

Adherence to selected standards of care indicators

Purpose

Numerous reports and initiatives in recent years have highlighted the centrality of high-quality services for ensuring positive obstetric and neonatal outcomes.^(1,2) When there are poor outcomes, it is important to identify why and then implement and monitor solutions to ensure that problems have been resolved. One effective way to improve outcomes is by monitoring the provision of key obstetric and neonatal clinical interventions that are related to the outcome of interest to see if they were performed according to the WHO standards of care. When services are not meeting the standards, interventions to rectify the situation can be implemented.

Data collection and calculation

When poor outcomes have been identified (e.g., high case fatality rates among women with severe pre-eclampsia / eclampsia, high neonatal inpatient mortality rate), the following set of indicators can be used, as needed, to monitor adherence to related standards of care. Note that the following table contains a select list of indicators; additional indicators that measure adherence to standards of care can be found in “A scoping review, mapping, and prioritization process for emergency obstetric and neonatal quality of care indicators: Focus on provision and experience of care” (Wang D et al, 2023).⁽³⁾

Indicator area or quality standard	Operational definition	Numerator	Denominator
Obstetric/women			
Women with post-partum haemorrhage promptly receive appropriate interventions	Percentage women with post-partum haemorrhage in the health facility who received therapeutic uterotonic drugs	Number of women with post-partum haemorrhage who delivered in the health facility who received therapeutic uterotonic drugs	Number of women with post-partum haemorrhage who delivered in the health facility
	Percentage women in the health facility with post-partum haemorrhage due to a retained placenta for whom manual removal of the placenta was performed	Number of women who delivered in the health facility with post-partum haemorrhage due to a retained placenta for whom manual removal of the placenta was performed	Number of women who delivered in the health facility with post-partum haemorrhage due to a retained placenta
Women with or at risk for infections during labour, childbirth or the early postnatal period promptly receive appropriate interventions, according to WHO guidelines	Percentage women who gave birth in the health facility with signs of infection treated with appropriate antibiotics	Number of women who gave birth in the health facility with signs of infection who received appropriate antibiotics	Number of women who gave birth in the health facility with signs of infection
Women with pre-eclampsia or eclampsia promptly receive appropriate interventions	Percentage women with severe pre-eclampsia or eclampsia in the health facility who received magnesium sulfate	Number of women with severe pre-eclampsia or eclampsia who delivered in the health facility who were treated with magnesium sulfate	Number of women with severe pre-eclampsia or eclampsia who delivered in the health facility

Indicator area or quality standard	Operational definition	Numerator	Denominator
Treatment for complications of abortion	Percentage women with incomplete abortion who received appropriate interventions (medical abortion, manual or electric vacuum aspiration, or dilatation and evacuation) (disaggregated by uterine size <14 weeks and ≥14 weeks)	Number of women with an incomplete abortion who received appropriate interventions [a) <14 wks: medical abortion or manual or electric vacuum aspiration; b) ≥14 wks: medical abortion or dilatation and evacuation]	Number of women with an incomplete abortion
Women whose progress in labour is delayed or whose labour is obstructed receive appropriate interventions, according to WHO guidelines	Percentage women with delayed second stage of labour who underwent instrumental vaginal birth or c-section (disaggregate by mode of delivery)	Number of women with delayed second stage of labour who gave birth in the health facility who underwent instrumental vaginal birth or c-section (disaggregate by mode of delivery)	Number of women with delayed second stage of labour who delivered in the health facility
	Percentage women in the health facility with obstructed labour who gave birth by caesarean section	Number of women with obstructed labour who delivered in the health facility who gave birth by caesarean section	Number of women with obstructed labour who delivered in the health facility
Women in preterm labour receive appropriate interventions for both themselves and their babies, according to WHO guidelines	Percentage women who gave birth in the facility between 24 and 34 weeks gestational age who received at least one dose of antenatal corticosteroids (ACS)	Number of women who gave birth in the facility between 24 and 34 weeks gestational age and received at least one dose of ACS	Number of women who gave birth in the facility between 24 and 34 weeks gestational age
Treatment for multiple complications	Percentage women (pregnant or who gave birth in the health facility) with shock who were managed with intravenous fluids	Number of women (pregnant or who gave birth in the health facility) with shock who were managed with intravenous fluids	Number of women (pregnant or who gave birth in the health facility) with shock
	Percentage women (pregnant or who gave birth in the health facility) who needed and received a blood transfusion	Number of women (pregnant or who gave birth in the health facility) who needed and received a blood transfusion	Number of women (pregnant or who gave birth in the health facility) who needed a blood transfusion
	Percentage women (pregnant or who gave birth in the health facility) admitted to ICU with severe respiratory distress who received mechanical ventilation	Number of women (pregnant or who gave birth in the health facility) admitted to ICU with severe respiratory distress who received mechanical ventilation	Number of women (pregnant or who gave birth in the health facility) admitted to ICU with severe respiratory distress

Indicator area or quality standard	Operational definition	Numerator	Denominator
Newborn			
Newborns receive treatment for breathing difficulties	Percentage newborns who were not breathing spontaneously who received any positive pressure ventilation using any device (most commonly bag and mask)	Number of newborns (live births and stillbirths excluding macerated stillbirths) who were not breathing spontaneously who received any positive pressure ventilation using any device (most commonly with bag and mask)	Number of newborns (live births and stillbirths excluding macerated stillbirths) who were not breathing spontaneously
	Percentage newborns who received oxygen therapy whose oxygen blood level was monitored with pulse oximetry	Number of newborns who received oxygen therapy whose blood level was monitored with pulse oximetry	Number of newborns who received oxygen therapy
	Percentage newborns with respiratory distress and unable to maintain normal oxygen saturation who received continuous positive airway pressure (CPAP)	Number of newborns with respiratory distress and unable to maintain normal oxygen saturation who received CPAP	Number of newborns with respiratory distress and unable to maintain normal oxygen saturation
All newborns receive routine postnatal care [...]	Percentage all stable newborns in the health facility who are fed exclusively on breast milk from birth to discharge	Number of stable newborns in the health facility who are fed exclusively on breast milk from birth to discharge	Number of stable newborns in the health facility
Newborns with suspected infection or risk factors for infection are promptly given antibiotic treatment, according to WHO guidelines	Percentage newborns identified as cases of possible serious bacterial infection in outpatient settings or clinically suspected sepsis in inpatient settings who received at least two days of appropriate injectable antibiotics	Number of newborns identified as cases of possible serious bacterial infection in outpatient settings or clinically suspected sepsis in inpatient settings who received at least two days of appropriate injectable antibiotics	Number of newborns identified as cases of possible serious bacterial infection in outpatient settings or clinically suspected sepsis in inpatient settings
Preterm and small babies receive appropriate care, according to WHO guidelines	Percentage admitted low birth weight (<2500g) newborns who were initiated on kangaroo mother care (KMC)	Number of admitted low birth weight newborns (< 2500g) who were initiated on KMC anywhere in the facility (disaggregate by <2000 g where possible)	Number of admitted low birth weight newborns (<2500g) (disaggregate by <2000g where possible)
All newborns are protected from unnecessary or harmful practices	Percentage newborns under a radiant warmer with a temperature probe for monitoring	Number of newborns under a radiant warmer with a temperature probe for monitoring	Number of newborns under a radiant warmer
Treatment for jaundice	Percentage newborns with hyperbilirubinaemia who required phototherapy who received it	Number of newborns with hyperbilirubinaemia who required phototherapy who received it	Number of newborns with hyperbilirubinaemia who required phototherapy

Indicator area or quality standard	Operational definition	Numerator	Denominator
Small and sick newborns are given blood transfusions when indicated, [...] the volume is recorded, and the newborn is monitored before, during and after the transfusion	Percentage small and sick newborns who receive blood transfusions who are monitored as per transfusion protocol before, during and after the transfusion	Number of small and sick newborns who receive blood transfusions who are monitored as per transfusion protocol before, during and after the transfusion	Number of small and sick newborns who receive blood transfusions
Newborns receiving feeding support	Percentage newborns unable or without access to breastfeeding who received assisted feeding with expressed breastmilk, using spoon/cup feeding or nasogastric tube	Number of newborns unable or without access to breastfeeding who received assisted feeding with expressed breastmilk	Number of newborns unable or without access to breastfeeding
Small and sick newborns who cannot tolerate full enteral feeds are given intravenous fluids [...], the volume is recorded, and the intravenous site is checked with other routine observations	Percentage small and sick newborns who are administered IV fluids for whom the volume is recorded, and the intravenous site is checked with other routine observations	Number of small and sick newborns who are administered IV fluids for whom the volume is recorded, and the intravenous site is checked with other routine observations	Number of small and sick newborns who are administered IV fluids
Care for respiratory conditions	The health facility has written, up-to-date guidelines, protocols and standard operating procedures for intubation, ventilation and other methods of ventilation, including non-invasive ventilation, in newborns	N/A	N/A
Screening and treatment for blindness	Percentage newborns eligible for screening of retinopathy of prematurity who were screened and findings documented	Number of newborns eligible for screening of retinopathy of prematurity who were screened and findings documented	Number of newborns eligible for screening of retinopathy of prematurity

Indicator area or quality standard	Operational definition	Numerator	Denominator
Referral			
For every woman and newborn who requires referral, the referral follows a pre-established plan that can be implemented without delay at any time	Percentage pregnant and postnatal women and newborns who could not be managed at the health facility who were transferred via an ambulance with a trained and equipped provider to a facility that could provide definitive care (disaggregate by women with complications, small and sick newborns)	Number of pregnant and postnatal women and newborns who could not be managed at the health facility who were transferred via an ambulance with a trained and equipped provider, to a facility that could provide definitive care (disaggregate by women with complications, small and sick newborns)	Number of pregnant and postnatal women and newborns who could not be managed at the health facility

Sources: The indicators in this table are consistent with recommended indicators in the WHO Standards for Improving Quality of Maternal and Newborn Care in Health Facilities,⁽⁴⁾ the WHO Standards for Improving Quality of Care for Small and Sick Newborns in Health Facilities,⁽⁵⁾ and with the Quality Equity Dignity Network quality of care indicator recommendations.⁽⁶⁾ They were selected through a rigorous, consultative, and multi-step process.⁽³⁾ They have also been informed by discussions with newborn health experts.

The data for these indicators are available through patient records/facility registers, direct observations, and, in some cases, routine health information systems. Patient records and facility registers can provide information on interventions provided and adherence to standards of care for more complex processes of care that are not typically aggregated in HMIS at subnational or national levels. Selected data from facility registers are aggregated into HMIS. To varying degrees across countries, HMIS can provide routine (e.g. monthly) information on incidence of complications and provision of high-impact interventions in health facilities.⁽⁶⁾ Observations can be performed to assess provider performance and adherence to standards of care during real time provision of care.

These indicators are best used in facilities that are identified as having less than desired outcomes, as identified by other indicators in the EmONC set (e.g., direct obstetric case fatality rate, disaggregated by cause) or with other tools. They are most often calculated at the facility level.

Analysis and interpretation

Most of these indicators are calculated as percentages, with universal coverage being the ideal target (i.e., 100% of women/babies requiring a given intervention should receive that intervention). Regular monitoring of these indicators provides information on current health facility performance and changes over time in adherence to standards of care. These data can be used to track health facility performance in a single facility or across facilities. District managers, for example, can use these data to identify and compare better and poorer performing facilities. Low coverage for any of these interventions should trigger further investigation into the underlying reasons, including whether health care workers are operating in an enabling environment (e.g., a facility with all necessary drugs and equipment, sufficient staffing, and manageable patient loads), and whether health care workers have received sufficient training and supervision.

It should be noted that these indicators do not provide full information about clinical quality of care. For example, 100% of women with pre-eclampsia/eclampsia could receive magnesium sulfate, but they don't receive the right dose or don't receive it at the right time. As such, these indicators should be considered together with outcomes (e.g., cause-specific direct obstetric case fatality rates) and other quality assessment tools to determine if a deeper dive is needed to better understand the problem.

Useful links

- Improving quality and use of newborn indicators (IMPULSE study): <https://www.lshtm.ac.uk/research/centres-projects-groups/impulse>
- Every Newborn-Measurement Improvement for Newborn and Stillbirth Indicators (EN-MINI) Tools for Routine Health Information Systems: <https://www.data4impactproject.org/resources/en-mini-tools/>

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