**Data Analysis Plan: Social autopsy of children U5 & ages 5-17**

**Introduction**

To effectively deliver life-saving interventions, it is important to better understand the cultural, social, and health system factors that can be changed to improve access to and use of healthcare services.

**Data Required for Analysis**

Verbal and social autopsy data are collected using a structured questionnaire (e.g., COMSA). This questionnaire is designed to gather information that links the fatal illness (or the process of diagnosing it) to various socio-demographic, economic, and cultural factors. This approach helps to provide a social 'diagnosis' of the deaths.

**Analysis Methods**

* “Social autopsy” instruments collect the data needed to connect the fatal illness or the act of diagnosing or recognizing that illness with a set of socio–demographic, economic, and cultural conditions or factors, thereby making a social “diagnosis” of the deaths.[[1]](#footnote-1)
* Various descriptive and analytic frameworks can be used to analyze social autopsy data:
* A descriptive analysis focuses on data related to preventive and curative care, guided by the coverage of key indicators along two pathways:
	+ the **continuum of normal care** for healthy individuals.
	+ The **Pathway to Survival model**, which tracks the steps of illness recognition and care-seeking for child illnesses.
* For neonates, the analysis goes beyond coverage of illness recognition, caregiving, care–seeking and health care provision at each step along the Pathway to Survival and includes:
	+ **Median age at illness onset:** The age (in days) when the first symptoms of the fatal illness were recognized.
	+ **Median illness duration:** The time (in days) from illness onset to death.
	+ **Caregivers’ perceptions of illness severity:**
		- At the time of symptom recognition.
		- When deciding to seek formal healthcare.
		- At discharge from the first formal healthcare provider.
* All the examined interventions have been shown to be efficacious and effective in promoting child survival and thus are included among the interventions examined by the Lives Saved (LiST) tool[[2]](#footnote-2), or recommended by the World Health Organization (WHO), and so should be accessible to all.

**Tables & Visualizations**

We describe some key frameworks that depict some of the indicators described above.

1. Demographic and household characteristics of the deceased

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| STILLBIRTH (N=xxx) | NEONATAL (N=xxx) | CHILD (1-59 months) (N=xxx) | CHILD (5-11 years) (N=xxx) | ADULTS (12-17 years) (N=xxx) |
| The Motherxx years (median) when first married xx% had no schooling | **The Mother**xx years (median) when first marriedxx% had no schooling | **The Mother**xx years (median) when first married xx% had no schooling | **The Mother/Him (Her)self**xx% had no schooling | **Him (Her) self**xx% had no schooling |
| Her Householdxx persons/room (median)xx% used piped waterxx% had electricityxx% used improved sanitationxx% spouses had no schooling | **Her Household**xx persons/room (median)xx% used piped waterxx% had electricityxx% used improved sanitationxx% spouses had no schooling | **Her Household**xx persons/room (median)xx% used piped waterxx% had electricityxx% used improved sanitationxx% spouses had no schooling | **Her/ His Household**xx persons/room (median)xx% used piped waterxx% had electricityxx% used improved sanitation  | **Her/his Household**xx persons/room (median)xx% used piped waterxx% had electricityxx% used improved sanitation |
| Her Community (Social Capital)xx% were able to ask for help during pregnancy or the child’s fatal illness | **Her Community (Social Capital)**xx% were able to ask for help during pregnancy or the child’s fatal illness | **Her Community (Social Capital)**xx% were able to ask for help during pregnancy or the child’s fatal illness | **Her Community (Social Capital)**xx% were able to ask for help during pregnancy or the child’s fatal illness | **Her/ His Community (Social Capital)**xx% were able to ask for help during fatal illness |
| Her opportunities for carexx Hours (median) to nearest health facility  | **Her opportunities for care**xx Hours (median) to nearest health facility  | **Her opportunities for care**xx Hours (median) to nearest health facility  | **Her opportunities for care**xx Hour (median) to nearest health facility  | **Her/ His opportunities for care**xx Hour (median) to nearest health facility |

1. Symptom severity scoring system for children under-five deaths

We derived a symptom severity scoring system based on the caregiver’s observed symptoms of his/her newborns or children 1-59 months using the World Health organizations’ (WHO) Integrated Management of Childhood Illnesses (IMCI) severity grading for the first symptoms as observed. For the illness symptoms that were in the VA instrument but not in the IMCI algorithm, we assigned symptoms as severe (requiring referral to higher level formal care) or possibly severe (requiring formal health care). The listing of the symptoms and their severity scoring are given below.

|  |  |  |
| --- | --- | --- |
|  | **Neonatal deaths** | **Child 1-59 months deaths** |
| **Possibly Severe Illness Sign** | * Birth Injury
* Difficult breathing
* Did not cry immediately after birth, even only a little bit
* Stop being able to cry
* Pus draining from the umbilicus
* Umbilical redness
* Skin bumps containing pus or a single large area with pus
* Frequent loose or liquid stools and diarrhea for 3 days or more
 | * (Fever and skin rash) or (Fever)
* More frequent loose or liquid stools/ diarrhea for 3 days or more
* Blood in loose or liquid stools
* Cough
* Difficult breathing
* Fast breathing
* Skin rash
* Measles rash
* Severely thin or wasted
* Lumps on the armpit
 |
| **Severe Illness Sign** | * Physical abnormality
* Did not breathe immediately after birth, even a little
* Not able to suckle or bottle-feed normally on first day of life
* Never able to suckle normally
* Stopped being able to suckle normally
* Not able to open his/her mouth
* Fast breathing
* Chest indrawing
* Grunting
* Spasms or convulsions
* Fever
* Become cold to touch
* Lethargy
* Become unresponsive or unconscious
* Bulging fontanelle
* Umbilical redness extending to the skin
* Baby had ulcer(s) / (pits) of the skin
* Area(s) of skin with redness and swelling
* Areas of the skin that turned black
* Baby bleed from anywhere
* Vomiting everything
* Yellow skin, palms or soles
* Yellow eyes
 | * Fever and stiff neck
* Very severe cough
* Vomit after cough
* Indrawing of the chest
* Stridor
* Grunting
* Wheezing
* Convulsions
* Unconscious
* stiff neck
* Bulging or raised fontanelle
* Swollen legs or feet
* Skin flakes off in patches
* Red or yellow hair
* Protruding belly
* Pale palms, eyes or nail bed
* Whitish rash inside the mouth or on the tongue
* Blood from anywhere
* Skin turned black
* Any injury or accident
 |

1. Coverage of key Indicators along the Continuum of Care

**Table 1: Coverage of Selected Interventions Along the Continuum of Care from Pregnancy to Postnatal periods for stillbirth and neonatal deaths**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables |  | Stillbirth (N=xxx) | Neonatal death (N=xxx) |
| Antenatal period     | At least one ANC |  |  |
| At least 4 ANC |  |  |
| Neonatal tetanus protection |  |  |
| Insecticide-treated net - Coverage of pregnant women  |  |  |
| Malaria Treatment |  |  |
| Intrapartum period | Institutional Delivery |  |  |
| Skilled birth attendant |  |  |
| C-section |  |  |
| Immediate postnatal period  | Hygienic cord care |  |  |
| Early initiation of Breastfeeding |  |
| Appropriate thermal care |  |

**Table 2: Coverage of Selected Interventions along the Continuum of Care for children 1-59 months old**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | Percentage |
| Preventive care of Post-neonates at home-   |    | Non-exposure to indoor pollution\* |  |
| Always slept under an ITN\*\* |  |
| Preventive care of Post-neonates at the health facility | Immunizations\*\*\*  | BCG |  |
|            | OPV birth dose  |  |
| OPV1 |  |
| OPV2 |  |
| OPV3  |  |
| DPT1 |  |
| DPT2 |  |
| DPT3 |  |
| Measles |  |
| Fully Immunized\* |  |

Note \*: 12–59-month-olds who received specific vaccines at any time before the survey (according to a vaccination card or the mother’s report). To be fully immunized, a child must receive at least: one dose of BCG vaccine; three doses of DPT-HepB-Hib (pentavalent); three doses of polio vaccine; and one dose of measles vaccine.

1. Content of Antenatal Care During Pregnancy of Stillbirths and Deceased Newborns

**Table 3: Content of Antenatal Care During Pregnancy, Stillbirths and Neonatal deaths**

|  |  |  |
| --- | --- | --- |
|  | Stillbirth | Neonatal deaths |
|   | % Covered | % Not Covered (Missed Opportunity) | % Covered | % Not Covered (Missed Opportunity) |
| Blood Pressure measured |  |  |  |  |
| Urine Sample Collected |  |  |  |  |
| Blood sample taken |  |  |  |  |
| Nutrition counselling provided |  |  |  |  |
| Counselled about pregnancy danger signs |  |  |  |  |
| Quality ANC\* |  |  |  |  |

Note \*: Stillbirths or neonatal deaths who received all ANC contents, including blood pressure checked, urine and blood tested, counseled about nutrition, and counseled about pregnancy danger signs.

1. Pathway to survival

Pathway to Survival identifies and organizes social, cultural and health system factors that could be modified both inside the home and in the community in order to prevent child illness and return sick children to health.[[3]](#footnote-3)

The Pathway to Survival model describes these healthful preventive and curative care practices. While originally designed to support the Integrated Management of Childhood Illness (IMCI) approach to child health care, the model can also be used to describe an approach to overcoming much of adult mortality. The SA questions in the COMSA questionnaire are based on this model.

**Figure 1: Pathway to Survival indicators and components**

**7.2** Left the facility alive

**2. “D**ied immediately”

**3.** No care given or sought

**8.2** Received home care recommendations

**1.** Caregiver recognized any illness at home

Caregiver reported a severe or possibly severe symptom

**4.1** Sought home care only

**4.2** Sought home care first, and later sought or tried to seek outside care

**8.1** Was not referred, nor received any home care recommendations

**7.1** Died at the first health care provider

**4.3** Sought or tried to seek outside care first

**5.3** Informal care only

**5.2** Informal and formal care

**5.1** Formal care only

**9.1** Referral compliance

**6.1** Died before setting out, or died on route, or could not reach the health provider

Choice of formal care

Reached the first health provider

**8.3** Was referred to another health care provider

Choice of outside care

Received, sought, or tried to seek any care

**Table 7: Pathway to survival indicators and components**

|  |  |
| --- | --- |
| Pathway to SurvivalComponent and Indicators | Age-groups of the deceased  |
|  | 0-27days | 1-59 months | 5-11 years | 12-17 years |
|  |  |  |  |  |
| Care-seeking patterns | n=xxx | n=xxx | n=xxx | n=xxx |
| 3. No care given or sought  |  |  |  |  |
| 4.1 Home care only |  |  |  |  |
| 4.2 Sought or tried to seek outside care as first action |  |  |  |  |
| 4.3 Sought or tried to seek outside care as second action |  |  |  |  |
| Choice of outside care | n=xxx | n=xxx | n=xxx | n=xxx |
| 5.1 Formal care only |  |  |  |  |
| 5.2 Informal and formal care |  |  |  |  |
| 5.3 Informal care only |  |  |  |  |
| Choice of any formal care | n=xxx | n=xxx | n=xxx | n=xxx |
| 6.1 Died before setting out, or died on route, or could not reach the health care provider |  |  |  |  |
| 7.1 Reached the first health care provider and died at the facility |  |  |  |  |
| 7.2 Reached the first health provider and left the facility alive |  |  |  |  |
| Action of first health provider at discharge (of the person who left the health facility alive) | n=xxx | n=xxx | n=xxx | n=xxx |
| 8.1 Was not referred, nor received any home care recommendations |  |  |  |  |
| 8.2 Received home care recommendations  |  |  |  |  |
| 8.3 Was referred to another health care provider  |  |  |  |  |
| The caregiver went to a second or last provider | n=xxx | n=xxx | n=xxx | n=xxx |
| 9.1 Referral compliance |  |  |  |  |

Note: the numbering of the indicators corresponds to numbers included in figure 1 on pathway to survival.

1. Brown P, Lyson M, Jenkins T. From diagnosis to social diagnosis. Soc Sci Med. 2011;73:939–43. doi: 10.1016/j.socscimed.2011.05.031 [↑](#footnote-ref-1)
2. Boschi-Pinto C, Young M, Black RE. The Child Health Epidemiology Reference Group reviews of the effectiveness of interventions to reduce maternal, neonatal and child mortality. Int J Epidemiol. 2010;39(suppl 1):i3–6. doi: 10.1093/ije/dyq018. [↑](#footnote-ref-2)
3. Waldman R, Campbel CC, Steketee RW. Overcoming remaining barriers: the pathway to survival (Current Issues in Child Survival Series). Arlington: The Basic Support for Institutionalizing Child Survival (BASICS) Project; 1996. Available: http://pdf.usaid.gov/pdf\_docs/PNABZ644.pdf. [↑](#footnote-ref-3)