

## NATIONAL PERINATAL MORTALITY DERNA/LIBYA

Soad Ajroud<sup>1</sup>, Raga A. Elzahaf<sup>2\*</sup>, Abdullatif Amneenah<sup>3</sup> and Ahmed Alzurqi<sup>4</sup><sup>1</sup>Departement Gynae & Obst, Derna University, Faculty of Medicine, Al-Wahda hospital / Derna, Libya.<sup>2</sup>Public Health Department, College of Medical Technology, Derna, Libya.

MENA Research Group, Libya.

<sup>3,4</sup>Departement of Pediatric, Al-Wahda hospital / Derna, Libya.

\*Corresponding Author: Raga A. Elzahaf

Public Health Department, College of Medical Technology, Derna, Libya.

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## ABSTRACT

**Background:** Perinatal mortality is a public health as well as a development problem in low-income and middle-income countries. Perinatal mortality is an important outcome indicator for country's socioeconomic situation, quality of life and directly mirrors the quality of prenatal, intra partum, and newborn care. **Objective:** To estimate the perinatal mortality and the cause in Derna, Libya. **Methods:** A retrospective cross-sectional study was conducted from 2019 to 2022 at antenatal ward and special baby care unit in Derna hospital, Libya. **Results:** There was a total of 11717 deliveries over the four years. The overall perinatal mortality rate was 23.89 per 1000 births. Overall, congenital anomalies related conditions were the most common probable cause of perinatal mortality 37.14% over the study period follow by immaturity 28.9% and antepartum death (IUGR, DM, unexplained) 22.8%. **Conclusions** The study revealed relatively high perinatal mortality rate. So, national perinatal mortality audits are important in identifying contributory factors and making recommendations to address these.

**KEYWORDS:** Perinatal mortality, Still birth, Derna, Libya.

## INTRODUCTION

Neonatal mortality accounts for approximately 40% of all childhood mortality in developing countries. The first 28 days of life are a vulnerable period when infants are highly susceptible to illness and death.<sup>[1]</sup>

The majority (99%) of the neonatal deaths occur in developing countries, with two thirds occurring in Africa and South East Asia because of poverty and poor access to health services. However, is that the causes of most neonatal deaths are largely preventable.<sup>[2]</sup>

In many Western societies the death of a child is a rare event, mostly occurring in hospital, and usually in an intensive care setting.<sup>[3]</sup>

The main causes of neonatal and stillbirth mortality, the main direct causes for the prenatal are pregnancy-related complications (complications of prematurity, congenital anomalies), delivery-related complications (asphyxia, birth injury) and infectious diseases.<sup>[4]</sup> Those complications cause about one-third of neonatal deaths. The most important underlying cause of neonatal mortality is low birth weight<sup>[5]</sup>, 40 to 80% of neonatal deaths occur among LBW babies.<sup>[4]</sup>

Most of the neonatal deaths in developing countries are not recorded; hence, data mostly reported in published literature and technical reports are estimates from national demographic surveys.<sup>[2]</sup>

Neonatal outcome is important indicator of obstetrics and health care as well as quality of antenatal and perinatal care. It is estimated that effective implementation and high coverage of interventions could prevent up to 70% of neonatal deaths globally.<sup>[7]</sup>

In Libya, available data on neonatal mortality are low; so this retrospective study was, therefore, undertaken to assess PMR and identify associated factors and causes. The data is an important role to play in reducing preventable perinatal deaths and policies to reduce NMR and consequently give support to decision makers.

## PATIENTS AND METHODS

This was a retrospective descriptive study of four years conducted at Al-wahda hospital Derna, Libya. The information was retrieved from the case notes available in the medical records department of the hospital records in antenatal ward and special baby care unit. Detailed retrospective reviews of records were undertaken from the case notes of 11717 admissions during 4 years period from 2019 to 2022.

**RESULTS**

There was a total of 11717 deliveries over the four years period of the study. The overall perinatal mortality rate was 23.89 per 1000 births with stillbirth rate and early

neonatal death rate of 10.35 per 1000 births and 13.8 per 1000 live births respectively (Table 1).

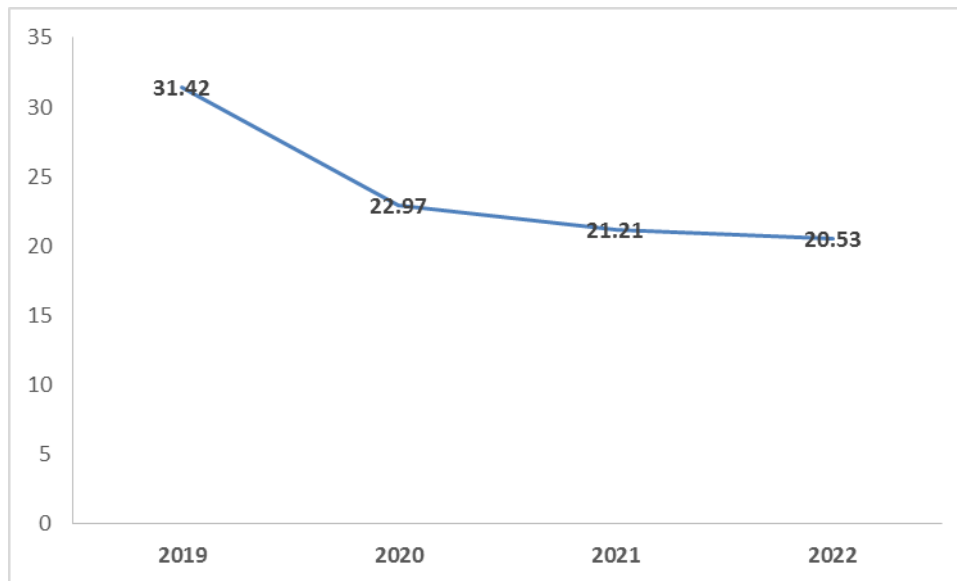


Fig 1. Trends of perinatal mortality per 1000 births from 2019 to 2022.

Table 1: Perinatal mortality rate.

Years	Total no of births	SB	END	Total of perinatal death	Perinatal mortality rate
2019	2705	44	41	85	31.42
2020	3221	28	46	74	22.97
2021	3064	24	41	65	21.21
2022	2727	24	32	56	20.53
<b>Total</b>	<b>11717</b>	<b>120</b>	<b>160</b>	<b>280</b>	<b>23.89</b>

The perinatal mortality rate is calculated as:  $\text{No of perinatal deaths} / \text{total No of births (still births + live births)} \times 1000$

There were decreased in the perinatal mortality rate (Figure 1). The perinatal mortality ratio decreased from

2019 to 2022 from 31.42 to 20.53 per 1000 live births (Table 1).

Table 2: Cause of stillbirths and END.

	No(%)	Years			
		2019	2020	2021	2022
<b>SB</b>					
Antepartum death(IUGR, DM,unexplained)	64 (22.8)	24	12	14	14
Cong anomalies	43(15.36)	15	14	6	8
Intrapartum anoxia (abruptio)	11(3.9)	4	2	3	2
Covid Infection	2(0.71)	1	0	1	0
<b>END</b>					
Immaturity	81(28.9)	20	21	22	18
Cong anomalies	61(21.78)	14	20	18	9
Asphyxia	6(2.14)	5	0	0	1
Infection	8(2.86)	1	4	1	2
Aspiration	4(1.42)	1	1	0	2

Overall, congenital anomalies related conditions were the most common probable cause of perinatal mortality 104(37.14%) over the study period followed by

immaturity for 81(28.9%) and antepartum death (IUGR, DM, unexplained) for 64(22.8%).

Other probable causes of perinatal mortality were intrapartum anoxia (abruptio) for 11(3.9%), early neonatal infections accounting for 8(2.86%), asphyxia 6(2.14%), aspiration 4(1.42%) and Covid infection for 2(0.71%).

Antepartum death (IUGR, DM, unexplained) 64/120 (53.3%) were the most common category of stillbirth and the second was category congenital anomalies 43/120(35.8%). Intrapartum anoxia (abruptio) for 11/120(9.16%), and Covid infection for 2/120(1.66%).

Immaturity for 81/160(50.6) were the most common category of END, cong anomalies for 61/160(38.13), early neonatal infections for 8/160(5%), asphyxia 6/160(3.75%) and aspiration 4/160(2.5%) (Table 2).

## DISCUSSION

Neonatal mortality continues to be a significant public health problem. Over the last 2 decades, improvements in perinatal and neonatal care have led to great success in the survival of the new-born.<sup>[8]</sup> Despite these advances, it is important that we continue to identify characteristics associated with perinatal mortality as well as to develop a proper intervention.

This study was carried out as a retrospective record-based study to estimate the PMR and factors associated with an increased risk for perinatal mortality at Al Wahada teaching hospital in Derna Libya from 2019 to 2022.

In our study, the estimated PMR is 23.89 per 1000 live births in four years. This is higher than the 21.1 per 1000 live births at Misurata Teaching Hospital in 2013<sup>[15]</sup> and 20 per 1000 live births reported in China<sup>[6]</sup>; Perinatal mortality rate was low in countries that have widespread access to modern obstetrics; in Denmark (8 per1000), Finland (6 per 1000), France (7 per 1000), Germany (6 per 1000), Japan (7 per 1000), Netherlands (8 per 1000), United Kingdom (8 per 1000) and United states (7 per 1000).<sup>[15]</sup>

However, the rate is lower than the 37.6 reported in a 5-year study based in a rural community in Nigeria<sup>[9]</sup>, the national estimate of 48 per 1000 live births for Nigeria<sup>[10]</sup> and estimates from other developing countries, such as Kenya(37.4 per 1000)<sup>[11]</sup>, The Gambia(65 per 1000),<sup>[12]</sup> Bangladesh(53.5 per 1000)<sup>[13]</sup> and India(41 per 1000).<sup>[14]</sup> This discrepancy may be due to differences in study design, study period, antenatal care unit service and socio- economic characteristics of study population.

The perinatal mortality in this study has decreased from 31.42/1000 births in 2019 to 20.53/1000 births in 2022.

However, in 2020, neonatal mortality rate for Libya was 6 deaths per 1,000 live births. Between 2001 and 2020, neonatal mortality rate of Libya was declining at a moderating rate to shrink from 14.7 deaths per 1,000 live

births in 2001 to 6 deaths per 1,000 live births in 2020.<sup>[16]</sup>

Congenital anomalies, immaturity and antepartum death (IUGR, DM, unexplained)were the main probable causes of perinatal mortality in this study.

As compare to study by Alburke et al in Misurata found the highest incidence of neonatal deaths was among neonates with congenital anomalies and those with neonatal sepsis (9 and 6.3%, respectively).<sup>[15]</sup>

However, the causes and determinants of neonatal deaths and stillbirths differ from those causing and contributing to post-neonatal and child deaths. Neonatal deaths and stillbirths stem from poor maternal health, inadequate care during pregnancy, poor management of complications during pregnancy and delivery, poor hygiene during delivery and the first critical hours after birth, and lack of newborn care.

## CONCLUSION

The perinatal mortality rate was 23.89 per 1000 births and decline from 31.42/1000 births in 2019 to 20.53/1000 births in 2022.

The major cause of perinatal mortality is Congenital anomalies, immaturity and antepartum death (IUGR, DM, unexplained) which increased in presence of maternal risk factors.

## Recommendation

Identifying the causes of perinatal mortality is very important issues to reduce the perinatal mortality rate. So, strategies to improve the health care of women in Libya to improve both pregnancy and neonatal health outcomes.

Appropriate perinatal and neonatal care requires collaborative work from the ministry of health and medical staff to improve the outcome.

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