

Perinatal and Neonatal Mortality, Risk Factors, and Causes in Babylon Teaching Hospital for Maternity and Children During 2018

Nadia Kadhim Nayyef, Jawad Kadhim Al-Bairmani, Ayser Mohammed Al-Hillali

Babylon Teaching Hospital of Maternity and Children, Babylon Health Directorate, Hilla, Iraq

Abstract

Background: The perinatal mortality rate (PMR) is referred to fetal death from the 20th weeks of gestation until 7 days after birth expressed as number of death per 1000 live birth. The risk for mortality in fetuses and neonates is very high around the time of birth. **Objectives:** To evaluate the neonatal and PMRs according to sex distribution, causes, and risk factors. **Methods:** 200 neonatal deaths (NDs) in our hospital were reviewed to assign obstetric and neonatal information, final causes and the circumstances of death. **Results:** the age of patients enrolled in the study range between 24 weeks. Gestational age (GA) – 28 days, mean $\pm$ standard deviation (SD) – 2.64 ± 3.38 days. PMR = 43.6/1000 birth, neonatal mortality rate = 44.4/1000 live birth. Their mothers age mean $\pm$ SD – 27.68 ± 6.52 years. Regarding gender, M: F = 2.2:1. Perinatal mortality, 189 neonate (94, 5%) 88 male preterm baby (44%), 52 female preterm neonate (26%), term ND in the 1st week, 40 male (20%) and 9 female (4.5%). Death after 1st week from 8 to 28 days about 11. Regarding GA divided into 4 categories <28 week gestation account 11, 28–33. 6/7 weeks 93 ND (58 male, 35 female), 42 ND at 34–36.6 week (28 male, 14 female), term baby 54.44 male and 10 female. Regarding causes of death: prematurity include 99 (49.5% – 64 male and 35 female), neonate include 37 (18.5% – 30 male, 7 female), antepartum death include 17 (8.5%, 9 male, 8 female), sepsis include 15 (7.5% 10 male, 5 female), intrapartum complication include 14 (7%, 11 male, 3 female), 8 ND with pneumonia (4%, 7 male and 1 female), 3 ND with meningitis (1.5% male 2, female 1), other causes 7. **Conclusions:** Both NMR and PMR are higher than world health organization standard rates in Babylon Teaching hospital for maternity and children.

Keywords: Neonatal mortality, perinatal mortality, premature infant, still birth

INTRODUCTION

The neonatal period (N) is defined as the 1st 28 days after birth and may be further subdivided into very early (birth to <24 h), early (birth to <7 days), and late neonatal periods (7 days to <28 days).^[1]

The perinatal mortality (PM) is most often referred to fetal death from the 20th weeks of gestation until 7 days after birth expressed as number of death per 1000 live birth. The risk for mortality in fetuses and neonates is very high around the time of birth.^[2] The estimation of gestational age (GA) of newborn infant is based on ultrasound examination of mother during pregnancy and is supplemented by modified Dubowitz (Ballard) examination. According to that the patients was classified as preterm, term, and postterm.^[3]

PM is influenced by prenatal, maternal, and fetal conditions and by circumstances surrounding delivery. The neonatal mortality is an index for neonatal care and directly reflects maternal and child health service.^[4] As PM rate (PMR) and neonatal mortality rate (NMR) is influenced by prenatal conditions and circumstances surrounding delivery, studying these mortality rates as well as the impact of several variables on death rates of newborns admitted was essential in assessing the quality of

Address for correspondence: Dr. Nadia Kadhim Nayyef, Babylon Teaching Hospital of Maternity and Children, Babylon Health Directorate, Hilla, Iraq.
E-mail: clearheart42@yahoo.com

Submission: 26-11-2019 **Accepted:** 02-01-2019 **Published Online:** 17-03-2020

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Nayyef NK, Al-Bairmani JK, Al-Hillali AM. Perinatal and neonatal mortality, risk factors, and causes in Babylon teaching hospital for maternity and children during 2018. *Med J Babylon* 2020;17:58-63.

Access this article online

Quick Response Code:



Website:
www.medjbabylon.org

DOI:
10.4103/MJBL.MJBL_93_19

care provided and the effectiveness of the interaction between obstetricians and neonatologists in anticipating prenatal problems and taking prompt preventive therapeutic measures.^[5] The neonatal mortality fall gradually from 24.8 deaths per 1000 live births in 1998 to 17.1 deaths per 1000 live births in 2017.^[6]

Immunization of pregnant women to enhance maternal immunity and the transplacental transfer of antibodies to the fetus is an effective strategy for the prevention of neonatal tetanus. Despite recommendations on the use of TT in pregnant women and women of childbearing age, average worldwide coverage (measured by the indicator for two doses of tetanus toxoid, "TT2") is only 65%.^[7]

Antenatal care (ANC) is one of the key strategies recommended to reduce the risk of neonatal mortality in any community irrespective of sociodemographic background. The World Health Organization (WHO) recommendation for effective ANC services, specific to low-income countries, is four or more ANC visits. The recommendation requires each of the first two ANC visits to take place in the first two trimesters and the last two visits should take place in the last trimester. Each visit is required to focus on a given ANC service package as outlined in the WHO guidelines. Overall, the main services include screening for complications, health education for healthy lifestyle, 2 tetanus toxoid injections and 90 iron/folic acid tablets.^[8]

The aim of the study was to evaluate NMR and PMR according to sex distribution, causes and risk factors, in Babylon Teaching Hospital for Maternity and children, with access to obstetric and neonatal care.

MATERIALS AND METHODS

Study design and patients

This descriptive, observational study was done from June 2018 to January 2019. It included 200 neonates (138 males and 62 females) died within 28 days of birth (include still birth). These neonate patients were admitted to the neonatal care unit directly either from the labor room or from the operation room or referred from outside the hospital. The study was conducted in Babylon Teaching Hospital for Maternity and children. Patients were reviewed for obstetric and neonatal information, final causes and circumstances of the death. The circumstances of the death were determined by asking the mother or family and by reviewing hospital records for mothers and the baby.

Data collected for the mother include: age, gravity, parity, hx of abortion, mode of delivery, ANC, single or multiple pregnancy, labor type, anesthesia given during labor, and whether labor induced or spontaneous. For dead babies, the collected data are chronological age, GA, gender, birth weight, Apgar scores, cause of death, baby referred or not need resuscitation at birth or not.

Ethical consideration

The study was conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki.

It was carried out with patient's verbal and analytical approval before sample was taken. The study protocol and the subject information and consent form were reviewed and approved by a local ethics committee.

Statistical analysis

Statistical analyses were conducted using a commercially available program SPSS 19.0 for Windows (SPSS, Chicago, IL, USA). Raw data are collected first, then mean $\pm$ standard deviation (SD) was obtained. Chi square was used for comparison between groups.

RESULTS

Demographic data

Table 1 shows the distribution of the patients according to sex and shows that male is more commonly affected by PMR and NMR with male/female ratio 2.2:1.

Table 2 demonstrates the PM according to term and shows that most died neonates was preterm (70%) with higher ratio among males, while term baby death in the 1st week was 24.5% and also higher rate was seen in male. On the other hand, death from 8 to 28 weeks represents 6% of the studied population.

Gestational age

Patients are classified into four categories according to their GA as shown in Figure 1. It shows that the most commonly affected group is between 28 and 36.6 weeks of gestation.

Weight of patients

Weight distribution of dead newborns is indicated in Figure 2 and it clearly show that the most commonly dead newborns are weighing 1000–1499 g followed by <100 g.

Chronological age

Chronological age of dead newborns is shown in Figure 3 and it indicates that most of the patients enrolled in the study were died in the 1st day of life.

Apgar score

Figure 4 shows the distribution of dead newborns according to Apgar score done within 1 and 5 min of delivery, and it

Table 1: Distribution of neonatal deaths according to the sex

Sex	Frequency (%)
Male	138 (69.0)
Female	62 (31)
Total	200 (100.0)

Table 2: Death distribution among patient groups

Sex	0-7 days		8-28 days		Total (%)
	Preterm (%)	Term (%)	Preterm (%)	Term (%)	
Male	88 (44)	40 (20)	6 (3)	4 (2)	138
Female	52 (26)	9 (4.5)	0 (0)	1 (0.5)	62

clearly indicates that most patients have low Apgar score at 1 and 5 min of birth.

Resuscitation

Regarding resuscitation of newborn after birth, we found that 50 newborn did not need resuscitation, while 130 newborn need resuscitation with O₂ and mask while 20 newborn was unknown whether they need resuscitation or not. These findings are explained in Figure 5.

Maternal obstetric history including gravity, parity, and abortion is shown in Table 3. It clearly indicates that most of the mothers was primigravida with very high abortion rate between the mothers that took part in the study.

For the total 200 mothers, only 69 (34.5%) had regular ANC visits during their pregnancies and the others – 131 mothers (65.5%) had irregular antenatal visit as shown in Figure 6.

Results in [Table 4] revealed that out of a total 200 neonatal death (ND), there was 2 who had history of twin pregnancy (12%) while there is 2 neonate with history of triplet pregnancy (1%), and the reminders were singleton pregnancies.

Distribution according of onset of delivery

Table 5 shows the distribution of patients according to onset

of delivery whether spontaneous or induced and displays that most of the deliveries was spontaneous. Table 6 shows the distribution of patients according to HIV screening and tetanus toxoid immunization and reveals that most of patients do not receive any of the protection procedures.

DISCUSSION

Perinatal mortality rate

The number of deaths of fetus and infants from 28 weeks of gestation to 1 week of postnatal life per 1000 births.^[9] The present PMR in Babylon Teaching Hospital for Maternity and Children is 43.6 per 1000 live births from June 1, 2018 to January 31, 2019. In comparison to other studies, it is higher than results seen by Abdulmalek *et al.* in Duhok province (PMR was 24.5%/1000 births),^[10] in OMAN (PMR) (14.49/1000 births),^[11] and in India (35/1000 live birth),^[9] while it is less than seen in Pakistan (PMR was 70 per 1000 births)^[12] and in Fallujah General Hospital (50.3/1000 of total birth).^[13]

Neonatal mortality rate

The present NMR in Babylon Teaching Hospital for Maternity and Children is 44.4 per 1000 live births which is higher than US Neonatal mortality 4.04/1000 birth^[1] and in Al-Ramadi

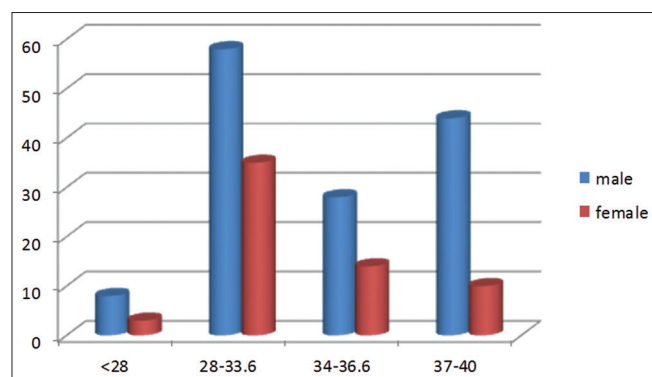


Figure 1: Distribution of death according to the gestational age

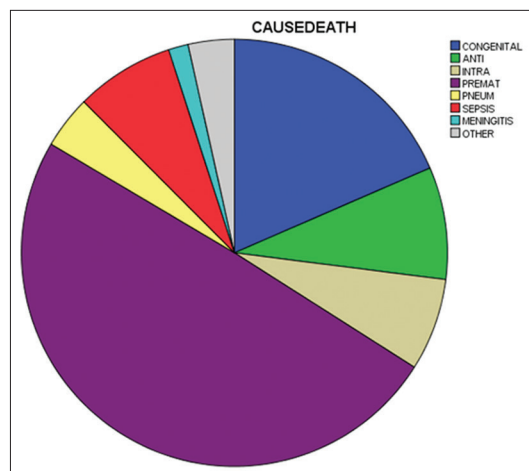


Figure 3: Distribution of patients according to their gestation age

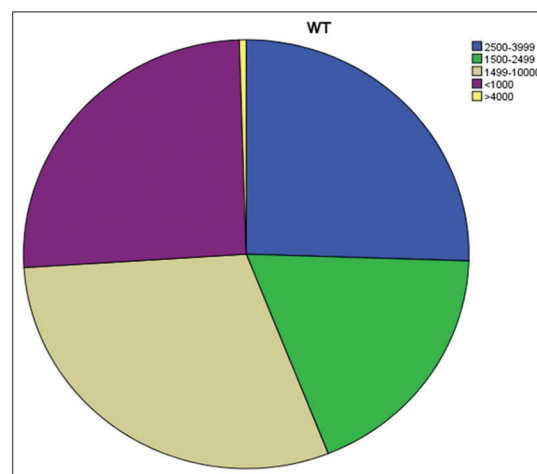


Figure 2: Distribution of dead newborns according to their weight

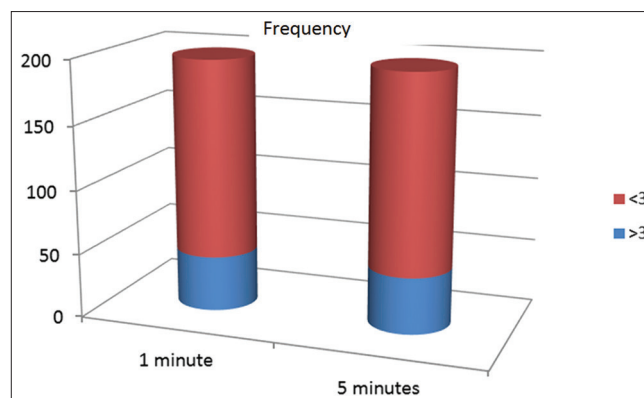


Figure 4: Apgar score of patients

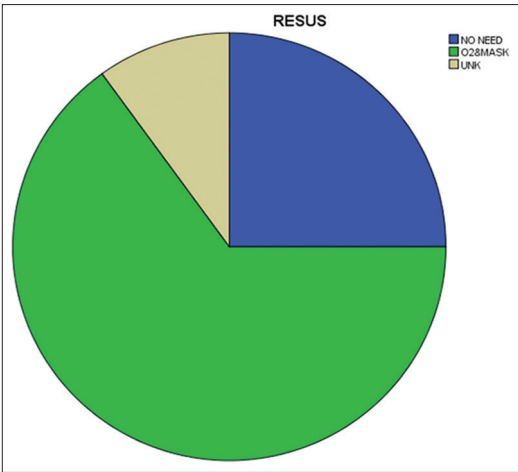


Figure 5: Need for resuscitation

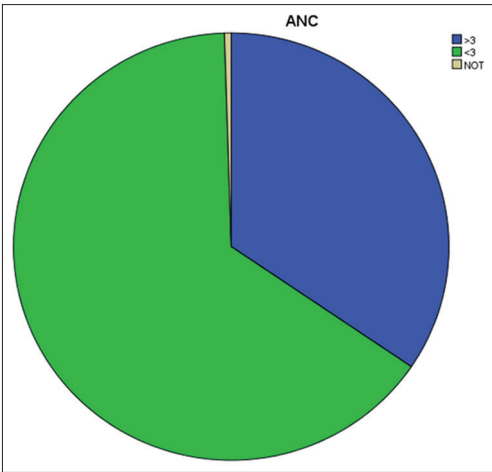


Figure 6: Antenatal care and neonatal death

Table 3: Maternal obstetric factor (gravity parity abortion)			
Serial number	Frequency (%)		
	Gravity	Parity	Abortion
0	0 (0)	0 (0)	173 (86.5)
1	78 (39)	80 (40)	15 (7.5)
2	31 (15.5)	30 (15)	4 (2)
3	33 (16.5)	37 (18.5)	5 (2.5)
4	29 (14.5)	28 (14)	1 (0.5)
5	12 (6)	17 (8.5)	1 (0.5)
6	9 (4.5)	6 (3)	0 (0)
7	3 (1.5)	2 (1)	0 (0)
8	3 (1.5)	0 (0)	0 (0)
10	1 (0.5)	0 (0)	1 (0.5)
11	1 (0.5)	0 (0)	0 (0)
Total	200 (100)	200 (100)	200 (100)

Table 4: Perinatal and neonatal death according to number of fetuses			
Valid	Frequency (%)	Valid %	Cumulative %
Single	174 (87.0)	87.0	87.0
Twin	24 (12.0)	12.0	99.0
Triplet	2 (1.0)	1.0	100.0
Total	200 (100.0)	100.0	

province (31.5/1000 live birth). Approximately two-third of NDs occurred during the early neonatal period and one-third in the late neonatal period.^[14] NMR was lower than NMR of Falluja city (57.3/1000 live births.^[5] The value for NMR (per 1000 live births) in Iraq, in 2017 was 17.1.^[15] at Fallujah General Hospital neonatal mortality was 41.5/1000 of total live birth.^[14] Our result was consistent higher than in Missan province.^[16] In Al-Rusafa children's welfare teaching hospital, neonatal mortality rate after 2015 (0.07) was significantly higher than that before 2015.

The present PMR of India is 35 per 1000 live births and NMR is 34 per 1000 live births in India. The common causes include asphyxia, prematurity, infection, and congenital

malformations.^[9] The PMR is a sensitive indicator of the quality of care provided to women in pregnancy, during and after child birth and to the newborns in the 1st week of life.^[1]

Recently, there has been a growing demand for PM data to be disaggregated by gender, geographic location and socioeconomic status, to enable programmers to improve resource allocation and monitoring.^[17] The decline in PMR and NMR which had been declared in European and American literatures for the last decade, had been attributed primarily to the development of new technology and therapeutics such as new generation of ventilators, Ecmo, and pulmonary surfactant, thus providing a more aggressive respiratory and cardiovascular support at intensive care settings,^[18,19] while improvement in some developing countries had been attributed further to the improvement in socioeconomic and educational status.^[20]

The NMR reflects the quality of social and health services and the economic status of each country, low rates found in Qatar 4/1000 live births, UAE 5/1000 live births, Kuwait and Bahrain 6/1000 live births, Oman 7/1000 live births, Lebanon 8/1000 live births, Libya 9/1000 live births.^[21,22]

Regarding gender M:F = 2.2:1, with highly significant difference which means that males had about 2.21 times risk for death than females as shown in Table 1. These results are the same as in various studies^[3,14,17,21-23] in Iraq. The high male to female ratio of which was this may be due to the fact that male neonates have approximately two folds higher incidence of sepsis and respiratory distress syndrome than females.^[24] The sex of the neonates significantly influenced the odds of dying, and consistent with other reports, we found females had a lower odds of mortality than males during the 1st month of life. These increased odds may be also due to the large proportions of NDs occurring in the 1st week, which is the time when gender differences in neonatal mortality are more pronounce.

The biological factors that have been implicated with this increased risks of NDs in male infants include immunodeficiency increasing the risks of infectious diseases in males, late maturity

Table 5: Distribution of patients according to onset of labor

Onset of labor	Frequency (%)
Valid	
Spontaneous	100 (50.0)
Induced	29 (14.5)
CS	71 (35.5)
Total	200 (100.0)

CS: Cesarean section

Table 6: History of HIV screen

HIV screening	Frequency (%)	
Valid	HIV	TT
Negative	57 (28.5)	75 (37.5)
Not	143 (71.5)	123 (61.5)
Not k		2 (1)
Total	200 (100.0)	200 (100)

resulting in a high prevalence of respiratory diseases in males, and congenital malformations of the urogenital system.^[25,26] IMTIAZ study in IRAN reports gender-specific NMRs in a defined urban population. The gender differential in early and late neonatal mortality is worth noting. Proportionately, there were more male deaths in the early neonatal period,^[12] a finding consistent with the well-described biological survival advantage of girls in the neonatal period; in contrast, there were more female deaths in the late neonatal period, reduced care-seeking for girls compared with boys has been reported in several settings.^[27,28]

Regarding GA, our results are the same as in study by Abdulmalek and Yusif^[10] and various studies^[17,28] which study NMR in NICU in Fallujah general hospital. The high PMR and NMR in this study reflects a higher percentage of very low birth weight newborns, and preterm infants, with the survival improving as gestation and birth weight increased, thus stressing the need to concentrate efforts in preventing premature and low birth weight deliveries.^[5] The same results of DR lamia. The higher mortality occurs in newborn with gestation age 28–32 weeks mostly among males in all GA and birth weight. Birth weight and GA are considered the major determinants of ND, the lower the birth weight and GA, the higher the mortality.^[29]

Regarding causes of death in neonates in our hospital shown in Table 5 and Figure 2. Globally, among newborn deaths, major causes include preterm birth complications (14.1%; 1.078 million), intrapartum-related complications, previously labeled as birth asphyxia (717,000 deaths; 9.4%), and sepsis or meningitis (393,000; 5.4%) NDs.^[1] Considering the major cause of death, respiratory insufficiency of prematurity remains the major cause of death, similar to what was reported in Neonatal Care Unit of Fatima Al Zahraa Hospital in Baghdad,^[14] Yarmook Hospital,^[24] Falluja,^[14] Dyala Province, Iraq^[20] and results reported by Salameh *et al.* at UAE^[21] and UK.^[30] Iman *et al.* study shows the most causes of early NDs

were birth asphyxia (36.6%) and prematurity (34.3%) the second which is less than our result that the prematurity is the most common.

The Apgar score is a practical method of systematically assessing newborn infants immediately after birth. A low score may be the result of fetal distress but may also be caused by a number of factors, including prematurity and drugs given to the mother during labor. Low Apgar scores and umbilical artery blood pH predict ND. An Apgar score of 0–3 at 5 min is uncommon but is a better predictor of ND (in both term and preterm infants) than an umbilical artery pH ≤ 7.0 ; the presence of both variables increases the relative risk of neonatal mortality in term and preterm infants. Infants who fail to initiate respiration should receive prompt resuscitation and close observation,^[1] about 77% ND has history of low APGAR score.

Regarding resuscitation, 130 neonates need resuscitation with O₂ and mask as seen in [Figure 3]. This agreed with other studies worldwide.^[17,31,32] Initiation of breathing is critical in the physiologic transition from intra-uterine to extra-uterine life. Between 5 and 10% of all newborns require assistance to establish breathing at birth, and simple warming, drying, stimulation and resuscitation may reduce neonatal mortality and morbidity. Each year an estimated 814,000 NDs are related to intrapartum hypoxic events in term infants and over one intrapartum million stillbirths occur, over one million newborns die from complications of preterm birth, such as RDS, and these babies require assistance to breathe at birth.^[32]

Many women who receive inadequate prenatal care are at risk for perinatal complications. Barriers to prenatal care include lack or insufficiency of money or insurance to pay for care; poor coordination of services, including language and cultural issues; and inadequate effective education about the importance of prenatal care. Successful and adequate provision of high-quality prenatal care requires competent health care professionals and coordination of services among physicians' offices, clinics, community hospitals, specially regionalized programs for high-risk mothers and infants, and tertiary care centers.

CONCLUSIONS

Both NMR and PMR are higher than WHO standard rates in Babylon Teaching hospital for maternity and children. Males are affected more commonly than females.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Carlo WA. Overview of mortality and morbidity. In: Kliegman MR, Stanton BF, St Geme JW, editors. Nelson Textbook of Pediatrics. 20th ed., Vol. 93. Amsterdam: Elsevier; 2016. p. 729-89.
- Gowen CW Jr. Fetal and neonatal medicine. In: Marcandante KJ,

- Kliegman RM, Jenson HB, editors. Nelson Essential of Pediatrics. 6th ed., Ch. 58, Sec. 11. Amsterdam: Elsevier; 2010. p. 213-33.
3. Vincent C. The high-risk newborn: Anticipation, evaluation, management, and outcome. In: Cloherty and Starck Manual of Neonatal Care. 8th ed., Ch. 7. South Holland, Netherlands: Wolters Kluwer; 2016. p. 77-95.
4. Bash SS, Al-Kaseer EA, Al-Diwan JK. Neonatal mortality in post-conflict Baghdad, Iraq. *Int J Sci Res* 2016;7:79-57.
5. Abdulghani ST, Sirhan YT, Lawas AK. Perinatal and neonatal mortality in Fallujah general hospital, Fallujah city, Anbar province, West of Iraq. *Health J* 2012;4:23051-4.
6. World Data Atlas Iraq Health. Iraq-Neonatal Mortality Rate. Available from: <https://knoema.com/atlas/Iraq>. [Last accessed on 2019 Mar 07].
7. Moss W, Darmstadt GL, Marsh DR, Black RE, Santosham M. Research priorities for the reduction of perinatal and neonatal morbidity and mortality in developing country communities. *J Perinatol* 2002;22:484-95.
8. Arunda M, Emmelin A, Asamoah BO. Effectiveness of antenatal care services in reducing neonatal mortality in Kenya: Analysis of national survey data. *Glob Health Action* 2017;10:1328796.
9. Vishnu BH, Nataraja MV. Newborn care a parthasarathy distinguished professor of pediatrics. In: Borker AS, editor. Partha's Fundamentals of Pediatrics. 2nd ed. Guindy, Chennai: Jaypee Brothers Medical Publishers; 2013.
10. Abdulmalek IY, Yusif HA. Maternal risk factors of perinatal mortality in Duhok. *Med J Babylon* 2018;15:363-8.
11. Jehan I, Harris H, Salat S, Zeb A, Mobeen N, Pasha O, *et al.* Neonatal mortality, risk factors and causes: A prospective population-based cohort study in urban Pakistan. *Bull World Health Organ J* 2009;87:130-8.
12. Habib KD, Kanoon MK, Marzog AS, Hurmiz WT. Trends of neonatal mortality and factors related with neonatal mortality among neonates admitted to the neonatal care unit of Fatima Al Zahraa Hospital in Baghdad during 2017. *Iraqi Postgrad Med J* 2018;17:348-54.
13. Hunnosh MM, Al-Akori MM, Al-Ani MM. Neonatal mortality rate in Al-Ramadi province from period (2003 to 2013), retrospective study. *J Fac Med Baghdad* 2017;59:47-52.
14. Iraq Neonatal Mortality Rate; 1960-2017. Available from: <http://knoema.com>. [Last accessed on 2019 Apr 20].
15. Al-Muhsen AE. Neonatal mortality rate in aseptic neonatal care unit of Al-Sadder Teaching Hospital in Missan Province from 2011 to 2014. *Eur Sci J* 2016;12:55-62.
16. Martinez J, Paul V, Bhutta ZA, Koblinsky M, Saucut A, Walker N, *et al.* Neonatal survival: A call for action. *Lancet* 2005;365:1189-97.
17. World Health Organization. Neonatal Mortality Rates in the Eastern Mediterranean Region by Country, World Health Statistics, 2008. Part II: Global Health Indicators. Geneva: World Health Organization; 2010.
18. Mufti P, Setna F, Nazir K. Early neonatal mortality: Effects of intervention on survival of low birth babies weighing 1000-2000 g. *J Pak Med Assoc* 2006;56:174-6.
19. Obaid KA, Al Azzawi DS. Outcome of low birth weight infants in Diyala province of Iraq. *J Trop Pediatr* 2011;57:280-2.
20. Dawodu A, Varady E, Verghese M, Al-Gazali LI. Neonatal audit in the United Arab Emirates: A country with a rapidly developing economy. *East Mediterr Health J* 2000;6:55-64.
21. Salameh K, Rahman S, Al-Rifai H, Masoud A, Lutfi S, Abdouh, G, *et al.* An analytic study of the trends in perinatal and neonatal mortality rates in the state of Qatar over a 30-year period (1977 to 2007): A comparative study with regional and developed countries. *J Perinatol* 2007;29:765-70.
22. Mathews TJ, MacDorman MF. Infant mortality statistics from the 2003 period linked birth/infant death data set. *Natl Vital Stat Rep* 2008;54:1-32.
23. Awqati NA, Ali MM, Al-Ward NJ, Majeed FA, Salman K, Al-Alak M, *et al.* Perinatal and neonatal mortality rates. *Iraq J Community Med* 2002;15:40-1.
24. Titaley CR, Dibley MJ, Agho K, Roberts CL, Hall J. Determinants of neonatal mortality in Indonesia. *BMC Public Health* 2008;8:232.
25. Bonde JP, Wilcox A. Ratio of boys to girls at birth. *BMJ* 2007;334:486-7.
26. Ulizzi L, Zonta LA. Sex differential patterns in perinatal deaths in Italy. *Hum Biol* 2002;74:879-88.
27. Rashid AK, Rasul CH, Hafiz SM. Neonatal mortality: A scenario in a tertiary level hospital of a developing country. *Pediatr Rep* 2010;2:e9.
28. Karim LA, Al-Mafraji S. The effect of weight and gestational age on neonatal mortality, Iraqi. *J Commun Med* 2006;19:286-90.
29. Lissauer T, Carroll W. Illustrated Textbook of Paediatrics. 5th ed., Ch. 31. United Kingdom: Elsevier; 2018. p. 535-42.
30. Cousens S, Blencowe H, Stanton C, Chou D, Ahmed S, Steinhardt L, *et al.* National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: A systematic analysis. *Lancet* 2011;377:1319-30.
31. Laftah RF. Preterm in the neonatal care unit at Babylon maternity and children hospital: Prevalence, morbidity, mortality, and risk factors. *Karbala J Med* 2015;8:2214-21.
32. Bader D, Kugelman A, Boyko V, Levitzki O, Lerner-Geva L, Riskin A, *et al.* Risk factors and estimation tool for death among extremely premature infants: A national study. *Pediatrics* 2010;125:696-703.