

## MATERNAL AND PERINATAL MORTALITY INDICATORS (2020–2024) AS A MANAGEMENT TOOL FOR OBSTETRIC CARE

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**Abstract.** *Objective: to identify organizational and managerial determinants associated with maternal and perinatal mortality and to substantiate priorities for quality management in obstetric services. Materials and methods: a retrospective analysis of official statistics for 2020–2024 and expert case review materials for maternal and perinatal deaths, including facility level (I–III), referral pathways, transfer multiplicity, key time intervals, and protocol adherence. Results: a substantial proportion of adverse maternal outcomes occurs outside level III facilities; transfers are often late and multi-step. Leading maternal causes include obstetric hemorrhage, hypertensive disorders of pregnancy, sepsis, and extragenital diseases. Perinatal losses are mainly linked to prematurity, hypoxia/asphyxia, infections, and congenital anomalies; during the period, 40,603 perinatal deaths were registered, with more than 60% occurring at antenatal and intrapartum stages. Conclusion: reducing preventable losses requires standardized readiness for emergency obstetric care, early risk stratification, optimized referral logistics, and strengthened clinical audit with feedback across all levels.*

**Keywords:** *maternal mortality; perinatal mortality; obstetric care; management; quality improvement; clinical audit; three delays model; referral system.*

### **Introduction**

Maternal and perinatal mortality are widely used as integral indicators of the effectiveness of maternity services. When clinical risks are comparable, differences between territories and facilities often reflect disparities in care organization: timely identification of high-risk pregnancies, appropriate referral, readiness for emergencies, and the quality of internal control mechanisms. Therefore, analyzing causes and system-level failure points from a management perspective is essential for planning preventive and organizational measures.

### **Materials and Methods**

A retrospective analysis of official statistics on perinatal mortality (2020–2024) and expert review materials for maternal and perinatal deaths was performed. Organizational and time-related parameters were assessed, including facility level (I–III), transfers (presence and multiplicity), time interval from admission to initiation of specialized care,

and adherence of clinical tactics to current protocols. Descriptive statistics were used (absolute values, proportions, dynamics).

### **Results and Discussion**

During the analyzed period, 40,603 cases of perinatal death were registered. After a relative decrease in 2022–2023, an increase was observed in 2024 compared with the previous year, while the absolute number of losses remained high. More than 60% of perinatal losses occur at antenatal and intrapartum stages, before specialized neonatal care can be provided, highlighting the role of antenatal surveillance, timely hospitalization, and correct referral decisions.

Organizational analysis of maternal deaths showed that a significant share of unfavorable outcomes arises outside level III institutions. Even when indications for specialized care exist, patients may remain at level I–II until decompensation develops. Transfers were noted in more than half of reviewed cases; late and multi-step transfers were associated with loss of time, worsening clinical status, and reduced effectiveness of intensive therapy.

Leading immediate causes of maternal losses were obstetric hemorrhage, severe hypertensive complications, septic conditions, and extragenital pathology. Perinatal losses were dominated by prematurity, hypoxia/asphyxia, infections, and congenital malformations.

Key modifiable determinants include insufficient early risk stratification and under-recognition of red flags, delayed referral and transport logistics constraints, and incomplete implementation of clinical protocols. The ‘three delays’ framework (delay in seeking, delay in reaching, delay in receiving adequate care) helps identify bottlenecks and define corrective actions. Strengthening clinical audit should include preventability assessment, analysis of time intervals, structured feedback to level I–II facilities, and monitoring of corrective-measure implementation.

### **Conclusion**

Reducing maternal and perinatal mortality requires coordinated managerial interventions across the care continuum. Priority measures include standardized emergency readiness, early and consistent risk stratification, timely referral to appropriate levels of care, and robust audit systems that translate findings into corrective actions and continuous quality improvement.

## **REFERENCES**

1. World Health Organization. Trends in Maternal Mortality: 2000 to 2020. Geneva: WHO; 2023.

2. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. Soc Sci Med. 1994;38(8):1091-1110.
3. ACOG. Obstetric Care Consensus and Practice Bulletins on postpartum hemorrhage and hypertensive disorders of pregnancy (latest editions).
4. FIGO. Recommendations for management of postpartum hemorrhage and hypertensive disorders in pregnancy (latest updates).
5. United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). Guidance and reporting on perinatal and neonatal outcomes.

