

**Obstetric Outcome in Gaza: A Comparative
Study between Outcome during the Period
from January 2007 to December 2008
and the period from January 2009 to
December 2010**

Thesis

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**حصيلة الولادات في غزة ، دراسة مقارنة بين حصيلة
الولادات خلال الفترة من يناير ٢٠٠٧ إلى ديسمبر ٢٠٠٨
والفترة من يناير ٢٠٠٩ إلى ديسمبر ٢٠١٠**

رسالة

توطئة للحصول على درجة الماجستير
في أمراض النساء و التوليد

مقدمة من

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SUMMARY AND CONCLUSION

The pregnant mother may be exposed to a number of critical situations that may be associated with increased morbidity if not mortality to her and her baby.

Maternal morbidity and mortality as well as perinatal morbidity and mortality are important public health problems in developing countries.

The aim of this study was to compare retrospectively the obstetric outcome between two periods the years 2007-2008 and the years 2009-2010 in Gaza-Palestine, as well as to identify, analyze and evaluate various risk factors.

The study was carried in Gaza UNRWA clinics-Palestine. The study included a total of 42557 registered pregnancies during the study period (2007-2010).

An overall deterioration in the obstetric outcome in the period (2009-2010) when comparing it with the obstetric outcome in the period (2007-2008), and that was clear in the increase in obstetric complications-especially sepsis and venous thrombo-embolism, increasing in maternal mortality ratio and neonatal mortality rate, and the increase of abortions, stillbirths and congenital anomalies frequencies.

Effective preventive strategies to reduce such problems should be based on accurate information about causes and predisposing factors contributing to this deterioration.

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List of Abbreviations

ACOG	American Collage Of Obstetricians and Gynecologist
AFE	Amniotic Fluid Embolism
AIDS	Acquired Immunodeficiency Syndrome
APH	Antepartum Hemorrhage
AR.....	Aortic Regurgitation
AS	Aortic Stenosis
CDC	Center for Disease Control and Prevention
CEMACH	The Confidential Enquiry Into Maternal and Child Health
CLD	Chronic Lung Disease
CNS	Central Nervous System
CPD	Cephalo- Pelvic Disproportion
CS	Cesarean Section
DHS	Demographic And Health Survey
DIC	Disseminated Intravascular Coagulopathy
DM.....	Diabetes Mellitus
DVT	Deep Venous Thrombosis
ELBW	Extreme Low Birth Weight
EOC	Emergency Obstetric Care
GAS	Group A Streptococci
HCA	Hospital Corporation of America
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IUGR	Intra Uterine Growth Retardation
IVH	Intra Ventricular Hemorrhage
LBW	Low Birth Weight
MCHC	Maternal And Child Health Center
MDG	Millennnum Development Goals
MMR	Maternal Mortality Ratio
MOH	Ministry Of Health
MR	Mitral Regurgitation
MWH	Maternity Waiting Homes
NGO	Non Governmental Organizations

List of Abbreviations (Cont...)

NHMRC	National Health And Medical Research Council
NICU	Neonatal Intensive Care Unit
NYHA	New York Heart Association
oPt	Occupied Palestinian Territory
PCBS	Palestinian Central Bureau Of Statistics
PE	Pulmonary Embolism
PET	Pre-Eclamptic Toxemia
PHC	Primary Health Care
PIH	Pregnancy Induced Hypertension
PLO	Palestinian Liberation Organization
PNA	Palestinian National Authority
PPH	Post Partum Hemorrhage
PROM	Premature Rupture Of Membranes
RDS	Respiratory Distress Syndrome
RRT	Rapid Response Team
SGA	Small For Gestational Age
SPSS	Statistical Package For The Social Sciences
STD	Sexually Transmitted Disease
TT	Tetanus Toxoid
UK	United Kingdom
UNFPA	United Nations Fund For Population Activities
UNICEF	United Nations children's Fund
UNRWA	United Nations Relief and Works Agency For Palestine Refugees In The Near East
USA	United States Of America
USAID	United States Agency For International Development
VTE	Venous Thromboembolism
WHO	World Health Organization

INTRODUCTION

In developing countries, improvement of maternal and perinatal health strongly depends on strengthening of health systems (*Maine, 2007*).

Maternal mortality is an important indicator of a woman's health both in developing countries and in more developed countries (*AbouZahr et al., 1996; Atrash et al., 1995*). It is a complex factor, which is influenced by the woman's social and economic status and by her nutritional status in childhood and adulthood (*Golding, 1989; Chipangwi et al., 1992; Paul, 1993; Rush, 2000*).

It is also an indicator of her access to antenatal care and delivery services, and of the quality of these systems (*Kwast and Liff, 1988; Royston and Armstrong, 1989; Fauveau et al., 1991*).

Each year, close to 600,000 women, world-wide more than one woman every minute die from complications related to pregnancy and childbirth. In addition, these complications cause more than 3 million infants to die within their first week of life and another 3 million to be stillborn each year. Less than one percent of the maternal deaths occur in developed countries, demonstrating that they could be avoided if resources and services were available (*WHO, 1999*).

Maternal mortality ratio (MMR) in 2005 was highest in developing regions (at 450 maternal deaths per 100 000 live

births), in contrast to developed regions (at 9 maternal deaths per 100 000 live births) (*WHO et al, 2007*).

Women risk death and disability each time they become pregnant. Women in developing countries face these risks much more often, since they bear many more children than women in the developed world (*WHO, 1998*).

Some pregnancies carry higher risk to women than others and need special management. For example, women with severe anemia are at higher risk of dying at childbirth (*Shulman, 1999*). Similarly, young women and women giving birth for the first time are at higher risk for obstructed labour and thus, its consequences (*Rush, 2000*).

Special emphasis to such high risk groups should reduce their chances of experiencing severe complications leading to maternal mortality.

The major causes of maternal mortality in developing countries are the same hemorrhage, sepsis, complications of unsafe abortions, hypertensive disorders of pregnancy and obstructed labor (*Yook, 2005*).

International organizations anticipate that 15% of pregnancies develop complications which necessitate medical care.

Rates of caesarean delivery have risen from about 5% in developed countries in the early 1970s (*Marieskind, 1979; US Department, 1981; Wilkinson et al., 1998; Arias et al., 2002; National Collaborating Centre, 2011*) to more than 50% in some regions of the world in the late 1990s (*Belizan et al., 1999*).

Many factors have contributed to this rise, including improved surgical and anesthetic techniques, reduced risk of post-operative complications, demographic and nutritional factors (*Merchant K et al., 2001; Linton et al., 2004*) providers' and patients' perception of the safety of the procedure (*Al-Mufti et al., 1996*) obstetricians' defensive practice (*Murray, 2000*), changes in health systems (*Turcotte L et al., 2005*), and patient demand (*Kalish et al., 2004; The Lancet, 1997*).

For the last 50 years, the term “perinatal mortality” has been used to include deaths that might somehow be attributed to obstetric events, such as stillbirths and neonatal deaths in the first week of life, and it is varied between different parts of the world ; The World Health Organization regional estimate of perinatal mortality in Africa was 62 per 1000 births, as compared to 50 per 1000 births in Asia, 13 per 1000 births in Europe, and seven per 1000 births in the North America (*WHO, 2006*).

In the developing world, most perinatal deaths are caused by congenital malformations; pregnancy-related complications, such as *placenta previa* or *abruptio placentae*; delivery-related complications, including intrapartum asphyxia and birth trauma; and infectious diseases (*Pattinson et al., 1989*).

Neonatal deaths and stillbirths in developed countries are falling. This is the result of changing patterns in reproductive health, socioeconomic progress and the quality of obstetric and neonatal facilities (*Chamberlain, 1991*).

Complications during labor are an important determinant of fetal and neonatal survival and health (*Kusiako et al., 2000*). Obstructed labor and malpresentation carry the highest risk and require skilled intervention.

The death of a mother substantially increases the risk of death for her newborn child. In one study, reporting child outcomes for mothers who died in labor, all the newborn babies (n=9) died within 1 year of birth (*Greenwood et al., 1987*).

AIM OF THE WORK

The purpose of the study is to compare the obstetric outcome between two periods the years 2007-2008 and the years 2009-2010 in Gaza.

MATERNAL MORTALITY

*M*aternal mortality is death of woman while she is pregnant, or within 42 days of termination of pregnancy regardless of site and duration of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (*Hill, 2001*).

A total of 99% of all maternal deaths occur in developing countries. More than half of these deaths occur in sub-Saharan Africa and one third in South Asia. The maternal mortality ratio in developing countries is 450 maternal deaths per 100.000 live births versus 9 in developed countries. Fourteen countries have maternal mortality ratios of at least 1000 per 100.000 live births, all of which but Afghanistan are in sub-Saharan Africa, and they are; Afghanistan, Angola, Burundi, Cameroon, Chad, the Democratic Republic of the Congo, Guinea-Bissau, Liberia, Malawi, Niger, Nigeria, Rwanda, Sierra Leone and Somalia (*WHO et al, 2007*).

The lifetime risk of maternal mortality, which describes the cumulative loss of life due to maternal deaths over the female life course, is an important summary measure of population health (*Ronsmans and Graham, 2006*).

A woman's lifetime risk of maternal death is 1 in 7300 in developed countries versus 1 in 75 in developing countries. But the difference is more striking in Niger, where women's lifetime risk of

dying from pregnancy-related complications is 1 in 7 versus 1 in 48000 in Ireland (*WHO et al., 2007*).

In addition to the differences between countries, there are also large disparities within countries between people with high and low income and between rural and urban populations (*WHO et al., 2007*).

It was estimated that about 500,000 maternal deaths occurred annually in the world or 1500 maternal deaths per day, 26 % of these cases were found to be preventable by introducing antenatal care and community-based interventions, another 48% of the cases were found to be preventable through efficient obstetric care both intra and post partum (*Khan et al., 2006*).

Table (1): Maternal deaths percentage in different countries in relation to the world and MMR in these countries.

Location	Maternal deaths (% of world total)	Maternal mortality ratio (per 100,000 live births)
Africa	273,000 (>50%)	1,000
Asia	217,000 (42%)	280
Latin America & The Caribbean	22,000 (4%)	190
Europe	Combined 2,800 (0.5%)	28
North America	2,000	11
World	514,000	400 (average)

(*WHO et al., 2007*).

Table (2): The women's lifetime risk of death from pregnancy in different regions all over the world;

Region	Risk of death
Africa	1 in 16
Asia	1 in 65
Latin American & Caribbean	1 in 130
Europe	1 in 1,400
North America V	1 in 3,700
All developing countries	1 in 48
AH developed countries	1 in 1,800

(WHO et al., 2007).

It was also noticed that maternal death rates rise with parity and maternal age. Maternal and infant death rates in US were found to be much higher than many developed countries; most recently, at the Millennium Summit in 2000, the United Nations Member States issued the Millennium Development Goals (MDGs) that call for a three-fourths reduction in maternal mortality rates by the year 2015. As only eight goals were selected, inclusion in the MDGs was a triumph for maternal mortality prevention and illustrates that the global community views safe motherhood as a top priority *(WHO et al., 2000).*

United States Center for disease control and prevention (CDC) stated that maternal mortality in United States had declined significantly during the 20th century and that actual maternal death rates per 100,000 live births had a rapid decline between the years 1900 and 1950, this was followed by a plateau in the maternal mortality rates since 1960, the improvement in medical and