Original Research Article

Failure in Evidence Based Practice: Inadequacies of Recording Infants' Deaths in Tabriz, Iran

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ABSTRACT

Infant and child mortality rates serve as the essential indicators of population health. In view of policy mandates exist to spur improvements in children's health it is pivotal to register children's deaths abundantly. Critical paucity in registration of children death cases even in the developed world may lead to infelicitous interpretation of the data and a systematic bias in cause-specific mortality analysis.

This study was carried out to envisage the validity of the current data recording pattern in the only referral children's hospital in Tabriz the capital city of EastAzarbaidjan province, North West of Iran.

Data about the age, sex, living place and recorded cause of death for deceased children were collected over 5 years from 21st March 2007 to 19th March 2012 to inspire proportionately if mortality data recording quality adhered to standard guidelines.

We found 670 registered death cases of them 56.4% (378) were boy and 42.4% (292) girl. In 8.4% (56) of the cases mortality was occurred in the first day of life, 50.3% (227) in the first 25 days of life and about 76.0% (509) before the age of 5 months. All 670 cases of deaths were attributed to 100 causes and a considerable inconsistency was observed in the recorded causes of death compared to the international standard guidelines.

Findings of this study exposed a major failure in practicing evidence based guidelines to report children's mortality. Urgent needs exist to improve the quality of mortality statistics in the Iranian teaching hospitals.

Key words: Child mortality, classification, variation, bias, evidence based

INTRODUCTION

Crude and cause specific perinatal, infant and child mortality rates frequently serves as the essential indicators of population health. They also inform health policies and could be used as progress indices in achieving local or international health goals e.g. Millennium Development Goal 4 (MDG 4) which calls for a major reduction in the mortality rates of less than five years old children within 1990-2015 time periods. [1]

In view of policy mandates exist to spur improvements in children's health it is pivotal to register and monitor children's deaths abundantly. Several international organizations such as the United Nations Children's Fund (UNICEF), World Health Organization (WHO) and United Nations Development Fund for Women (UNIFEM)

use infants' mortality rates for ranking of countries for comparison purposes. But due to a critical paucity [2-15] in registration of neonate and infant death cases even in the developed countries validity of such comparisons is equivocal.

Inaccurate completion and registration of infants' death may lead to infelicitous interpretation of infant mortality data and therefore a systematic bias in cause-specific mortality analysis. Such an imprecision is not incidental and was reported in different countries. [16,17] Wide variations in the quality of infant death registrations may limit usefulness of the commenced data for health planning or international comparisons.

To the best of our knowledge no attempt was made before to appraise infant mortality data recording in Iran and this study was carried out to envisage the validity of the current data recording pattern in a referral children's hospital in Tabriz the capital city of East Azarbaidjan province, North West of Iran.

METHODOLOGY

In this cross sectional descriptive study registered death cases in the only referral children's hospital in Tabriz was speculated in the electronic recording system of the center over a 5 years period from 21st March 2007 to 19th March 2012.

Data about the age, sex, living place and recorded cause of death for deceased children were collected and analyzed in SPSS version 19. Crude, relative and cumulative frequencies were calculated to inspire proportionately if mortality data recording quality adhered to standard guidelines.

RESULTS

We found 670 registered death cases of them 56.4% (378) were boy and 42.4% (292) girl. In 8.4% (56) of the cases

mortality was occurred in the first day of life, 50.3% (227) in the first 25 days of life and about 76.0% (509) before the age of 5 months. The most prevalent registered causes of death were shown in Table 1.

Table 1. Most prevalent cause of mortality cases in the only referral children's hospital of Tabriz-Iran: 2007-2012.	
Causes	Number (percent)
Neonatal respiratory distress	90 (13.4)
Neonatal sepsis	63 (9.4)
Pneumonia	55 (8.2)
Congenital heart defects	55 (8.2)
Infant cardiac arrest	41 (6.1)
Biliary atresia	30 (4.5)
Asphyxia	23 (3.4)
Congenital anomalies	20 (3.0)
Metabolic disorders	19 (2.8)
Hemorrhage	14 (2.1)

In relation to the living place of the registered deceased children about 43.88% (294) of them were dweller of Tabriz before admission and 56.12% (376) were resident of nearby cities and villages.

According to the recorded number of death cases a descending pattern of mortalities was plotted from 204 (30.4%) cases in 2007 to 103 (15.4%) cases in 2012.

A considerable inconsistency was observed in the recorded causes of death compared to the international standard guidelines for instance liver failure, vascular disorders, apnea, cardiac arrest, metabolic disorder, urinary tract infection (UTI), cerebral hemorrhage, peritonitis, bronchitis, seizure, cyanosis, shock and hypoglycemia were among the registered death causes.

All 670 cases of deaths were attributed to 100 causes and clearly no unique coding rules as suggested internationally [18] was applied to record mortality causes. Based on the retrieved data it was not possible to scrutinize whether the recorded items were immediate or underlying factors of death. No death was registered due to multiple causes among the 670 recorded death cases.

We also were not able to inspect whether recorded causes were based on

autopsy finding. Many of the recorded causes were ill-defined [18] and could not help to their scientific and accurate interpretation. Some of the recorded causes are trivial conditions e.g. UTI and hernia and unlikely can result directly to death.

DISCUSSIONS

Major deficiencies were identified in recording the children's mortality causes in the only children's referral teaching hospital which is operated by the Tabriz University of Medical Sciences. The cause specific registered cases of children's mortalities in the studied database of the hospital did not conform to the rules of the international guidelines including the conventions in the International Classification of the Diseases (ICD-10). [18] There are several international [11-29] and national [30-33] studies to interpret the children's mortality data based on cause-specific analysis, trends speculation and comparative investigations but without a robust recording protocol accuracy of the reported findings will be under scrutiny.

Declining pattern of the children's mortality in the studied time period (5 years) was concurrent with a conducted nationwide study [31] and may reflect improvement of the children's health in the hospital's catchment area. But due to inherent inconsistencies in the quality of the recorded data it was not possible to apprehend the changes were occurred in the cause specific mortalities or age and sex adjusted death rates.

Main objective of this study was to make out the overall validity of the data about children's mortalities in a referral teaching hospital as a representative of all children's hospitals which are under supervision of the Ministry of Health and Medical Education (MOHME) in Iran. We did not perform a case by case analysis to see how each registered case of mortality comply with standard classification of the

causes of death or did not attempt to report total type and amount of errors in recording mortality causes.

CONCLUSION

Findings of this study exposed a major failure in practicing evidence based guidelines to report children's mortality and urgent needs exist to improve the quality of mortality statistics in the Iranian teaching hospitals. Systematic assessments of the mortality data registration and data recording audit is therefore recommended for the Iranian National Health Network (INHN) to increase accountability of the system.

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