

- Each year, globally 3 million newborns die in the first four weeks of life.
- ¾ of newborn deaths occur in the first week of life, the majority in the first 24 hours of life.
- Birth asphyxia, severe infection (pneumonia, sepsis, and meningitis), and complications of prematurity – account for nearly 80% of neonatal deaths.
- The conflict in Syria has led to internal displacement and the displacement of Syrians to Lebanon, Jordan, Turkey and Iraq.
- The under-5yr mortality in Syria is 16/1000 livebirths, with the majority of deaths occurring in the neonatal period.
- Universal coverage of skilled birth attendance and institutional delivery has been achieved by Syria – thus this good practice needs to be maintained in Syria and for Syrian refugees in Lebanon, Jordan, Turkey and Iraq.
- Evidence based neonatal health interventions can be administered easily by health professional, community health workers and families.

Conflict and Displacement

The conflict in Syria escalated from May 2012 with displacement of Syrians internally and into neighboring Turkey, Lebanon, Jordan, Iraq and to a smaller extent to northern Africa. As of December 10th, 2012 a total of 411791 individual Syrian refugees have been registered by UNHCR with the majority residing in Turkey. Most of the refugees are residing with host communities in non-camp urban settings.

411791

*Individual Syrian Refugees
(UNHCR, Dec 10th, 2012)*

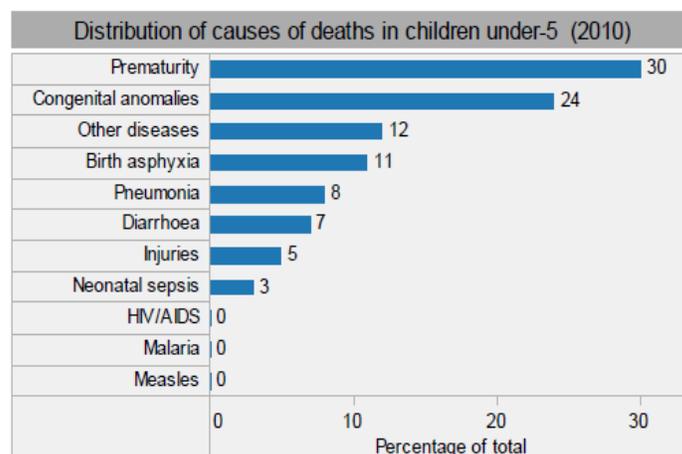
Thousands are internally displaced within Syria, and several thousand more Syrian refugees residing in neighboring countries as unregistered refugees

Health Services for Syrian Refugees

The WHO country profile for Syria (2012) highlights that there is universal coverage of skilled birth attendance and delivery in health facilities. The under-five years mortality is 16/1000 live births and maternal mortality ratio of 70/100,000 live births (WHO 2010 Country Update). Among children under the age of 5 years, the main causes of mortality are related to neonatal period illnesses as shown in graph 1.

Health services for Syrian refugees are provided by humanitarian agencies, the host nation Ministry of Health, private providers, and other non-governmental agencies. The health situation update on October 2012 highlighted that the main causes of admission in Lebanon among refugee children were acute illness, respiratory tract infections, and prematurity (WHO situation report). The UNFPA rapid assessment in Lebanon also describes that prematurity and newborn problems were raised as issues of concern by Syrian refugee women.

Graph1. Prematurity, birth asphyxia, and infections are the main causes of under-5 mortality in Syria, as shown by the chart below from WHO 2010 Country Report



Main Causes of Newborn Mortality

Birth Asphyxia

Birth asphyxia is defined as failure to establish breathing at birth. Birth asphyxia can be prevented and managed at low cost. Labor monitoring with partograph that is linked to action should be administered to all laboring mothers, as it is a key intervention to monitor fetal heartbeat and to prevent and manage fetal hypoxia and any other intrapartum complications. Most babies spontaneously breathe at birth but an estimated 6-10% will require assistance to initiate breathing. While most will begin breathing with stimulation (clearing airway, rubbing back), approximately 3-5%, will need bag and mask ventilation. Only a very few babies, <1% will need advanced resuscitation (e.g. chest compressions, intubation, drugs etc).



The Helping Babies Breathe (HBB) Initiative has developed clinical training curricula for health care providers on neonatal resuscitation that can be adapted. In the Syrian refugee response, the HBB tools could be applicable to train service providers that are working in field hospitals and for newly established health facilities.

Severe Infections

Hygiene and cleanliness in caring for the newborn are important to decrease the risk of severe, life threatening infections, as well as local infections (e.g. cord stump infections or omphalitis). The danger signs for severe illness in the newborn are different from toddlers; thus it is important that mothers/caretakers are informed of what the danger signs are for severe illness.

Caretakers need to be informed about how to take care of newborns to prevent infections like hand washing, cord care, etc.

The common severe infections in the neonatal period that are associated with high mortality are pneumonia, sepsis, and meningitis. Health facilities need to be equipped and have skilled providers to diagnose and treat the localized infections and severe infections.

In the absence of accessible hospitals, the primary health unit (basic health unit, community health worker) should provide the first dose of injectable antibiotics (Ampicillin and Gentamicin) prior to referral.

Danger Signs for Newborn Illness

- **Breathing problems:** breathing is fast (>60/min) or low (<30/min); gasping; chest indrawing, shallow or irregular breathing, skin/lips/tongue color is blue
- **Feeding difficulty:** unable to suck, irritable, lethargic, unable to stay awake while feeding
- **Febrile or Cold:** both low and high temperatures are danger signs in the neonatal period. Seek health care service if the baby feels cold (<36 °C) or hot (>37 °C)
- **Convulsions/seizures:** abnormal repetitive movements
- **Jaundice:** yellowish discoloration of skin, eyes, nails

With high tetanus toxoid vaccination coverage the risk of neonatal tetanus among Syrian refugees is estimated to be very low.

Early identification and treatment of localized infections is critical as local infections in the neonatal period could easily get complicated. Signs of local infections include redness, swelling, or discharge from the eye; bleeding, redness, and/or discharge from the umbilical cord stump (omphalitis).

Prematurity

- Preterm births are defined as all babies born prior to the completion of 37 weeks of gestation.
- First trimester ultrasound is the preferred assessment method to estimate gestational age.
- Majority (>80%) of preterm births are late or moderate premies born at 32-<37 completed weeks of gestation
- Majority of late premies need extra care that can be provided outside intensive care units
- Premature and low-birth-weight babies are at higher risk of intrapartum complications (e.g. birth asphyxia), infections, and mortality.

Care for the preterm baby

Dual approach such as both preventing preterm birth and managing complications and care for those that are born premature is recommended to prevent preterm birth and to decrease mortality among preterm babies.

There are several interventions that can be administered prior to birth and during pregnancy to minimize the risk of preterm birth complications. The interventions include:

- Preterm labor: antenatal corticosteroid like dexamethasone when administered 24-48 hours prior to birth in preterm labor have resulted in reduction of respiratory distress syndrome in premature babies and greatly improved survival of preterm.
- Preterm labor: tocolytics also known as anti-contraction medications have shown to be effective to slow down labor – allowing time for referral of women to health facilities that are equipped to care for preterm babies and manage maternal complications.
- Preterm premature rupture of membrane (pPROM): antibiotics for pPROM have been shown to reduce neonatal morbidity.

Common complications:

- Respiratory distress syndrome and apnea of prematurity: continuous positive airway pressure (CPAP) and administration of drugs like caffeine citrate are effective treatment options.
- Hypothermia: thus the need to have proper thermal care. KMC (Kangaroo Mother Care) is a proven effective intervention even in the presence of heaters including incubators.
- Hygiene is important to decrease the risk of infection. Some of the hygienic practices includes: a) frequent hand washing with soap by caretakers/mothers while taking care of the baby, b) general cleanliness – like clean bed sheets, etc, c) chlorhexidine liquid/ gel application to the umbilical cord stump on days 0 to 7th of life, and d) application of emollient ointment such as sunflower oil could reduce water loss and decrease risk of skin infection.
- Extra support for breastfeeding like cup feeding of expressed breast-milk, and frequent/small feeds might be needed for small babies.

Delivery Strategy

1. Community & Primary Health Care Level

Pregnancy surveillance by Community Health Workers (CHWs) is an implementation strategy that could be effective in the provision of individual care to pregnant women in camp and non-camp settings. Key interventions that can be provided at community & primary level are a) *Thermal care*: immediate drying & wrapping, skin-to-skin contact with mother/caretaker delaying bathing for at least 6 hours (preferably 24hrs) after birth; b) *Hygiene*: encourage the caretaker to frequently wash their hands with soap. Keep umbilical cord dry and clean or apply 7.1% Chlorhexidine to the cord stump immediately & in the first week of life; c) *Breastfeeding*: support mothers to start breastfeeding within the first hour after birth & to continue exclusively breastfeeding for 6 months; and d) Improve knowledge on danger signs of newborn illness for immediate & appropriate care seeking.



Photo Credit: Save the Children. A woman receiving 'community' newborn kit, May 2008, Barguna, Bangladesh Cyclone Sidr Response

Community newborn kit to be distributed with education materials to promote essential newborn care

Table 1: Community Newborn Kit: individual

Description	Unit	Qty.
Baby blanket, 300 gsm, 75 x 50 cm	Pce	1
Baby swaddler	Pce	1
Baby vest, cotton	Pce	2
Bath towel, child, cotton 340 gsm, 30 x 50cm	Pce	3
Hat, wool, extra small	Pce	1
Safety pins, small size, nickel free, for nappies	Pce	10
Shampoo baby, hypoallergenic, PH factor 5.5, bottle of 500ml	Pce	1
Soap, baby, 100g bar, hypoallergenic	Pce	2
Socks, cotton, extra small	Pair	2
Towel, 100% cotton, 60x80 cm, 300 gsm	Pce	2
Washable baby diaper, 100% cotton, 30x15 cm (non-disposable)	Pce	12
Zinc Oxide, cream, 100ml tube (Nappy rash cream)	Pce	1
7.1% Chlorhexidine digluconate gel/liquid	Pce	1

2. Health Center & Hospital Level

The skilled birth attendance rate in Syria is universal at 96% thus maintaining this level of coverage during displacement is important. The UNFPA assessment among Syrian refugees in Lebanon reports low prenatal coverage and lack of awareness on where to seek care during labor and delivery. It is critical that health facilities are equipped with medicines and that the refugees are aware and have access to these services. Table 2 lists drugs and medical supplies for neonatal health to complement what is available in the reproductive health kits (RH kits) for maternal health.

Table 2. Newborn Medicines & Equipment for Hospital

Medicines	Amoxicillin, suspension 125mg/ml
	Amoxicillin, dispersible scored tablets 250mg
	Caffeine citrate, 20mg/ml oral solution
	Cloxacillin, dispersible tablet 250mg
	Ampicillin powder for injection 500mg vial
	Benzylpenicillin, Injectable 5million IU/vial
	Caffeine citrate, injection 20mg/ml
	Cefotaxime, injectable 125mg/vial
	Ceftriaxone, injectable 250mg/vial
	Cloxacillin, injectable 250mg/vial
	Dexamethasone, injectable 4mg/ml
	Diazepam, injectable 5mg/ml
	Gentamicin, injectable 40mg/ml or 20mg/ml
	Phenobarbital Sodium, injection 200g/ml
	Vitamin K, injectable, 1mg/vial
7.1% Chlorhexidine gel or liquid	
Tetracycline HCL 1% eye ointment 5g	
Medical Devices	Self-inflating bag (Ambu bag pediatric)+ Face masks
	Mucus trap for suction
	CPAP (continuous positive air pressure) machine
	Digital infant weighing scale
	Digital thermometer (infant)
	Doppler ultrasound
	Pulse Oximeter
Fluorescent tubes for phototherapy	

Health Information System

Pregnancy surveillance by community health workers is key in identifying refugee pregnant women and the key indicators at community level. Table 3 lists suggested data to include in the current monthly health information system at community and facility level.

Table 3: Health Information System

<i>Community /PHC level</i>	# pregnant women # deliveries # livebirths # stillbirths # Low birth weight (<2500gm) # deliveries attended by skilled provider (midwife, nurse, medical doctor) # women that deliver at home # postnatal care within 48hrs after birth
<i>Health Facility Level</i>	# Deliveries # Livebirths # Stillbirths # Low birth weight (<2500gm) # Preterm # Birth Asphyxia # Neonatal Sepsis # Neonatal deaths (by cause of death)

Inter-Agency Working Group on Reproductive Health in Crisis Situations (IAWG)

This technical brief was developed by UNICEF, Save the Children, CDC, Women's Refugee Commission, and Columbia University for the Inter-agency Working Group on Reproductive Health in Crisis (IAWG). The IAWG was formed in 1995 to promote access to quality reproductive health care for refugee women and others affected by humanitarian emergencies.

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For latest technical guidelines on newborn health visit HNN <http://www.healthynewbornnetwork.org>

References:

1. Inter-agency Field Manual on Reproductive Health in Humanitarian Settings. http://www.iawg.net/resources/field_manual.html
2. Basic neonatal resuscitation: World Health Organization 2012.
3. Care of the newborn: reference manual. Save the Children 2004.
4. Born to Soon: a global action report on preterm birth. 2012. March of Dimes, PMNCH, Save the Children, WHO.
5. Liu, Johnson, Cousens, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet*. 2012; 379: 2151-2161.
6. Mullany, Darmstadt, Khatri, et al. Topical applications of chlorhexidine to the umbilical for prevention of omphalitis and neonatal mortality in southern Nepal: a community-based, cluster-randomized trial. *Lancet*. 2006; 367: 910-918.
7. World Health Organization (2012): Syrian Arab Republic health profile
8. Jinan Usta, Amelia Reese Masterson (2012): Assessment of Reproductive Health and Gender-Based Violence among Displaced Syrian Women in Lebanon July – September 2012. UNFPA

