroughly clean the contacts and storage case.

Cold compresses or warm compresses (whichever feels best) can be used. If an allergy is the problem, a cool compress may feel better. If the pinkeye is caused by an infection, then a warm, moist compress may soothe the eye and help reduce redness and swelling. Warm, moist compresses can spread infection from one eye to the other. Use a different compress for each eye, and use a clean compress for each application.

When cleaning the eye, wipe from the inside (next to the nose) toward the outside. Use a clean surface for each wipe so that drainage being cleaned away is not rubbed back across the eye. If tissues or wipes are used, make sure they are put in the trash and are not allowed to sit around. If washcloths are used to clean the eye, put them in the laundry right away so that no one else picks them up or uses them. After wiping the eye, wash the hands to prevent the pinkeye from spreading.

After pinkeye has been diagnosed:

- Do not go to school or go to work until pinkeye has improved.
  - If the pinkeye is caused by a virus, the person can usually return to school, or work when symptoms begin to improve, typically in 3 to 5 days. Medicines are not usually used to treat viral pinkeye, so preventing its spread is important. Home treatment of the symptoms will help you feel more comfortable while the infection goes away.
  - If the pinkeye is caused by bacteria, the person can usually return to school, or work after the infection has been treated for 24 hours with an antibiotic and symptoms are improving. Prescription antibiotic treatment usually kills the bacteria that cause pinkeye.
- Use medicine as directed. Medicine may include eyedrops and eye ointment.

For pinkeye related to allergies, antihistamines, such as loratadine or cetirizine, may help relieve the symptoms. Don't give antihistamines to the child unless you've checked with the doctor first.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Eye pain continues or increases.
- Sensitivity to light (photophobia) develops.
- Signs of an infection develop.
- Symptoms become more severe or frequent.
- If you wear contact lenses, be sure to remove them when the eye problem starts.

Prevention

Pinkeye is spread through contact with the eye drainage, which contains the virus or bacteria that caused the pinkeye. Touching an infected eye leaves drainage on the hand. If you touch the other eye or an object when you have drainage on the hand, the virus or bacteria can be spread.

The following tips help prevent the spread of pinkeye:

- Wash the hands before and after:
  - Touching the eyes or face.
  - Using medicine in the eyes.
- Do not share eye makeup.
- Do not use eye makeup until the infection is fully cured, because you could reinfect yourself with the eye makeup products. If the eye infection was caused by bacteria or a virus, throw away the old makeup and buy new products.
- Do not share contact lens equipment, containers, or solutions.
- Do not wear contact lenses until the infection is cured. Thoroughly clean the contacts before wearing them again.
- Do not share eye medicine.
- Do not share towels, linens, pillows, or handkerchiefs. Use clean linens, towels, and washcloths daily.
- Wash the hands and wear gloves if you are looking into someone else's eye for a foreign object or helping someone else apply an eye medicine.
- When in the wind, heat, or cold, wear eye protection to prevent eye irritation.
- Wear safety glasses when working with chemicals

9. Rash

a. Age 11 and Younger

Healthy skin is a barrier between the inside of the body and the outside environment. A rash means some change has affected the skin. A rash is generally a minor problem or is part of an illness that will go away on its own. A rash may be caused by contact with a substance outside the body, such as poison ivy (contact dermatitis), or by other more serious illnesses, such as measles or scarlet fever (strep throat with rash).

Generalized rashes over the whole body that are caused by viruses are more common in babies and young children than in adults. A rash may be caused by a viral illness if the child also has a cold, a cough, or diarrhea, or is in a day care setting where he or she is with other children with viral illnesses. Most rashes caused by viruses are not serious and usually go away over a few days to a week. Home treatment is often all that is needed to treat these rashes.

After a child has had a rash caused by a virus, his or her body generally builds an immunity to that virus. This immunity protects the child from getting that specific viral illness and rash again. Common rashes caused by viruses include:

- Chickenpox (varicella). This rash is a common, contagious illness caused by a type of herpes virus.
- Fifth disease . This facial rash looks like the cheeks have been slapped. It also causes a lacy, pink rash on the arms and legs, torso, and buttocks.
- Roseola (roseola infantum). This rash occurs about 3 days after a high fever.
- Unknown virus. Sometimes the specific virus that causes a rash is never known.

Localized rashes which affect one area of the body have many different causes and may go away with home treatment. Common localized rashes that occur during childhood include:

- Diaper rash. This rash is caused by rubbing, moisture, chemicals, or bacteria in the baby's urine or stool; substances in disposable diapers; or soaps used to wash cloth diapers.
- Impetigo. This bacterial skin infection is caused by *strep* or *staph* bacteria.
- Heat rash (prickly heat) . This rash often results from a well-meaning parent dressing his or her baby too warmly, but it can happen to any baby in very hot weather.
- Cold sores. These are sometimes called fever blisters. Cold sores are clusters of small blisters on the lip and outer edge of the mouth caused by the herpes simplex virus.
- Contact dermatitis. This rash is caused by contact with a substance, such as food, soap, or lotion, that causes an allergic reaction. Most contact dermatitis is mild and goes away when the child's skin no longer comes in contact with the substance.
- Cradle cap. Cradle cap is an oily, yellow scaling or crusting on a baby's scalp. It is common in babies and is easily treated. Cradle cap is not a part of any illness and does not mean that a baby is not being well cared for.

Rashes that may require a visit to a doctor include:

- Lyme disease, which is caused by a bacteria carried by deer ticks in some areas. A characteristic expanding red rash usually occurs at the site of the tick bite and is followed by flu-like symptoms, such as a headache, chills, fever, body aches, and stiffness.
- A rash that looks like a sunburn and a fever of 102°F (38.9°C) or higher. This type of rash may be caused by a rare condition called toxic shock syndrome.
- A very rare and serious type of generalized red rash called toxic epidermal necrolysis (TEN). This type of rash may cause the skin to peel away, leaving large areas of tissue that weep or ooze fluid like a severe burn. TEN may occur after the use of some medicines.

To know how serious the rash is, other symptoms that occur with the rash must be evaluated.

Home Treatment

Most rashes will go away without medical treatment. Home treatment can often relieve pain and itching until the rash goes away. If the child has come in contact with a substance that may cause contact dermatitis, such as poison ivy, immediately wash the area with large amounts of water. Once a rash has developed, leave it alone as much as possible.

- Use soap and water sparingly.
- Leave the rash exposed to the air whenever possible.
- Encourage the child not to scratch the rash.

If the child has a rash, he or she should not be in contact with other children or pregnant women. Most viral rashes are contagious, especially if a fever is present.

Relief from itching

Itching with a rash is generally not serious, but it can be annoying and may make a rash more likely to become infected. Rashes caused by chickenpox, eczema, or contact dermatitis are much more likely to itch. Sometimes itching can get worse by scratching.

Home treatment may help the itching.

- Keep the child's fingernails clean and short, and encourage him or her not to scratch. Cover the baby's hands with socks to help keep him or her from scratching.
- Keep the child out of the sun and in a cool place. Heat makes itching worse.
- Keep the itchy area cool and wet if the child is older than age 9 months. Put cloths soaked in ice water on the rash a few times a day. Too much wetting and drying will dry the skin, which can increase itching. **Do not** put cloths soaked in ice water on the skin of a baby younger than 9 months. It may cause the baby's body temperature to go down.
- Add a handful of oatmeal (ground to a powder) to the child's bath. Dress the child in cotton clothing. Do not use wool and synthetic fabrics next to the skin.
- Use gentle soaps, such as Dove, or Oil of Olay, and use as little soap as possible. Do not use deodorant soaps on the child.
- Wash the child's clothes with a mild soap, rather than a detergent. Rinse twice to remove all traces of the soap. Do not use strong detergents.
- Do not let the skin become too dry, which can make itching worse.

Nonprescription medicines for itching

Carefully read and follow all label directions on the medicine bottle or box.

- Try calamine lotion for a rash caused by contact dermatitis, such as poison ivy or poison oak rashes.
- For severe itching, apply hydrocortisone cream 4 times a day until the itch is gone. **Note:** Do not use the cream on children younger than age 2 unless the doctor tells you to do so. Do not use in the rectal or vaginal area on children younger than age 12 unless the doctor tells you to do so.

- Try an oral antihistamine to help the scratch-itch cycle. Examples include chlorpheniramine maleate, such as Chlor-Trimeton, and diphenhydramine. Oral antihistamines are helpful when itching and discomfort are preventing the child from doing normal activities, such as going to school or getting to sleep. Don't give antihistamines to the child unless you've checked with the doctor first.

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat the child's fever or pain:
▪ Acetaminophen or Ibuprofen ▪ Talk to the child's doctor before switching back and forth between doses of acetaminophen and ibuprofen. When you switch between two medicines, there is a chance the child will get too much medicine.

Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all labels on the medicine bottle and box. ▪ Give, but do not exceed, the maximum recommended doses. ▪ Do not give the child a medicine if he or she has had an allergic reaction to it in the past. ▪ Do not give aspirin to anyone younger than age 20 unless directed to do so by the child's doctor. ▪ Do not give naproxen sodium to children younger than age 12 unless the child's doctor tells you to.

Symptoms to watch for during home treatment

Contact doctor if any of the following occur during home treatment:

- Other symptoms, such as a fever, feeling ill, or signs of infection, are severe or become worse.
- A new rash lasts longer than 2 weeks.
- The child's symptoms become more severe or more frequent.

Prevention

Several childhood diseases that cause a rash can be prevented through immunization. Immunizations help the child's immune system recognize and quickly attack a virus before it can cause a serious illness. Immunizations for chickenpox and for measles, mumps, and rubella (MMR) can prevent these common rash-causing illnesses.

Other tips for preventing rashes include the following:

- Dress the baby in as few clothes as possible during hot weather.
- Breastfeed the child for at least the first 6 months, especially if either parent has a history of any allergy, including hay fever. Breastfed children may develop fewer food allergies than those who are not breastfed.
- Do not bathe the child too often to prevent dry skin. Most children do not need daily bathing. Children with very dry skin may do better if they bathe once or twice a week.

b. Age 12 and Older

Healthy skin provides a barrier between the inside of the body and the outside environment. A rash means some change has affected the skin. Rashes are generally caused by skin irritation, which can have many causes. A rash is generally a minor problem that may go away with home treatment. In some cases, a rash does not go away or the skin may become so irritated that medical care is needed.

In adults and older children, rashes are often caused by contact with a substance that irritates the skin (contact dermatitis). The rash usually starts within 48 hours after contact with the irritating substance. Contact dermatitis may cause mild redness of the skin or a rash of small red bumps. A more severe reaction may cause swelling, redness, and larger blisters. The location of the rash may give you a clue about the cause.

Contact dermatitis does not always occur the first time you are in contact with the irritating substance (allergen). After you have had a reaction to the substance, a rash can occur in response to even very small amounts of the substance. Contact dermatitis is not serious, but it is often very itchy. Common causes of contact dermatitis include:

- Poisonous plants, such as poison ivy, oak, or sumac.
- Soaps, detergents, shampoos, perfumes, cosmetics, or lotions.
- Jewelry or fabrics.
- New tools, toys, appliances, or other objects.
- Latex. Allergy to natural rubber latex affects people who are exposed to rubber products on a regular basis, especially health care workers, rubber industry workers, and people who have had multiple surgeries. Latex allergies can cause a severe reaction.

Rashes may occur with viral infections, such as herpes zoster; fungal infections, such as a yeast infection (*Candida albicans*); bacterial infections, such as impetigo; and sexually transmitted infections (STIs). Rashes may also occur as a symptom of a more serious disease, such as liver disease, kidney disease, or some types of cancer.

Rashes may also appear after exposure to an insect or a parasite, such as the scabies mite. You may develop a rash when you travel to a rural area or go hiking or camping in the woods.

A rash may be a sign of a chronic skin problem, such as acne, eczema, psoriasis, or seborrheic dermatitis. Other causes of rash include dry, cold weather; extremely hot weather (heat rash); and emotional stress. Emotions such as frustration or embarrassment may lead to an itchy rash.

Some medicines can cause a rash as a side effect. A very rare and serious type of generalized red rash called toxic epidermal necrolysis (TEN) may occur after using sulfa drugs. TEN can cause the skin to peel away, leaving large areas of tissue that weep or ooze fluid like a severe burn. TEN may occur after the use of some medicines. If this type of rash occurs, you need to see a doctor.

The need for medical treatment often depends on what other symptoms are present. A rash that occurs with other symptoms, such as shortness of breath or fever, may mean another problem, such as a serious allergic reaction or infection.

Home Treatment

Most rashes will go away without medical treatment. Home treatment can often relieve pain and itching until the rash goes away.

If you have come in contact with a substance such as poison ivy, oak, or sumac, immediately wash the area with large amounts of water.

After a rash has developed, leave it alone as much as possible.

- Use soap and water sparingly.
- Leave the rash exposed to the air whenever possible.
- Do not scratch the rash.

If you have a rash, you should not be in contact with children or pregnant women. Most viral illnesses that cause a rash are contagious, especially if a fever is present.

Relief from itching

- Keep the itchy area cool and moist. Put cloths soaked in ice water on the rash a few times a day. Too much wetting and drying will dry the skin, which can increase itching.
- Keep cool, and stay out of the sun. Heat makes itching worse.
- Add a handful of oatmeal (ground to a powder) to the bath.
- Avoid scratching as much as possible. Scratching leads to more scratching. Cut nails short or wear cotton gloves at night to prevent scratching.
- Wear cotton clothing. Do not wear wool and synthetic fabrics next to the skin.
- Use gentle soaps and use as little soap as possible. Do not use deodorant soaps.
- Wash the clothes with a mild soap, rather than a detergent. Rinse twice to remove all traces of the soap. Do not use strong detergents.
- Do not let the skin become too dry, which may make itching worse.
- Take several breaks during the day to do a relaxation exercise, particularly before going to bed if stress appears to cause the itching or make it worse. Sit or lie down, and try to clear the mind. Managing the stress by relaxing every muscle in the body, starting with the toes and going up to the head, may help the symptoms.

Nonprescription medicines for itching

Carefully read and follow all label directions on the medicine bottle or box.

- Try calamine lotion for a rash caused by contact dermatitis, such as poison ivy or poison oak rashes.
- For severe itching from contact dermatitis, apply hydrocortisone cream 4 times a day until the itch is gone. Do not use this cream on a fungal rash, because this can make the rash worse.
- Try an oral antihistamine to help the scratch-itch cycle. Examples include chlorpheniramine maleate, such as Chlor-Trimeton, and diphenhydramine. Oral antihistamines are helpful when itching and discomfort are preventing you from doing normal activities, such as work and sleep. Antihistamines may cause drowsiness. Do not drive or operate any type of equipment if you are taking any of these medicines. And don't give antihistamines to the child unless you've checked with the doctor first.

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat the fever or pain:
▪ Acetaminophen ▪ Nonsteroidal anti-inflammatory drugs (NSAIDs): – Ibuprofen – Naproxen ▪ Aspirin (also a nonsteroidal anti-inflammatory drug) ▪ Talk to the child's doctor before switching back and forth between doses of acetaminophen and ibuprofen. When you switch between two medicines, there is a chance the child will get too much medicine.
Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all directions on the medicine bottle and box. ▪ Do not take more than the recommended dose. ▪ Do not take a medicine if you have had an allergic reaction to it in the past. ▪ If you have been told to avoid a medicine, call the doctor before you take it. ▪ If you are or could be pregnant, do not take any medicine other than acetaminophen unless the doctor has told you to. ▪ Do not give aspirin to anyone younger than age 20 unless the doctor tells you to.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Other symptoms, such as a fever, feeling ill, or signs of infection, are severe or become worse.
- A rash lasts longer than 2 weeks.
- Symptoms become more severe or happen more often

Prevention

If you have a known allergy, avoid contact with the substance that causes the allergy.

Avoid all infectious diseases that cause skin rashes, such as chickenpox, measles, and some types of sexually transmitted infections (STIs).

Treat the skin gently:

- Do not bathe too much. Soap and water dries the skin of the essential oils that hold in moisture.
- Do not scratch the skin or rub it roughly with towels.
- Avoid exposure to chemicals that may irritate the skin, such as rubbing alcohol, soaps, detergents, or solvents.

10. Respiratory Problems

a. Age 11 and younger

Most babies and older children have several mild infections of the respiratory system each year.

Upper respiratory system

The upper respiratory system includes the nose, mouth, sinuses, and throat. A child with an upper respiratory infection may feel uncomfortable and sound very congested. Other symptoms of an upper respiratory infection include:

- A runny or stuffy nose. This may lead to blockage of the nasal passages, causing the child to breathe through his or her mouth.
- Irritability, restlessness, poor appetite, and decreased activity level.
- Coughing, especially when lying down.
- Fever that occurs suddenly and may reach 105°F (41°C).

Lower respiratory system

The lower respiratory system includes the bronchial tubes and lungs. Respiratory problems are less common in the lower respiratory system than in the upper respiratory system.

Symptoms of a lower respiratory (bronchial tubes and lungs) problem usually are more severe than symptoms of an upper respiratory (mouth, nose, sinuses, and throat) problem. A child with a lower

respiratory problem is more likely to require a visit to a doctor than a child with an upper respiratory problem.

Symptoms of lower respiratory system infections include:

- Shallow coughing, which continues throughout the day and night.
- Fever, which may be high with some lower respiratory system infections, such as pneumonia.
- Irritability, restlessness, poor appetite, and decreased activity level.
- Difficulty breathing . You may notice:
  - Rapid breathing.
  - Grunting, which is heard during the breathing out (exhaling) phase of breathing. Most babies grunt occasionally when they sleep. But grunting that occurs with rapid, shallow breathing may mean lower respiratory system infection.
  - Wheezing (which is a different sound than croup).
  - Flaring the nostrils and using the neck, chest, and abdominal muscles to breathe, causing a "sucking in" between or under the ribs (retractions).

Respiratory problems may have many causes.

Viral infections

Viral infections cause most upper respiratory infections. Sore throats, colds, croup, and influenza (flu) are common viral illnesses in babies and older children. These infections are usually mild and go away in 4 to 10 days, but they can sometimes be severe. Home treatment can help relieve the child's symptoms. The infection usually improves on its own within a week and is gone within 14 days.

Antibiotics are not used to treat viral illnesses and do not alter the course of viral infections. Unnecessary use of an antibiotic exposes the child to the risks of an allergic reaction and antibiotic side effects, such as nausea, vomiting, diarrhea, rashes, and yeast infections. Antibiotics also may kill beneficial bacteria and encourage the development of dangerous antibiotic-resistant bacteria.

Viral lower respiratory system infections may be mild, similar to upper respiratory system infections. An example of a possibly serious viral infection is bronchiolitis. Up to 10% of babies and children with viral infections of the lower respiratory system, such as those caused by respiratory syncytial virus (RSV), may develop severe blockage of the air passages and require hospitalization for treatment.

Bacterial infections

The most common sites for bacterial infections in the upper respiratory system are the sinuses and throat. A sinus infection is an example of an upper respiratory bacterial infection.

Bacterial pneumonia may follow a viral illness as a secondary infection or appear as the first sign of a lower respiratory infection. In babies and small children, the first sign of infection often is rapid breathing, irritability, decreased activity, and poor feeding. Antibiotics are effective against bacterial infections.

Tuberculosis is a less common bacterial infection of the lower respiratory system.

Allergies

Allergies are a common cause of respiratory problems. Allergy symptoms in children include:

- Clear, runny drainage from the nose or a stuffy nose. Children often rub their noses by pushing the tip upward with the palm of the hand ("allergic salute").
- Sneezing and watery eyes. Often there are dark circles under the eyes ("allergic shiners").
- Irritability and loss of appetite.

Asthma

Babies and small children usually do not have asthma. But the number of new cases of asthma increases with age.

- In babies and small children, a hacking cough may be the only symptom of mild asthma.
- If asthma worsens, symptoms may include wheezing and shortness of breath after exercise or at night time.
- In severe asthma, difficulty breathing (using the neck, chest, and abdominal muscles to breathe) and a high-pitched sound when breathing (wheezing) are the most common symptoms.
- Allergies and asthma often occur together.

Besides asthma, allergies, and infection, other possible causes of respiratory problems in children include:

- Exposure to cigarette smoke. Tobacco smoke impairs lung growth and development. Children who are exposed to tobacco smoke, even before birth (prenatal), are more likely to have asthma and other respiratory problems.
- Blockage of the airway by an inhaled object, such as food, a piece of a balloon, or a small toy.
- Problems that have been present from birth (genetic causes), such as cystic fibrosis.
- Babies and children younger than age 3 may have more symptoms with respiratory problems than older children, and they may become more ill. For this reason, younger children need to be watched more closely. The type and severity of the symptoms helps determine whether the child needs to see a doctor.

Home Treatment

Most children have 7 to 10 mild upper respiratory infections each year. The child may feel uncomfortable and have a stuffy nose. The infection is usually better within a week and is usually gone within 14 days. Home treatment is appropriate for mild symptoms and can help the child feel better.

- Keep the room temperature comfortable for you and the child. A hot, dry environment will increase nasal congestion.

- Raise the head of the baby's bed about 1 in. (2.5 cm) to 2 in. (5 cm) by placing blocks under the crib. Do not raise just the mattress because it may leave a gap for the baby to roll into. **Do not** raise the head of the bed if the baby is younger than 6 months.
- Prevent dehydration.
  - Let the baby breastfeed more often or give the baby extra bottles. Liquids may help thin the mucus and also reduce fever (if present).
  - Do not awaken the child during naps or at night to take fluids.
  - Do not force the child to take fluids, which may cause the child to vomit.
- Give the child extra cuddling and distraction.
- Let the child get extra rest to fight the infection.
- Do not give the child leftover antibiotics or antibiotics or other medicines prescribed for someone else.
- Put a vaporizer or humidifier in the child's room if he or she is breathing through the mouth.
  - Lukewarm mist may help the child feel more comfortable by soothing the swollen air passages. It may also help with the child's hoarseness. But do not let the child's room get uncomfortably cold or very damp.
  - Use a shallow pan of water to provide moisture in the air through evaporation if you don't have a humidifier. Place the pan where no one will trip on it or fall into it.
- If the child has a stuffy nose:
  - Use saline nose drops to help with nasal congestion.
  - Use a rubber bulb to suction the nose sparingly. It will help reduce nasal drainage if the baby is having difficulty breastfeeding or bottle-feeding or seems to be short of breath. Babies often do not like having their noses suctioned with a rubber bulb.
  - Do not give the child oral antihistamines or decongestants unless directed to do so by the child's doctor. Antihistamines and decongestants can cause the child to behave differently, making it harder to tell how sick he or she really is. Studies show that over-the-counter cough medicines do not work very well. And some of these medicines can cause problems if you use too much of them. It is important to use medicines correctly and to keep them out of the reach of children to prevent accidental use.
- If the child has a cough:
  - Honey or lemon juice in hot water or tea may help a dry cough. Do not give honey to a child younger than 1 year old. It may have bacteria that are harmful to babies.
  - Be careful with cough and cold medicines. Don't give them to children younger than 6, because they don't work for children that age and can even be harmful. For children 6 and older, always follow all the instructions carefully. Make sure you know how much medicine to give and how long to use it. And use the dosing device if one is included.
  - If the child has a barking cough during the night, you can help him or her breathe better using a humidifier or running a hot shower in the bathroom to make the air moist.

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat the child's fever or pain:
▪ Acetaminophen ▪ Ibuprofen ▪ Talk to the child's doctor before switching back and forth between doses of acetaminophen and ibuprofen. When you switch between two medicines, there is a

chance the child will get too much medicine.

Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all labels on the medicine bottle and box. ▪ Give, but do not exceed, the maximum recommended doses. ▪ Do not give the child a medicine if he or she has had an allergic reaction to it in the past. ▪ Do not give aspirin to anyone younger than age 20 unless directed to do so by the child's doctor. ▪ Do not give naproxen to children younger than age 12 unless the child's doctor tells you to.

Symptoms to watch for during home treatment

Contact doctor if any of the following occur during home treatment:

- Difficulty breathing develops.
- Increased drooling develops.
- Cough gets worse or a persistent cough develops.
- Symptoms become more severe or frequent.

Prevention

It is common for children to develop respiratory problems (such as viral infections) because they are often exposed to other people who have infections and have not built up immunity. There is no sure way to prevent many respiratory illnesses in babies and children. Very young babies are at greater risk for developing complications from respiratory illnesses, so it is important to do what you can to protect them from exposure. The following may help reduce the child's risk for respiratory problems:

- If you have a respiratory infection, such as a cold or the flu, or if you are caring for someone with a respiratory infection, wash the hands before caring for the child. Hand-washing eliminates the germs on the hands and the spread of germs to the child when you touch the child or touch an object he or she might touch.
- If the child goes to a day care center, ask the staff to wash their hands often to prevent the spread of infection.
- Make sure that the child gets all of his or her vaccinations, especially for diphtheria, tetanus, and pertussis (DTaP) and for *Haemophilus influenzae* type b (Hib).
- Breastfeed the baby for at least the first 6 months after birth, if possible. Breastfed children develop fewer respiratory problems than those who are not breastfed.
- If one of the children is sick, separate him or her from other children in the home, if possible. Put the child in a room alone to sleep.

- Do not smoke or use other tobacco products. If you smoke, quit. If you cannot quit, do not smoke in the house or car. Secondhand smoke irritates the mucous membranes in the child's nose, sinuses, and lungs and increases his or her risk for respiratory infections.
- Avoid giving young children food or objects that may be improperly swallowed and inhaled, such as nuts, popcorn, small candies, or small toys. An inhaled object can lead to a respiratory infection.

b. Age 12 and older

Most adults and older children have several respiratory infections each year. Respiratory problems can be as minor as the common cold or as serious as pneumonia. They may affect the upper respiratory system (nose, mouth, sinuses, and throat) or the lower bronchial tubes and lungs.

Upper respiratory system

The upper respiratory system includes the nose, mouth, sinuses, and throat. When you have an upper respiratory infection, you may feel uncomfortable, have a stuffy nose, and sound very congested. Other symptoms of an upper respiratory infection include:

- Facial pain or pressure.
- A runny or stuffy nose, which may lead to blockage of the nasal passages and cause you to breathe through the mouth.
- A sore throat.
- Laryngitis.
- Irritability, restlessness, poor appetite, and decreased activity level.
- Coughing, especially when lying down.
- Fever that occurs suddenly and may reach 103°F (39°C) or higher.

Lower respiratory system

The lower respiratory system includes the bronchial tubes and lungs. Respiratory problems are less common in the lower respiratory system than upper respiratory system.

The symptoms of a lower respiratory (bronchial tubes and lungs) problem usually are more severe than symptoms of an upper respiratory (mouth, nose, sinuses, and throat) problem.

Symptoms of lower respiratory system infections include:

- Cough, which continues throughout the day and night, often producing green, yellow, brown, or gray mucus (sputum) from the lungs.
- Fever, which may be high with some lower respiratory system infections such as pneumonia.
- Difficulty breathing . You may notice:
  - Shortness of breath.

  - Grunting, which is heard during the breathing out (exhaling) phase of breathing.
  - Wheezing.
  - Flaring the nostrils and using the neck, chest, and abdominal muscles to breathe, causing a "sucking in" between or under the ribs (retractions).
- Chest pain with exertion or when you take a deep breath.
- Respiratory problems may have many causes.

Viral infections

Viral infections are the most common cause of upper respiratory symptoms. Symptoms of a viral illness often come on quickly (over hours to a day or two) without prior illness. Common viral illnesses include colds and influenza (flu).

- Colds are minor upper respiratory illnesses that usually go away without treatment. Symptoms may include cough, mild sore throat, nasal congestion, runny nose or sneezing, and occasionally a fever.
- Influenza (flu) symptoms are usually more severe than a cold. The key symptoms in adults are fever and body aches. Headache, eye pain, muscle aches, and cough are also common.
- Antibiotics are not used to treat viral illnesses and do not alter the course of viral infections. Unnecessary use of an antibiotic exposes you to the risks of an allergic reaction and antibiotic side effects, such as nausea, vomiting, diarrhea, rashes, and yeast infections. Antibiotics also may kill beneficial bacteria and encourage the development of dangerous antibiotic-resistant bacteria.

Bacterial infections

Bacterial infections may develop after a viral illness, such as a cold or influenza, and are less common than viral illnesses. Bacterial infections may affect the upper or lower respiratory system. Symptoms tend to localize to one area. In the upper respiratory system, the most common sites of bacterial infections are the sinuses and throat. In the lower respiratory system, the most common site is the lungs (pneumonia).

Bacterial infections are more common in smokers, people exposed to secondhand smoke, and people with chronic lung disease (such as asthma or chronic obstructive pulmonary disease [COPD]) and other chronic medical problems. Antibiotics can effectively treat most bacterial infections.

Allergies

Allergies, especially hay fever, are another common respiratory problem. Symptoms include sneezing, clear runny drainage from the nose and eyes, itchy eyes or nose, and stuffy, congested ears and sinuses. The symptoms of allergies often last longer than a typical viral respiratory infection.

Asthma

Asthma is a chronic disease of the respiratory system. It causes inflammation and narrowing in the tubes that carry air to the lungs (bronchial tubes). The inflammation leads to difficulty breathing, wheezing, tightness in the chest, and cough. Asthma often begins during childhood and may last throughout a person's life. The cause of asthma is not clearly known. It is more common in people who also have allergies. Home treatment can help you feel more comfortable when you have mild to moderate respiratory symptoms.

- Prevent dehydration. Hot fluids, such as tea or soup, may help relieve congestion in the nose and throat. If you have a productive cough, fluids may help thin the mucus in the lungs so the cough can clear it out.
- Get extra rest; let the symptoms be the guide. If you have a cold, you may be able to stick to the usual routine and just get some extra sleep.
- Let yourself cough if you have a cough that brings up mucus from the lungs. It can help prevent bacterial infections. People who have chronic bronchitis or emphysema need to cough to help clear mucus from their lungs.
- For a sore throat, gargle at least once each hour with warm salt water [1 tsp (5 g) of salt in 8 fl oz (240 mL) of water] to reduce swelling and discomfort.
- Use a humidifier to add moisture to the air. Use only water in the humidifier.
- For a stuffy nose, use saline spray or nose drops to wash out mucus and germs.

Keep in mind the following guidelines for taking nonprescription medicine for the symptoms:

- Nonprescription medicines may not work very well for respiratory problems. And some of these medicines can cause problems if you use too much of them. It is important to use medicines correctly and to keep them out of the reach of children to prevent accidental use.
- Check with the doctor before giving decongestants, antihistamines, or other cold and allergy medicines to children.
- If you use a decongestant nasal spray, don't use it longer than the label says. Overuse may lead to a rebound effect, which causes the mucous membranes to become more swollen than they were before you started using the spray.
- If you have a dry, hacking cough that does not bring up any sputum, ask the doctor or pharmacist about an effective cough suppressant medicine.
- If you decide to try a dietary supplement such as echinacea or zinc, do not exceed the maximum recommended dose. If you have another health problem or take prescription medicines, talk with the doctor before taking an alternative medicine or supplement.

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat the fever or pain:
▪ Acetaminophen ▪ Nonsteroidal anti-inflammatory drugs (NSAIDs): – Ibuprofen – Naproxen ▪ Aspirin (also a nonsteroidal anti-inflammatory drug)
Safety tips

Be sure to follow these safety tips when you use a nonprescription medicine:
▪ Carefully read and follow all directions on the medicine bottle and box. ▪ Do not take more than the recommended dose. ▪ Do not take a medicine if you have had an allergic reaction to it in the past. ▪ If you have been told to avoid a medicine, call the doctor before you take it. ▪ If you are or could be pregnant, do not take any medicine other than acetaminophen unless the doctor has told you to. ▪ Do not give aspirin to anyone younger than age 20 unless the doctor tells you to.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Increasing difficulty breathing develops.
- Wheezing develops.
- New chest pain develops.
- Symptoms last longer than 2 weeks.
- Symptoms become more severe or frequent.

Prevention

There is no sure way to prevent respiratory illnesses. To help reduce the risk:

- Wash the hands often, especially when you are around people with colds.
- Keep the hands away from the nose, eyes, and mouth. These are the places where viruses are most likely to enter the body.
- Do not smoke or use other tobacco products. Smoking irritates the mucous membranes of the nose, sinuses, and lungs, which may make them more susceptible to infections. If you live in an area that has problems with air pollution or smoke from wildfires:
  - Stay indoors and avoid breathing in smoke, ashes, or polluted air.
  - Do not exercise outdoors if you smell smoke or notice irritation of the eyes, nose, or throat.
  - Keep the motor vehicle windows rolled up and the vents closed when driving.
- Avoid cleanup activities, such as raking leaves or cutting brush.
- Avoid exposure to chemicals. Do not spray or apply chemicals unless you are wearing protective clothing, such as a particle-filtering respirator, safety goggles, and gloves.
- Exercise regularly.
- Get a flu shot (influenza vaccine) each year. Get a pneumococcal shot if you have chronic lung disease, such as asthma or chronic obstructive pulmonary disease (COPD); if you smoke; or if you have a health risk that increases the seriousness of the symptoms. If you are age 65 or older, it is recommended you get two different types of pneumococcal vaccines.
- Make sure the immunizations are current, such as pertussis to reduce the risk of getting whooping cough.

11. Sore Throats

Sore throats can be painful and annoying. Fortunately, most sore throats are caused by a minor illness and go away without medical treatment. Several conditions can cause a sore throat.

Viral infections

Sore throats may be caused by a viral illness, such as:

- The common cold, the most common type of viral infection.
- Infection of the voice box (laryngitis).
- Mononucleosis, a viral infection that tends to cause a persistent sore throat.
- Other viral infections, such as mumps, herpangina, or influenza.

Bacterial infections

A bacterial infection may also cause a sore throat. This can occur from:

- Strep throat, which usually does not occur with congestion or a cough.
- An inflammation or infection of the tonsils (tonsillitis) and sometimes the adenoids (adenoiditis).
- An infection of the tissues around the tonsils (peritonsillar abscess).
- Inflammation of the epiglottis (epiglottitis).
- Inflammation of the uvula (uvulitis).
- In rare cases, a sexually transmitted infection (STI), such as gonorrhea or chlamydia. If you have engaged in high-risk sexual behavior, consider whether you may have gonorrhea or chlamydia.

Irritants and injuries

A sore throat that lasts longer than a week is often caused by irritants or injuries, such as:

- Throat irritation from low humidity, smoking, air pollution, yelling, or nasal drainage down the back of the throat (postnasal drip).
- Breathing through the mouth when you have allergies or a stuffy nose.
- Stomach acid that backs up into the throat, which may be a symptom of gastroesophageal reflux disease (GERD). Although GERD often occurs with heartburn, an acid taste in the mouth, or a cough, sometimes a sore throat is the only symptom.
- An injury to the back of the throat, such as a cut or puncture from falling with a pointed object in the mouth.
- Chronic fatigue syndrome, a condition that causes extreme tiredness.

Treatment for a sore throat depends on the cause. You may be able to use home treatment to obtain relief. Because viral illnesses are the most common cause of a sore throat, it is important not to use antibiotics to treat them. Antibiotics do not alter the course of viral infections. Unnecessary use of an antibiotic exposes you to the risks of an allergic reaction and antibiotic side effects, such as nausea, vomiting, diarrhea, rashes, and yeast infections. Antibiotics also may kill beneficial bacteria and encourage the development of dangerous antibiotic-resistant bacteria. For sore throats caused by strep, treatment with antibiotics may be needed.

Home Treatment

Home treatment is usually all that is needed for a sore throat caused by a virus. These tips may help you feel better.

- Gargle with warm salt water to help reduce swelling and relieve discomfort:
  - Gargle at least once each hour with 1 tsp (5 g) of salt dissolved in 8 fl oz (240 mL) of warm water.
  - If you have postnasal drip, gargle often to prevent more throat irritation.
- Prevent dehydration. Fluids may help thin secretions and soothe an irritated throat. Hot fluids, such as tea or soup, may help decrease throat irritation.
- Use a vaporizer or humidifier in the bedroom.
  - Warm or cool mist may help you feel more comfortable by soothing the swollen air passages. It may also relieve hoarseness. But don't let the room become uncomfortably cold or very damp.
  - Use a shallow pan of water to provide moisture in the air through evaporation if you don't have a humidifier. Place the pan in a safe location where no one will trip on it or fall into it.
- Do not smoke or use other tobacco products and avoid secondhand smoke.
- Consider taking **nonprescription medicine** for the symptoms. Be safe with medicines. Read and follow all instructions on the label.
- Use nonprescription throat lozenges.
  - Medicated throat lozenges or sprays have medicine (local anesthetic) that numbs the throat to soothe pain.
  - Hard candy may also help.
  - Think about buying the sugar-free kind.
- Use a decongestant or a steroid nasal spray if you have a stuffy nose (congestion).
  - These medicines make breathing easier by shrinking swollen mucous membranes in the nose, allowing air to pass through. They also help relieve a runny nose and postnasal drip, which can cause a sore throat.
  - These medicines may not be safe for young children or for people who have certain health problems. Before you use them, check the label. If you do use these medicines, always follow the directions about how much to use based on age and in some cases weight.

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Medicine you can buy without a prescription
Try a nonprescription medicine to help treat the fever or pain:
▪ Acetaminophen, such as Tylenol ▪ Nonsteroidal anti-inflammatory drugs (NSAIDs) – Ibuprofen – Naproxen ▪ Aspirin (also a nonsteroidal anti-inflammatory drug)
Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:

- Carefully read and follow all directions on the medicine bottle and box.
- Do not take more than the recommended dose.
- Do not take a medicine if you have had an allergic reaction to it in the past.
- If you have been told to avoid a medicine, call the doctor before you take it.
- If you are or could be pregnant, do not take any medicine other than acetaminophen unless the doctor has told you to.
- Do not give aspirin to anyone younger than age 20 unless the doctor tells you to.

Symptoms to watch for during home treatment. Contact the doctor if any of the following occur during home treatment:

- Difficulty breathing develops.
- Severe pain develops.
- Inability to drink enough fluids develops.
- A new rash or fever develops.
- Symptoms lasting longer than 2 weeks.
- Symptoms become more severe or more frequent.

Prevention

There is no sure way to prevent a sore throat. To help reduce the risk:

- Drink enough fluids to prevent dehydration.
- Wash the hands often, especially when you are around people who are sick.
- Identify and avoid irritants, such as smoke, fumes, or yelling, that cause a sore throat.
- Do not smoke or use other tobacco products and avoid exposure to secondhand smoke.
- Avoid contact with people who have strep throat.
- If you have mononucleosis, do not share eating or drinking utensils to prevent spreading the virus to others

12. Urinary Problems

a. Age 11 and under

Urinary problems and injuries are a concern in children. A young child may not be able to tell you about his or her symptoms, which can make it hard to decide what the child needs. An older child may be embarrassed about his or her symptoms. When the child has a urinary problem or injury, look at all of his or her symptoms to determine what steps to take next.

The urethra, bladder, ureters, and kidneys are the structures that make up the urinary tract.

Pain during urination (dysuria) and a frequent need to urinate are common symptoms in young children. When the child has only one of these symptoms, or when the symptoms are mild, home treatment may

be all that is needed to prevent the problem from getting worse and help relieve symptoms. Mild symptoms include:

- A frequent need to urinate. A child's bladder is small and does not hold as much urine as an adult's bladder. For this reason, frequent urination is common and is not necessarily a sign of a urinary problem. The child may urinate more because he or she is drinking extra fluid, feeling nervous, or simply from habit.
- Burning pain when urine touches irritated skin around the vagina or urethra. Pain during urination because of skin irritation occurs more often in girls (genital skin irritation) than it does in boys.

Pain during urination and a frequent need to urinate can also mean the child has a urinary tract infection. Urinary tract infections (UTIs) are the second most common bacterial infection in children. When the child has an infection, bacteria grow in the bladder and irritate the bladder wall. This causes pain as soon as a very small amount of urine reaches the bladder. You may find the child trying to urinate more often than usual in an effort to soothe the pain. But the child will pass very little urine because the bladder has only collected a small amount since the last time he or she urinated. Symptoms of a UTI vary depending on a child's age.

Urine color and odor

Many things can affect urine color, including fluid balance, diet, medicines, and diseases. How dark or light the color is telling you how much water is in it. Vitamin B supplements can turn urine bright yellow. Some medicines, blackberries, beets, rhubarb, or blood in the urine can turn urine red-brown.

Some foods (such as asparagus), vitamins, and antibiotics (such as penicillin) can cause urine to have a different odor. A sweet, fruity odor may be caused by uncontrolled diabetes. A urinary tract infection (UTI) can cause a bad odor.

Newborns and children younger than 2

Babies and very young children who have UTIs often have symptoms that do not seem specific to the urinary tract. Symptoms may include:

- Fever, especially without other signs of infections, such as a cough or runny nose. In babies, fever may be the only symptom of a urinary tract infection.
- Frequent or infrequent urination.
- Strong or bad-smelling urine.
- Dark or blood-streaked urine. **Note**: It is common for newborns to pass some pink urine in the first 3 days of life. This may be from crystals in the urine. Parents will notice a pink color to the urine in the diaper.
- Lack of interest in eating or refusing food.
- Diarrhea.
- Vomiting.
- Squirming and irritability.
- Diaper rash that doesn't go away.

Children age 2 years and older

Young children who have a UTI usually have symptoms that are more clearly related to the urinary tract. Symptoms may include:

- Burning with urination (dysuria). This is the most common symptom of a urinary tract infection.
- Fever.
- Frequent need to urinate (frequency) without being able to pass much urine.
- A strong desire to urinate (urgency).
- Strong or bad-smelling urine.
- Blood in the urine (hematuria). **Note**: Urine may look pink, red, or brown.
- Belly pain.
- Pain in the flank , which is felt just below the rib cage and above the waist on one or both sides of the back.
- Vomiting.
- Discharge from the vagina.
- Sudden, new daytime wetting after a child has been toilet trained.

UTIs are caused when bacteria, such as *Escherichia coli (E. coli)*, which are normally present in the digestive tract, enter the urinary tract. Two common types of UTIs are:

- Bladder infections, which occur when bacteria get into the bladder by travelling up the urethra.
- Kidney infections, which usually occur when bacteria get into a kidney by travelling from the bladder up the ureters. Kidney infection also may occur if bacteria from an infection in another part of the body travel to the kidneys through the bloodstream.

Except during the first 3 months of life, girls are more likely than boys to have urinary problems. Girls are also more likely than boys to have more than one UTI.

Babies and young children who have problems with the structure or function of the urinary tract may be more likely to have UTIs. A problem such as vesicoureteral reflux or an obstruction in the urinary tract may make it hard to empty the bladder completely. This will allow bacteria to grow and spread more easily through the urinary tract. These problems may be present at birth (congenital) or can be the result of surgery, injury, or past infection.

During the first year of life, boys are more likely than girls to have a structural (anatomic) reason for urinary problems. If the child has a known structural or functional problem with the urinary tract, follow the doctor's instructions about when to seek care for urinary symptoms.

In rare cases, a urinary symptom may indicate a more serious illness, such as diabetes.

An injury, such as getting hit in the back or genital area, may cause urinary problems. A visit to a doctor is usually needed if the child has trouble urinating, cannot urinate, or has blood in his or her urine.

Home Treatment

Home care isn't a substitute for medical care when it comes to treating a urinary tract infection (UTI). If you think the child may have a UTI, a doctor should see him or her right away.

Along with seeing the doctor, there are things you can do at home that may help the child.

- Encourage the child to drink extra fluids as soon as you notice the symptoms and for the next 24 hours. This will help dilute the urine, flush bacteria out of the bladder, and decrease irritation.
- Do not give the child caffeinated or carbonated beverages, which can irritate the bladder.
- Encourage the child to urinate often and to empty his or her bladder each time.
- A warm bath may help soothe the child's genital pain and itching. Avoid using bubble bath or perfumed soaps, which may cause genital skin irritation. It is okay if the child urinates in the bath water. This may help relieve some of his or her pain.
- Skin irritation may increase the child's discomfort.
  - Look at the child's genital area with each diaper change. Increased redness may mean skin irritation. Avoid further irritation by changing the child's diapers often.
  - Air-dry the skin on the child's bottom when possible.
  - An allergy to soap or laundry detergent may be causing the child's skin irritation. If you think this may be the problem, try a different product that is unscented, rather than a detergent. Rinse twice to remove all traces of the cleaning product. Avoid strong detergents.
  - Use gentle soaps and use as little soap as possible. Do not use deodorant soaps on the child.

If the child has been diagnosed with a urinary tract infection

- Follow all home care instructions the child's doctor gave you.
- Give the child his or her medicine exactly as prescribed. If you are having difficulty giving the medicine, call the child's doctor for advice.
- Follow up with the child's doctor as instructed after the child has finished the course of antibiotics. Many children will require further testing.

Symptoms to watch for during home treatment. Contact the doctor if any of the following occur during home treatment:

- The child is unable to urinate (retention) or has no wet diaper in 6 hours.
- New urinary symptoms develop, such as localized back pain (flank pain) or blood in urine (hematuria).
- Other symptoms such as fever or vomiting develop.
- Symptoms become more severe or more frequent.

Prevention

The following may help prevent urinary problems in children.

- Encourage the child to drink more fluids. Water is best. This will help dilute the urine, flush bacteria out of the bladder, and decrease irritation.
- Do not give the child carbonated or caffeinated beverages, which can irritate the bladder wall.
- Wash the genital area once a day with plain water or mild soap. Rinse well and dry thoroughly.
  - Use gentle soaps, such as hypoallergenic soaps, and use as little soap as possible.
  - Do not use deodorant soaps on the child.
  - Avoid bubble baths, powders, and perfumed soaps, which can irritate and dry the skin.
- Wash the child's clothes with a mild soap rather than a detergent. Rinse twice to remove all traces of the cleaning product. Avoid strong detergents.
- Change the child's diapers when wet and immediately after a bowel movement. Wash the hands before and after each diaper change.
- Wipe the child from front to back when changing a diaper or helping with the toilet, and teach children to wipe in this direction. This may reduce the spread of bacteria from the anus to the urethra.
- Dress the child in cotton underwear and loose clothing.
- Encourage older children to urinate whenever they feel the need.
- Avoid constipation.

b. Age 12 and Older

Most people will have some kind of urinary problem or injury in their lifetime. Urinary tract problems and injuries can range from minor to more serious. Sometimes, minor and serious problems can start with the same symptoms. Many urinary problems and injuries are minor, and home treatment is all that is needed to relieve the symptoms.

Urine color and odor

Many things can affect urine color, including fluid balance, diet, medicines, and diseases. How dark or light the color is telling you how much water is in it. Vitamin B supplements can turn urine bright yellow. Some medicines, blackberries, beets, rhubarb, or blood in the urine can turn urine red-brown.

Some foods (such as asparagus), vitamins, and antibiotics (such as penicillin) can cause urine to have a different odor. A sweet, fruity odor may be caused by uncontrolled diabetes. A urinary tract infection (UTI) can cause a bad odor.

Urinary symptoms

Common symptoms of a urinary problem include:

- Burning with urination (dysuria). This is the most common symptom of a urinary tract infection.
- Frequent urge to urinate without being able to pass much urine (frequency).

- Pain in the flank, which is felt just below the rib cage and above the waist on one or both sides of the back.
- Fever.
- Urgent need to urinate (urgency).
- Feeling like you can't completely empty the bladder.
- Blood in the urine (hematuria). The urine may look red, brown, or pink. Blood in the urine may occur after intense exercise, such as running or bicycling.
- Leaking urine (incontinence).
- Nausea and vomiting.

When you only have one symptom or if the symptoms are vague, it can be harder to figure out what the problem is. If you are slightly dehydrated, the urine will be more concentrated, and urinating may cause discomfort. Drink more fluids—enough to keep the urine light yellow or clear like water—to help decrease discomfort.

Urinary tract infections

When you have a urinary tract infection (UTI), you may have several urinary symptoms. UTIs are more common in women than in men. This is because the urethra is shorter in women and comes into contact with bacteria from the skin, anus, and vagina. You can reduce the chance of having a UTI by controlling risk factors that can cause these infections.

Infections that commonly cause UTI symptoms include:

- Bladder infections, which are the most common type of UTI, and occur most often in sexually active women ages 20 to 50. An estimated 50% of women develop bladder infections sometime during their lives.
- Kidney infections, which are less common and more serious than bladder infections.
- Prostatitis and epididymitis. These are urinary tract problems in men.
- Urethritis, which can occur with sexually transmitted infections (STIs), causing pain with urination.
- Interstitial cystitis. This causes symptoms like a UTI, but no infection is present.

Other urinary problems

Kidney stones are another urinary problem that can cause mild to severe urinary symptoms. Men ages 20 to 30 are affected most often with kidney stones, but anyone can get stones at any age.

An injury to the genital area can cause severe pain. The severity of the pain is not always an indicator of the severity of the injury. After an injury such as a hit to the genital area, it is important to watch for urinary problems. You usually need to see the doctor if you are having trouble urinating, can't urinate, have blood in the urine, have swelling, or have ongoing pain.

In women and girls, genital skin irritation can cause pain with urination.

Urinary problems related to aging

As people age, some urinary problems become more common. Stress incontinence is the most common form of urinary incontinence in older women. Multiple childbirths, aging, and decreasing hormone levels may cause changes in the pelvic muscles and supportive structures that lead to stress incontinence. It may also occur in men, especially those who have had prostate surgery. In men, trouble urinating or the inability to urinate is often caused by prostate enlargement

Home Treatment

Bladder infections

Starting home treatment at the first minor signs of a bladder infection may prevent the problem from getting worse, clear up the infection, and prevent complications.

- Drink more fluids—enough to keep the urine light yellow or clear like water—as soon as you notice the symptoms and for the next 24 hours. This will help dilute the urine, flush bacteria out of the bladder, and decrease irritation. **Note**: If a medical condition such as a kidney or heart problem prevents you from drinking more fluids, make sure you are drinking the usual amount of fluids. Drinking cranberry juice may reduce the chances of having urinary tract infections.
- Urinate when you feel the urge. Don't wait until a more convenient time.
- Do not drink alcohol, caffeine, and carbonated beverages, which can irritate the bladder.
- Take a warm bath, which may help relieve pain and itching.
  - Avoid using bubble bath, because it may cause more irritation. If urinary pain or vaginal burning and redness occur in a young girl, she may have an allergy to bubble bath or soap.
  - Use gentle soaps, such as hypoallergenic soaps. Avoid deodorant soaps. Use as little soap as possible.
- Apply a heating pad over the genital area to help relieve the pain. Set the heating pad temperature on low. Never go to sleep with a heating pad in place.
- Examine the genital area. Increased redness may mean skin irritation.
- Wear loose clothing and soft cotton underwear. Do not use soaps, perfumes, or feminine hygiene sprays on the genital area.
- Avoid intercourse until symptoms improve. Do not use a diaphragm or spermicidal cream, foam, or gel. A diaphragm may put pressure on the urethra. This pressure may slow down or prevent the bladder from emptying completely. Spermicides can cause genital skin irritation.

Recurrent bladder infections in women

If you have frequent bladder infections without complications, you and the doctor may develop a self-treatment plan. The plan usually includes taking antibiotics at the first sign of a bladder infection. Contacting the doctor is not necessary.

If you are certain that the symptoms are caused by a bladder infection, follow the doctor's instructions for taking the medicine and monitoring the symptoms. Keep a diary of the number of times you use the self-treatment plan. Call the doctor if:

- The symptoms do not improve after 48 hours of treatment.
- You start having bladder infections more often than in the past.

The self-treatment plan is developed for the health needs. Do not take antibiotics that have not been specifically prescribed for this bladder infection. Do not take antibiotics left over from a previous prescription or antibiotics prescribed for someone else.

Urinary incontinence

Urinary incontinence is common, especially among older adults. Home treatment can often help decrease the symptoms.

- Talk to the doctor about the incontinence at the next regularly scheduled appointment.
- Reduce the amount of fluids you drink to no more than 2 qt (2 L) daily.
- Establish a schedule of urinating every 2 to 4 hours, whether you feel the need or not.
- Make a clear, quick path to the bathroom, and wear clothes that you can easily remove, such as ones with elastic waistbands or Velcro closures. Keep a bedpan or urinal close to the bed or chair.
- Practice "double voiding" by urinating as much as possible, relaxing for a few moments, and then urinating again.
- Do not drink caffeinated or carbonated beverages, such as caffeinated coffee, tea, and soda.
- Do not drink more than 1 alcohol drink a day.
- Increase the amount of fiber in the diet. Constipation may make the symptoms worse.
- Talk with the pharmacist or doctor about all medicines you take, including nonprescription medicines, to see whether any of them may be making the incontinence worse.
- Strengthen the pelvic muscles by doing Kegel exercises (pelvic floor exercises) every day and by having a regular exercise program.
- Control the weight. If you are overweight, try to lose some weight. Remember that effective weight-loss programs depend on a combination of diet and exercise.
- Quit smoking or using other tobacco products. This may reduce the amount that you cough, which may reduce the problem with incontinence.

Symptoms to watch for during home treatment

Contact the doctor if any of the following occur during home treatment:

- Other symptoms develop, such as fever, belly pain, or vomiting.
- You are unable to urinate or have increasing difficulty urinating.
- Symptoms of a bladder infection do not completely go away after home treatment.
- More urinary symptoms develop, such as localized back pain (flank pain) or blood in the urine.
- Symptoms become more severe or more frequent.

Prevention

You can help prevent urinary problems by following these tips:

- Drink more fluids, enough to keep the urine light yellow or clear like water. Water and cranberry juice are good choices. Extra fluids help flush the urinary tract. **Note**: If you have kidney, heart, or liver disease and have to limit fluids, talk with the doctor before you increase the amount of fluids you drink.
- Do not drink alcohol, caffeine, and carbonated beverages, which can irritate the bladder.
- Urinate frequently. Urinate whenever you have the urge.
- Wash the genital area once a day with plain water or mild soap. Rinse well and dry thoroughly.
- Increase the amount of fiber in the diet. Constipation may make the symptoms worse.