INTEGRATED MANAGEMENT OF NEONATAL & CHILDHOOD ILLNESS

INTRODUCTION

World Health Organization

Ministry of National Health Services,
Regulation And Coordination (MoNHSR&C)

unicef

Generic Integrated Management of Neonatal & Childhood Illness was prepared by the World Health Organization's Division of Diarrhoeal and Acute Respiratory Disease Control (CDR), now the Department of Child and Adolescent Health and Development (CAH), and UNICEF through a contract with ACT International, Atlanta, Georgia, USA. This was adapted for Pakistan by the IMNCI Adaptation Group, Ministry of Health, Pakistan with the collaboration of WHO and UNICEF in 1998.

Acknowledgements

World Health Organization acknowledges the support and valuable contribution of all child health experts who supported updating the IMNCI material and development of abridged course, edition and adaptation. Complete list of contributors to IMNCI in Pakistan, since its inception, is placed at the end of this document.

Previous version of IMNCI document was edited by Liaquat University of Medical & Health Sciences (LUMHS), Jamshoro in 2014 with technical guidance and support of World Health Organization.

Update of IMNCI guidelines and 6-day abridged course has been developed by Child Survival Program, Department of Health, Government of Sindh with technical support from World Health Organization in collaboration with UNICEF and Aga Khan University in 2017.

Updated National IMNCI guidelines have been edited by Dr. Abdul Rehman Pirzado in 2019

Government of Pakistan
Ministry of National Health Services Regulations and Coordination
LG&RD Complex, Sector G/5/2, Islamabad
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Islamabad, the 31st August, 2018

NOTIFICATION

F.No.8-1/2017-IMNCI/DD(PIII) The Ministry of National Health Services, Regulations and Coordination, Government of Pakistan, Islamabad, has been pleased to approve the abridged Integrated Management of Neonatal and Childhood Illness (IMNCI) training package for facility based healthcare providers, for implementation and further dissemination to the relevant stakeholders with immediate effect.

2. The approved main modules of abridged IMNCI training package are as follows:
   1. Assess and classify the child
   2. Identify and treat the child
   3. Counsel the mother and follow-up
   4. Facilitator Guide IMNCI
   5. Facilitator In-patient Clinical Practice Guide
   6. Participant Manual- IMNCI young infant
   7. Facilitator's Guide- IMNCI young infant
   8. Chart booklet
   9. Wall charts

Director General Health
Ministry of National Health Services
Regulations and Coordination

No. Even Dated
Copy of the above is forwarded for information and necessary action to:

1. The Secretary,Department of Health,Government of Punjab,KPK,Sindh,Baluchistan, GB,AJK
2. The Chief Commissioner, Islamabad Capital Territory,Islamabad
3. The Director General Health Services, Department of Health,Government of Punjab, KPK, Sindh,Baluchistan,AJK,GB
4. The Provincial Coordinator, MNCH Program, Punjab,KPK,Sindh,Baluchistan ,AJK,GB,ICT
5. The District Health Officer,Islamabad Capital Territory, Islamabad
6. The Heads of Hospitals, Pediatrics and MCH Department,under the Federal Government
7. The President, Society of Gynecologists/Obstetricians of Pakistan, Karachi
8. The President , Pakistan Pediatric Association, Karachi
9. Chief Executive Officer, People`s Primary Healthcare Initiative (PPHI), Karachi
10. Medical Officer,RMNCAH&N,Country Lead,Promoting Health through Life, WHO CO
11. Director,Child Survival Program, Department of Health, Government of Sindh, Karachi
10. Country Director, John Snow,Inc.(JSI),Pakistan, Islamabad
11. Chief Health, UNICEF, Pakistan, Islamabad
12. Director, Health Office, USAID, Islamabad
13. Head of Health Section, DFID, Islamabad

Contents

Foreword of First edition 2000

The rapid growth of children under five and their vulnerability to infections assumes a special significance in the Pakistani context as they form almost 20% of our population. Every year many children die of infectious diseases before they reach their fifth birthday, many during the first year of life. Much has been learned from disease specific programmes addressed to these issues in the past 15 years. The challenge now is to apply the lessons from these programmes to strategies that promote coordination and functional integration of activities in order to improve the management of sick children and opportunities for prevention.

Globally WHO and UNICEF have introduced the new strategy of Integrated Management of Neonatal & Childhood Illness ***(IMNCI)*** to reduce childhood mortality and morbidity and to contribute to healthy growth and development of children. The main focus of the IMNCI strategy is to improve the quality of care of sick children at first level care health facilities through the use of standardized case management procedures in an integrated approach. In addition IMNCI has health promoting and preventive elements including reducing missed opportunities for immunization, nutrition counseling with special emphasis for breast-feeding and micro nutrient supplementation. The interventions used in IMNCI aims to improve practices both in health facilities and in the homes.

Since IMNCI was introduced in Pakistan in 1998, lot of hard work has been done by policy makers, Pediatricians and health managers to inculcate the strategy in the present health system. In this process, gigantic task of adapting the generic IMNCI modules according to national policies and guidelines, disease epidemiology and community practices has been successfully completed. All provincial health departments actively collaborated with the federal ministry of health during this process. It is with great pleasure I present this set of modules. I earnestly request from provincial health departments to absorb this into district health system and translate it into a success.

I wish to extend my gratitude to many policy makers, pediatricians, scientists and managers involved in the adaptation process. I must express my great appreciation to national adaptation focal person and members of adaptation working group for their efforts. I also wish to extend my heartiest gratitude to the Honorable Minister for Health Dr. Abdul Malik Kasi, the Federal Secretary for Health Mr. Ejaz Rahim and the Director General Heath Services Surgeon Rear Admiral Mohammad Aslam who were always there for guidance in the implementation of IMNCI strategy. I am thankful to WHO and UNICEF for providing technical assistance and resources to accomplish various steps in the process.

Finally, it is my firm belief that the relentless efforts which are to be exerted to fulfil our objectives will provide all our children with the opportunity to develop their mental faculties and physical potentials which are a necessary prerequisite to our economic development. The investment in our children is the optimum we can do for the future of our nation.

INTRODUCTION TO IMNCI IN PAKISTAN

The world made substantial progress in reducing child mortality in the past few decades. Globally, the under-five mortality rate dropped from 93 deaths per 1,000 live births in 1990 to 41 in 2016. Progress in reducing child mortality has been accelerated in the 2000–2016 period compared with the 1990s – globally, the annual rate of reduction in under-five mortality has increased from 1.9 percent in 1990–2000 to 4.0 percent in 2000–2016. The remarkable progress in improving child survival since 2000 has saved the lives of 50 million children under the age of 5 – children who would have died had under-five mortality remained at the same level as in 2000 in each country. Despite the substantial progress in reducing child mortality, child survival remains an urgent concern. In 2016, 5.6 million children died before their fifth birthday – among them 2.6 million (46 percent) died in the first month of life.

Pneumonia, Diarrhoea, Malaria, Measles, and Malnutrition are the commonest conditions, with 3 out of 4 children suffering from 1 of these 5 conditions; possible serious bacterial infections in new born and prematurity are major contributors to new-born deaths. Children most of the time present with more than one condition to the healthcare provider. It is unacceptable that 15,000 children die every day, mostly from preventable causes and treatable diseases, even though the knowledge and technologies for life-saving interventions are available.

The majority of the regions in the world and 142 out of 195 countries at least halved their under-five mortality rate. Among all countries (more than a third) cut their under-five mortality by two thirds – 28 of them are low or lower-middle-income countries, indicating that improving child survival is possible even in resource-constrained settings. The burden of under-five deaths remains unevenly distributed. About 80 per cent of under-five deaths occur in two regions, sub Saharan Africa and Southern Asia. Six countries account for half of the global under-five deaths, namely, India, Nigeria, Pakistan, the Democratic Republic of the Congo, Ethiopia and China.

IMNCI implementation started in year 2000 in Pakistan, later renamed as “Integrated Management of Neonatal & Childhood Illness (IMNCI)”in year 2010 to highlight the neonatal component. The IMNCI training coverage in Pakistan is not uniform. The overall coverage rate is 25-45 percent. Sindh province has the largest pool of trained healthcare workers and facilitators courtesy Norway Pakistan partnership Initiative (NPPI).

Although the overall healthcare indicators in Pakistan are showing some improvements, the rate of decline in under-5 mortality is not optimal. The current World Bank data shows that if the pace of decline is not increased, it will be difficult for Pakistan to reach the sustainable development goal to which the government of Pakistan is signatory. According to the latest data in Pakistan Demographic Health Survey 2017-18, the current under-5 mortality rates stand at 74 per 1000 LB, infant mortality is 62 per 1000 LB and neonatal mortality is 42 per 1000 LB.

WHO and UNICEF recognize the need to enhance the capacities of care providers providing health services to under-five children. Building on the lessons learned from the 11 days standard IMNCI training, a decision was reached to launch an abridged IMNCI 6-days training course, with incorporation of an expanded neonatal care component. The 6-day course aims to achieve greater compliance with training schedule as care providers are unable to leave their clinics for longer periods. Most neonatal deaths occur due to the high rates of refusal for referral (Pakistan statistics not available), and hence the sick young infant component was expanded to include the WHO guideline on Possible Serious Bacterial Infection (PSBI) where referral is refused or not possible. With the new guideline, the management of sick young infants where referral is not accepted can be significantly simplified and effectively delivered near their homes.

The 6-day course combining a 4-day sick child course and a 2-day sick young infant course will help us achieve the desired goal by increased training coverage and trained significant number of healthcare providers for IMNCI services to be delivered to the public at their doorsteps. The community IMNCI component (ICCM) provides complementarity to the facility care and ensures building capacities of the large community health workforce in Pakistan to deliver better care to the neonates and under 5 children in the country.

INTRODUCTION

Pneumonia, diarrhea, malaria, measles and malnutrition cause more than 70% of the deaths in children under five years of age in the developing countries. There are feasible and effective ways that health workers in clinics can care for children with these illnesses and prevent most of these deaths. WHO and UNICEF used updated technical findings to describe management of these illnesses in a set of integrated (combined) guidelines, instead of separate guidelines for each illness. They then developed this training package to teach the integrated case management process to health workers who see sick children.

Health workers have experience treating common childhood illnesses. They are often trained using separate, disease-specific guidelines, such as guidelines for treating malaria, or guidelines for managing diarrhea. However, they may have difficulty combining different guidelines when caring for a sick child with several problems. They may not know which problems are most important to treat. With limited time and drugs, health workers may not be able to identify and treat all of a sick child's problems. There are important relationships between the illnesses. For example, repeated diarrheal episodes often lead to malnutrition; diarrhea, which often accompanies or follows measles, is particularly severe. Therefore, effective case management needs to consider all of a child's symptoms.

A health worker can follow the integrated case management process taught in this course to quickly consider all of a child's symptoms and not overlook any problems. The health worker can determine if a child is severely ill and needs urgent referral. If not, the health worker can follow the guidelines to treat the child's illnesses. The guidelines also describe counseling for mothers and other caretakers.

The case management guidelines incorporate existing WHO guidelines, such as those for managing diarrheal disease, acute respiratory infections, malaria, and for immunization. In this course, health workers will see how the disease-specific guidelines fit into a more comprehensive and efficient process for management of a sick child.

The case management guidelines describe how to care for a child who presents at a clinic with an illness for the first time or for a scheduled follow-up visit to check the child's improvement. They address most but not all of the major reasons a child is brought to a clinic for illness. A child returning with chronic problems or less common illnesses may require special care which is not described in this course. The course does not describe the management of trauma or other acute emergencies due to accidents or injuries.

Although AIDS is not addressed specifically, the case management guidelines address the most common reasons children with HIV seek care: diarrhea and respiratory infections. When a child who is believed to have HIV presents with any of these common illnesses, he can be treated like any child coming in with the illness for the first time. If a child's illness does not respond to the standard treatments taught in this course, or if a child becomes severely malnourished, or returns to the clinic repeatedly, he is referred to a hospital for special care. This results in children with AIDS being referred.

Case management can be effective only to the extent that families bring their sick children to a trained health worker for care in a timely way. If a family waits to bring a child to a clinic until the child is extremely sick or takes the child to an untrained provider, the child is more likely to die from the illness. Therefore, teaching families when to seek care for a sick child is an important part of the case management process.

THE CASE MANAGEMENT PROCESS

The case management process is presented on a series of charts which show the sequence of steps and provide information for performing them. The charts describe the following steps: Assess the child or young infant

Classify the illness
Identify treatment
Treat the child
Counsel the mother Give follow-up care

These steps are probably similar to the way you care for sick children now, though you may have learned different words to describe them. The step called "assess the child" means taking a history and doing a physical examination. "Classify the illness" means making a decision on the severity of the illness. You will select a category, or "classification," for each of the child's major symptoms which corresponds to the severity of the disease. Classifications are not specific disease diagnoses. Instead, they are categories that are used to determine treatment

The charts recommend appropriate treatment for each classification. When using this process, selecting a classification on the chart is sufficient to allow you to "identify treatment" for a child. For example, a child with the classification VERY SEVERE FEBRILE DISEASE could have meningitis, severe malaria or septicemia. The treatments listed for VERY SEVERE FEBRILE DISEASE will be appropriate because they have been chosen to cover the most important diseases included in this classification.

"Treat" means giving treatment in clinic, prescribing drugs or other treatments to be given at home, and also teaching the mother how to carry out the treatments. "Counsel the mother" includes assessing how the child is fed and telling her about the foods and fluids to give the child and when to bring the child back to the clinic.

The case management process for sick children age 2 months up to 5 years is presented on three charts titled:

- *ASSESS AND CLASSIFY THE SICK CHILD*
- *TREAT THE CHILD*
- *COUNSEL THE MOTHER*
- *FOLLOW-UP*

Management of the young infant age less than 2 months is somewhat different from older infants and children. It is described on a different chart titled *ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT* .

The charts are designed to help health workers manage children correctly and efficiently. This course trains you to use the charts and gives you clinical practice managing sick children. After the course, the charts will help you recall and apply what you have learned when you manage sick children at your clinic.

PURPOSE OF THIS TRAINING COURSE

This training course is designed to teach the case management process to doctors, nurses and other health workers who see sick children and infants. It is a case management process for a first-level facility such as a clinic, a health center or an outpatient department of a hospital. The course uses the word "clinic" throughout to mean any such setting.

You will learn to manage sick children according to the case management charts, including:

* Assessing signs and symptoms of illness and nutrition, immunization, vitamin A supplementation and deworming status,
* Classifying the illness,
* Identifying treatments for the child's classifications and deciding if a child needs to be referred,
* Giving important pre-referral treatments (such as a first dose of an antibiotic, vitamin A.quinine injection, rectal diazepam, and treatment to prevent low blood sugar) and referring the child,
* Providing treatments in the clinic, such as rapid acting bronchodilator, oral re- hydration therapy, vitamin A, and immunization,
* Teaching the mother to give specific treatment at home, such as an oral antibiotic or anti-malarial,

  Counseling the mother about feeding and when to return, and
* When a child comes for scheduled follow-up, reassessing the problem and providing appropriate care.
*

COURSE METHODS AND MATERIALS

In addition to the case management charts, you will receive a series of booklets, called modules, which explain each step. They are titled:

Assess and Classify the Sick Child Age 2 Months Up To 5 Years
Identify Treatment
Treat the Child
Counsel the Mother
Management of the Sick Young Infant Age less than 2 Months
Follow-Up

The modules include exercises that will help you learn the steps. Most exercises provide clinical information describing a sick child and ask questions. Some exercises use photographs or video. You will complete a module by reading it and working through the exercises.

For approximately half of each day, you will go to nearby clinics to observe and practice managing sick children. In these clinical sessions you will assess, classify and treat sick children, including teaching their mothers how to care for them at home. The clinical sessions give you opportunities to try the skills that you learn about in the modules. You may ask questions and receive guidance if difficulties arise. By the end of the course, you will have experience managing children according to the case management process and can feel comfortable continuing at your own clinic.

A facilitator will guide you through the activities and exercises in the modules, lead group discussions and review your individual work on the modules. A facilitator will also supervise your practice during clinical sessions. You are encouraged to discuss any questions or problems with a facilitator.

HOW TO SELECT THE APPROPRIATE CASE MANAGEMENT CHARTS

Most clinics have a procedure for registering children and identifying whether they have come because they are sick, or for some other reason, such as for a well-child visit or an immunization session, or for care of an injury received in an accident. When a mother brings a child because the child is sick (due to illness, not trauma) and the child is sent to you for attention, you need to know the age of the child in order to select the appropriate chart and begin the assessment process. Depending on the procedure for registering patients at your clinic, the child's name, age and other information such as address may have been recorded already. If not, you may begin by asking the child's name and age.

Decide which age group the child is in:

- Age less than 2 months
- Age 2 months up to 5 years

If the child is age 2 months up to 5 years, select the chart *ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS.* "Up to 5 years" means the child has not yet had his fifth birthday. For example, this age group includes a child who is 4 years 11 months but not a child who is 5 years old.

A child who is 2 months old would be in the group 2 months up to 5 years, not in the group less than 2 months.

If the child is not yet 2 months of age, the child is considered a young infant. Use the chart *ASSESS, CLASSIFY AND TREAT THE SICK YOUNG INFANT* In the next module, *Assess and Classify the Sick Child*, you will learn how to assess and classify a child who is age 2 months up to 5 years. How to manage a young infant is taught later in the course in the module *Management of the Sick Young Infant* .

GLOSSARY

< : Smaller or lower than

- ➢ : More / higher than
- ≤ Equal or smaller/lower than
- ≥ Equal or more/higher than

Abscess: a collection of pus

Sterile abscess: an abscess that contains no bacteria

Abdomen: the area of the body containing the stomach and bowel

Abdominal: in the abdomen

Active feeding: encouraging a child to eat, for example, by sitting with him and helping to get the spoon to his mouth

Active neurological disease of the central nervous system : epilepsy and other current diseases of the brain or spinal cord. This does not include permanent, old neurological problems from cerebral palsy, polio, or injuries.

AIDS: Acquired Immune Deficiency Syndrome, caused by infection with the Human Immunodeficiency Virus (HIV). AIDS is the final and most severe phase of HIV infection. The immune system works poorly, and the patient may have various symptoms and diseases (such as diarrhea, fever, wasting, pneumonia).

Amoebiasis: amoebic dysentery; dysentery caused by the amoeba *E. histolytica*

Allergies: problems such as sneezing, a rash, or difficult breathing that affect certain people when specific things are breathed in, eaten, injected, or touched

Antidiarrheal drugs: drugs that are claimed to stop or decrease diarrhea, such as antimotility drugs. These drugs are not useful for children with diarrhea. Some are dangerous.

Antiemetics: drugs to control vomiting

Antifolate drugs: drugs that act against folate. Both cotrimoxazole (trimethoprim-sulfamethoxazole) and the antimalarial sulfadoxine- pyrimethamine (Fansidar) are antifolate drugs.

Antimotility drugs: drugs that slow the movement of contents through the bowel by reducing its muscular activity

Appetite: the desire to eat

Areola: the dark circle of skin around the nipple of the breast

Aspiration: inhaling (breathing in) fluids

Assess: to consider the relevant information and make a judgement. As used in this course, to examine the child and identify the signs of illness.

Axillary temperature : temperature measured in the armpit

BCG: an immunization to prevent tuberculosis, given at birth. The initials stand for Bacille Calmette-Guerin.

Bowel: intestine

Breast cancer: malignant tumor that starts in the breast

Breastmilk substitute: Formula or milk given instead of or in addition to breastmilk. An example is cow's milk made as follows: Mix ½ cup (100 ml) boiled whole cow's milk with ¼ cup (50 ml) boiled water and 2 level teaspoons (10 grams) of sugar.

Cerebral malaria : falciparum malaria affecting the brain

Checking questions: questions intended to find out what someone understands and what needs further explanation. After teaching a mother about feeding, a health worker might ask the checking question, "What foods will you feed your child?"

Chest indrawing: when the lower chest wall (lower ribs) goes in when a child breathes in. In a child age 2 months up to 5 years, if chest indrawing is clearly visible and present all the time during an examination, it is sign of PNEUMONIA.

Severe chest indrawing: chest indrawing that is very deep and easy to see. In a young infant, mild chest indrawing is normal, but severe chest indrawing is a sign of serious illness.

Chronic: lasting a long time or recurring frequently

Classify: as used in this course, to select a category of illness and severity (called a classification) based on a child's signs and symptoms.

Clinic: as used in this course, any first-level outpatient health facility such as dispensary, rural health post, health centre, or the outpatient department of a hospital

Clouding of Cornea: a “cloudy” whitish spot on the cornea of one or both eyes. This clouding of cornea is often a sign of vitamin A deficiency.

Communication skills: as used in this course, skills used in teaching and counseling with mothers, including: ASK AND LISTEN, PRAISE, ADVISE, AND CHECK UNDERSTANDING

Complementary foods: foods given in addition to breastmilk, starting when a child is 6 months of age. At the age of 6 months, all children should start receiving a nutritious, thick complementary food, such as cereal mixed with oil and bits of meat, vegetables, or fish. Complementary foods are sometimes called "weaning foods."

Confidence: a feeling of being able to succeed

Contraindication: a situation or condition in which a certain treatment, procedure or drug should not be used

Corneal rupture : bursting of the cornea, that is, the clear outer layer of the eye

Counsel: as used in this module, to teach or advise a mother as part of a discussion which includes: asking questions, listening to the mother's answers, praising and/or giving relevant advice, helping to solve problems, and checking understanding

Counseling: the process of teaching or advising as described above

Deficiency: a lack or shortage. Vitamin A deficiency is a shortage of vitamin A in the body.

Dehydration: loss of a large amount of water and salts from the body

Diagnostic testing: special testing, such as laboratory tests or X rays, to determine the type or cause of illness

Digest: to process food so it can be absorbed and used in the body

Digital watch: a watch that shows the time in digits (numerals) instead of with moving hands

Disease: as used in this course, a specific illness or group of illnesses, classified on the basis of signs and symptoms, for example, "VERY SEVERE FEBRILE DISEASE." This classification includes several illnesses such as meningitis, cerebral malaria, and septicemia.

Energy-rich: full of ingredients that give energy (or calories), such as starches or oil

Engorgement: a condition in which a mother's breasts are swollen, hard and painful because they are too full of milk

Episodes: occurrences of a disease

Diarrheal episodes: occurrences of diarrhea

Essential: necessary. Essential vitamins and minerals (such as vitamins and iron) are those necessary for good health.

Essential fatty acids: fats that are necessary for a baby's growing eyes and brain. These fatty acids are not present in cow's milk or most brands of formula.

Exclusive breastfeeding: giving a child only breastmilk and no additional food, water, or other fluids (with the exception of medicines and vitamins, if needed) till the child is 6 months of age

Expertise: a high level of skill in a particular area

Falciparum malaria: malaria caused by the parasite *Plasmodium falciparum*

Family foods: foods ordinarily eaten by the family

Febrile: having fever

Feeding assessment: the process of asking questions to find out about a child's usual feeding and feeding during illness. (Appropriate questions are listed on the *COUNSEL* chart.)

Feeding bottle: a bottle with a nipple or teat that a child sucks on. Feeding bottles should not be used.

Feeding problems : differences between a child's actual feeding and feeding recommendations listed on the *COUNSEL* chart, and other problems such as difficulty breast feeding, use of a feeding bottle, lack of active feeding, or not feeding well during illness.

Femoral artery: the main artery to the leg. Its pulsation can be felt in the groin (upper inner thigh).

Femoral vein: the main vein from the leg. It is located just medial to the femoral artery (that is, towards the middle of the body from the femoral artery).

Fever: as used in this course, fever includes:

- a history of fever (as reported by the mother)
- feeling hot to the touch
- an axillary temperature of 37.5C (99.5F) or higher, or a rectal temperature of 38C (100.4F)

or higher.

First-level health facility: a facility such as a health center, clinic, rural health center / health facility, dispensary, or outpatient department of a hospital, which is considered the first facility within the health system where people seek care. In this course, the term **clinic** is used for any first-level health facility.

Folate: folic acid, a vitamin used in treatment of nutritional anemia

Follow-up visit: a return visit requested by the health worker to see if treatment is working or if further treatment or referral is needed

Fontanelle: the soft spot on top of a young infant's head, where the bones of the head have not come together

Full-term: word used to describe a baby born after 37 weeks of pregnancy

Glucose: a sugar used in oral rehydration salts and in IV fluids

Gruel: a food made by boiling cereal meal or legumes in milk or water. Gruel may be made thick like a porridge or thin like a drink. For complementary feeding, gruel should be made thick.

Grunting: soft, short sounds that a young infant makes when breathing out. Grunting occurs when a young infant is having trouble breathing.

Guilty: a feeling of having done wrong

Haemoglobin: a protein containing iron that carries oxygen and makes the blood red

Hepatitis B virus: one of several viruses that cause hepatitis; this virus also causes liver Cancer. This virus is spread easily by blood, so needles and syringes must be sterile.

HIV: Human Immunodeficiency Virus. HIV is the virus that causes AIDS.

Hookworm: a small worm that may live as a parasite in a person's intestine and suck blood. This blood loss may lead to anemia.

Hospital: as used in this course, any health facility with inpatient beds, supplies, and expertise to treat a very sick child

Hygienically: using clean utensils and clean hands, avoiding germs

Hypernatremia: too much sodium in the blood

Hypothermia: low body temperature (below 35.5C axillary or 36C rectal temperature)

Hypoxia: a condition in which too little oxygen is reaching the organs of the body

Illness: sickness. As described in this course, the signs and symptoms of illness need to be assessed and classified in order to select treatment.

Immune suppression: weakening of the immune system so that the body has little resistance to disease

Immune system: the system that helps the body resist disease by producing antibodies or

special cells to fight disease-causing agents

Immunization status: a comparison of a child's past immunizations with the recommended immunization schedule. Immunization status describes whether or not a child has received all of the immunizations recommended for his age, and, if not, what immunizations are needed now.

Incompetent: lacking the ability or skill to do something

Infant: as used in this course, a baby up to age 12 months

Young infant : as used in this course, a baby age 1 week up to 2 months

Infant feeding formulas: concentrated milk or soy products (to be combined with water) sold as a substitute for breastmilk.

Initial visit: the first visit to a health worker for an episode of an illness or problem

Inpatient: a patient who stays at a health facility and receives a bed and food as well as Treatment

Integrated: combined

Integrated case management process : a process for treating patients that includes consideration of all of their symptoms

Intramuscular (IM) injection : an injection (shot) put into a muscle, usually of the thigh

Intravenous (IV) infusion: continuous slow introduction of a fluid into a vein

Intravenous (IV) injection: an injection (shot) put directly into a vein

Jaundiced: having a yellow color in the eyes and skin

Koplik spots: spots that occur in the mouth inside the cheek during the early stages of measles. They are small, irregular, bright red spots with a white spot in the center. They do not interfere with drinking or eating and do not need treatment.

Kwashiorkor: a type of protein-energy malnutrition due to lack of protein in the diet. A child with kwashiorkor has edema, which may cause his limbs to appear puffy. The child may have sparse hair and dry scaly skin

Lactose: a sugar present in milk

Local: present in the nearby geographic area. For example, local foods are those found in the area. (See "local infections" below for another meaning of "local.")

Local infections: infections located only in a specific place on the body, for example, in the eye or in the mouth

Low blood sugar: too little sugar in the blood, also called hypoglycaemia.

Low birthweight: low weight at birth, due either to poor growth in the womb or to prematurity (being born early). Children less than 2500 grams have low birthweight.

Malignant: tending to spread and result in death

Marasmus: a type of protein-energy malnutrition due to long-term lack of calories and

protein. A child with marasmus appears to be just "skin and bones."

Mastoid: the skull bone behind the ear

Measles complications: problems or infections that occur during or after measles. Some examples of measles complications are: diarrhea, pneumonia, stridor, mouth ulcers, ear infection, and eye infection. A less common complication is encephalitis, an inflammation of the brain.

Meningitis: a dangerous infection in which the spinal fluid and the membranes surrounding the brain and spinal cord become infected

Midwife: a health care worker who assists women in childbirth and may also provide other health care

Nasogastric (NG) tube: a tube inserted through a patient's nose to his stomach. An NG tube may be used to give ORS solution to severely dehydrated patients when IV therapy is not available, or to feed a severely malnourished child who cannot eat.

Nutrient: a substance in food that helps one grow and be healthy, such as protein, minerals, and vitamins

Nutrient-rich: full of the essential nutrients. These include protein as well as vitamins and minerals.

Nutritional status: the degree to which a child shows or does not show certain signs of malnutrition or anemia or low weight. In this course, a child's nutritional status may be classified as: SEVERE MALNUTRITION OR SEVERE ANAEMIA, ANAEMIA OR VERY LOW WEIGHT, or NO ANAEMIA AND NOT VERY LOW WEIGHT.

Edema: swelling from excess fluid under the skin. edema usually occurs in the lower legs and feet, sometimes elsewhere.

Opportunistic infections: infections caused by microorganisms which the body's immune system is normally able to fight off. When the immune system is weakened, as in AIDS, opportunistic infections can take hold. For example, in a healthy person, there are organisms in the mouth which do not normally cause infection; however, in a person with a weakened immune system, these same organisms may cause oral thrush.

Oral Rehydration Salts (ORS): a mixture of glucose and salts conforming to the WHO recommended formula (in grams per liter): sodium chloride 2.6; trisodium citrate, dihydrate 2.9, or sodium bicarbonate 2.5; potassium chloride 1.5; and glucose 13.5.

OPV: oral polio vaccine. To prevent polio, it is given in 4 doses: at birth, 6 weeks, 10 Weeks, and 14 weeks.

Ovarian cancer: malignant tumors starting in the ovaries (the female sex glands in which eggs are formed)

Overwhelmed: feeling as though there is too much to do or remember

Parasite: an organism living in or on another organism and causing it harm

Pathogen: an organism or microorganism that causes disease

Persist: to remain or endure

Practical: possible to do with the resources and time available

Pre-referral: before referral to a hospital

Premature : born early, before 37 weeks of pregnancy

Protein: a substance in food made up of amino acids needed for adequate growth. Meat, fish, eggs, milk, and beans are examples of foods containing protein.

Protein-energy malnutrition: a condition caused by lack of enough protein or energy in the diet, or by frequent illness.

Pulses: legumes, such as peas, beans, or lentils

Pustule: a reddish bump on the skin containing pus

Radial pulse: the pulse felt over the radial artery, which is the main blood vessel at the thumb side of wrist

Reassessment: as used in this course, to examine the child again for signs of specific illness to see if the child is improving

Full reassessment : to do the entire assessment process on the *ASSESS & CLASSIFY* chart again to see if there has been improvement and also to assess and classify any new problems

Recommendations: advice, instructions that should be followed

Recurrent convulsions: spasms or fits that occur repeatedly

Reduce, reduction: decrease

Referral: as used in this course, sending a patient for further assessment and care at a hospital

Relactation: starting breastfeeding again and producing breastmilk after stopping

Respiratory distress: discomfort from not getting enough air into the lungs

Semi-solid food: food that is part solid and part liquid. A soft, wet food such as gruel or porridge is semi-solid.

Septicemia: an infection of the blood, also called "sepsis" in this course

Severe classification: as used in this course, a very serious illness requiring urgent attention and usually referral or admission for inpatient care. Severe classifications are listed in pink-colored rows on the *ASSESS & CLASSIFY* chart

Shock: a dangerous condition with severe weakness, lethargy, or unconsciousness, cold extremities, and fast, weak pulse. It is caused by diarrhea with very severe dehydration, hemorrhage, burns, or sepsis.

Signs: as used in this course, physical evidence of a health problem which the health worker observes by looking, listening, or feeling. Examples of signs include: fast breathing, chest indrawing, sunken eyes, stiff neck, pus draining from the ear, etc.

SSS: Sugar Salt Solution. A solution, containing water, sugar and salt, which may be used to

rehydrate a child suffering from dehydration. It is also used to prevent dehydration.

Stable: staying the same rather than getting worse

Stridor: A harsh noise when the child breathes in (during inspiration).

Symptoms: as used in this course, health problems reported by the mother such as cough, diarrhea, or ear pain

Main symptoms: as used in this course, those symptoms which the health worker should ask the mother about when assessing the child. The four main symptoms listed on the *ASSESS & CLASSIFY* chart are: cough or difficult breathing, diarrhea, fever, and ear problem.

Thrush: ulcers or white patches on the inside of the mouth and tongue, caused by a fungal infection

Trophozoites: stage of a protozoan organism such as *Giardia lamblia* or *E. histolytica;* the stage which causes tissue damage

Ulcer: a painful open sore

Mouth ulcers: sores on the inside of the mouth and lips or on the tongue. These may occur with measles and may be red or have white coating on them. They make it difficult to eat or drink.

Upright: vertical (standing up)

Semi-upright: partly upright, leaning

Urgent: requiring immediate attention, important to save a child's life

Urgent referral: sending a patient immediately for further care at a Hospital

Uterus: womb

Vitamin A deficiency: Vitamin A is very important for a child's growth. It is found is oils/ghee and green vegetables. Sometimes, a growing child does not get sufficient vitamin A in his/her food. So the child becomes vitamin A deficient. This may show first in the child's inability to see in the dark and other eye problems. But most often, there are no clinical signs in early stages of vitamin A deficiency.

Vitamin A Supplementation status: A comparison of a child's past vitamin A supplementation in-take with the recommended vitamin A schedule. Vitamin A status describes whether or not a child has received the number of vitamin A doses recommended for his age, and, if not, whether vitamin A is needed now.

Vulnerable: endangered, likely to become ill

Weaning foods: another term for complementary foods, given in addition to breastmilk starting at 6 months of age

Wheeze: A soft, musical sound heard when breathing out (during expiration).

Whipworm: a small worm that may live as a parasite in a person's intestine and suck blood. This blood loss may lead to anemia and diarrhea.

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