

Perinatal programme

Measurement framework

November 2023



Contents

1. How to use this measurement framework

1.1 Why measure

1.2 Choosing measures

1.3 How to measure

1.4 Sampling

1.5 Presenting data

2. Perinatal measures

2.1 Outcome measures

2.2 Process measures

2.3 Balancing measures

1 How to use this measurement framework

Measurement is an essential part of improvement. It helps teams understand if the changes they are making are leading to improved care. This document contains an overview of the three types of measurement used in improvement. It also sets out the data that participating teams are required to submit as part of the SPSP Perinatal programme. It is designed to be used in conjunction with the [SPSP Perinatal Change Packages](#).

To learn more about measurement click on the link: [The Improvement Journey – Measurement \(NHS Education for Scotland\)](#)

1.1 Why measure

This measurement framework is intended to measure the impact of key changes that you want to make.

Measurement helps you to:

- Recognise the variation that exists within your system and processes.
- Work out whether your changes are making an improvement.
- Help tell your improvement story.

To learn more about measurement click on the link: [Introduction to measurement for improvement \(NHS Education for Scotland\)](#)

1.2 Choosing measures

An improvement project should have a small family of measures that track the progress of the project over time. These should include:

- Outcome measures: to tell an NHS board, health and social care partnership, site or team whether the changes it is making are helping to achieve the stated aim. For example, **rate of Stillbirths per 1000 births (live and still)**
- Process measures: to tell the team whether things that have to be carried out to achieve the desired outcomes are happening reliably.

- Balancing measures: to check for possible consequences elsewhere in the system. For example, staff wellbeing.

To learn more about measures click on the link: [Developing your measures \(NHS Education for Scotland\)](#)

1.3 How to measure

When planning your data collection you will need to consider:

Collecting your data	Displaying your data
<ul style="list-style-type: none"> • Who will collect the data? • What data will you collect? • When will you collect the data? • How will you collect/record the data? 	<ul style="list-style-type: none"> • What chart type you will use? • How will you share and use your data?

To learn more about data collection click on the link: [Data collection \(NHS Education for Scotland\)](#)

1.4 Sampling

Measuring for improvement relies on small sample sizes, often referred to as ‘just enough’ data to learn from. When it is not possible to access a larger amount of data, it is suggested that a random selection of 5 records per week, giving 20 records per month will gather enough data.

1.5 Presenting data

Run charts are an excellent way to present your data to help you to understand what is happening in your service. They are used to distinguish between random variation (variation that affects all processes, people and outcomes equally) and non-random variation, which could be due to the changes you have introduced.

The SPSP Perinatal team will issue a toolkit for outcome measures and for process measures to participating teams.

To learn more about presenting your data in a run chart click on the link: [Presenting your data \(NHS Education for Scotland\)](#)

2 Perinatal measures

2.1 Outcome measures

Outcome measures help you understand if the changes are resulting in improvements towards the aim. All participating teams are required to submit data on outcome measures where indicated in the 'Data Source' column.

Measure Name	Why measure	What/how to measure	Data Source
Rate of Stillbirths	Monitoring rates of stillbirth allows us to understand the distribution of need for prevention across different populations, review change over time and evaluate the impact of prevention efforts.	<p>Not required to submit data – SPSP Perinatal will obtain this data at Board level and aggregated to national level</p> <p>Rate (per 1000): $\frac{\text{numerator}}{\text{denominator}} \times 1000$</p> <p>Stillbirths refer to a child born after the 24th week of pregnancy which did not breathe or show any signs of life.</p> <p>The stillbirth rate is the number of stillbirths per 1,000 total (live + still) births.</p>	<p>Board data source: National Records of Scotland (NRS) vital event registrations https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/quarterly-births-deaths-and-other-vital-events</p> <p>National data available via PHS: https://scotland.shinyapps.io/phs-pregnancy-births-neonatal/</p>
Rate of post-partum haemorrhages over 1.5 litre	PPH is a leading indicator of maternal deterioration	<p>Numerator: Number of cases of PPH over 1.5 litres during the reporting period</p> <p>Denominator: Total number of deliveries during the reporting period</p> <p>Rate (per 1,000): $\frac{\text{numerator}}{\text{denominator}} \times 1000$</p>	<p>No sampling. All PPHs over 1.5 litre should be counted. Collected locally via Badgernet or other source</p>

Measure Name	Why measure	What/how to measure	Data Source
		denominator PPH is reported as per 1,000 deliveries A delivery is one or more live births or stillbirths	
Rate of Neonatal Mortality	Monitoring rates of neonatal mortality allows us to understand the distribution of need for prevention across different populations, review change over time and evaluate the impact of prevention efforts.	Not required to submit data – SPSP Perinatal will obtain this data at Board level and aggregated to national level. Rate (per 1,000): $\frac{\text{numerator}}{\text{denominator}} \times 1000$ Neonatal deaths refer to deaths in the first four weeks of life. The neonatal mortality rate is the number of neonatal deaths per 1,000 live births.	Data source: National Records of Scotland (NRS) vital event registrations National data available via PHS: https://scotland.shinyapps.io/phs-pregnancy-births-neonatal/
Rate of preterm birth	Gestation at birth strongly influences babies' health. Babies born preterm can have complications following their birth and the consequences of being born too early can continue to affect health and development throughout childhood and adult life. The risk increases the earlier a baby is born. In Scotland, being born too soon is the single biggest reason babies require admission to neonatal care and the single biggest cause of death in early infancy.	Not required to submit data – SPSP Perinatal will obtain this data at Board of residence level and aggregated to national level. Percentage: $\frac{\text{numerator}}{\text{denominator}} \times 100$ Babies born at under 37 weeks (more than three weeks before their due date) are considered to be pre-term or premature.	Data source: Scottish Morbidity Record (SMR02) - Maternity Inpatient and Day Case Board and National data available via PHS: https://scotland.shinyapps.io/phs-pregnancy-births-neonatal/

Measure Name	Why measure	What/how to measure	Data Source
Rate of term admissions admitted to the neonatal unit	This outcome measure is linked to the reliability of early recognition and appropriate response to the deteriorating patient. Many of these are due to respiratory disease, infection, hypoglycaemia, jaundice and encephalopathy and will require collaboration with local maternity services to ensure appropriate processes and pathways are in place to reduce incidence and/or facilitate management out with the NNU and alongside family	<p>Numerator: Total number of term infants admitted to the neonatal unit.</p> <p>Denominator: Total number of live term births in the month</p> <p>Rate (per 1,000): $\frac{\text{numerator}}{\text{denominator}} \times 1000$</p> <p>Term infants are defined as $\geq 37+0$ weeks.</p>	<p>No sampling. All term infants admitted to the neonatal unit should be included. Collected locally via Badgernet or other source</p> <p>Exclusion criteria : Term infants admitted postnatally from another unit.</p>
NNAP clinical outcomes composite measure	Proportion of babies born between 24 and 31 weeks gestation inclusive who did not have a reported serious complication of prematurity (late onset infection, NEC, BPD, serious preterm brain injury, or mortality)	<p>Not required to submit data – SPSP Perinatal will obtain this data directly from NNAP dashboard.</p> <p>Numerator: Number of babies admitted to a neonatal unit whose birth gestation is between 24 and 31 weeks inclusive who do not experience any of the adverse outcomes from the component measures for which they are eligible. Not all babies will be eligible for all outcomes.</p> <p>Denominator: Number of babies admitted to a neonatal unit whose birth gestation is between 24 and 31 weeks inclusive. For multiple births, each baby will be included.</p>	<p>Data source: National Neonatal Audit Programme - Data dashboard</p> <p>https://www.rcpch.ac.uk/resources/nnap-data-dashboard</p> <p>See measure definitions: National Neonatal Audit Programme (NNAP) measures RCPCH</p>

2.2 Process measures

Process measures demonstrate that change ideas are improving the underlying processes that contribute towards your aim. Teams are advised to develop process measures that check that the primary drivers are being reliably achieved. Some examples are provided below: these are not exhaustive and teams are not required to collect data against each of these process measures. A series of blank measure templates is provided in the toolkit to allow you to measure your process measures in the toolkit.

- Rate of use of communication tools
- Staff wellbeing

Measure Name	Why measure	What/how to measure	Data Source
Percentage of Maternity Early Warning Score (MEWS) charts completed and frequency met	<p>Early warning systems (EWS) aim to identify relative deviations from normal values. Maternity EWS systems, named MEWS, aim to provide a consistent approach to the recognition and response to acutely ill maternity patients.</p> <p>All antenatal and postnatal women or birthing people who enter an acute hospital setting should have their core observations recorded on a MEWS Chart. Core observations have a colour trigger attached to them.</p>	<p>Numerator: Total number of MEWS charts where appropriate observations, relative to the clinical condition, have been completed at the correct frequency, relative to the clinical condition</p> <p>Denominator: Total number of MEWS charts reviewed</p> <p>Percentage: $\frac{\text{numerator}}{\text{denominator}} \times 100$</p> <p>Charts where the appropriate observations, relative to the clinical condition, have been completed at the correct frequency, relative to the clinical condition.</p>	<p>Random sample of 20 MEWS charts, as a minimum where the woman or birthing person required MEWS observations. For boards using electronic records, a larger sample size can be selected.</p> <p>Inclusion Criteria: MEWS should be used in all inpatient settings including early pregnancy, antenatal and postnatal wards no matter the clinical presentation, day bed units, triage and as local policy dictates.</p> <p>Exclusion Criteria: • Women or birthing people receiving intra partum care</p>

Measure Name	Why measure	What/how to measure	Data Source
			<ul style="list-style-type: none"> •Antenatal or postnatal women or birthing people undergoing operative delivery in a theatre setting
Percentage compliance with MEWS chart escalation pathway	To improve the recognition and response to the acutely deteriorating antenatal or postnatal woman or birthing person, MEWS must detail a robust escalation pathway. There are identified trigger combinations which, when reached, then activates the escalation pathway. The escalation pathway outlines actions required for timely review for each combination of trigger	<p>Numerator: Total number of MEWS charts with adherence to MEWS escalation pathway (including those where no escalation was required)</p> <p>Denominator: Total number of MEWS charts reviewed</p> <p>Percentage: $\frac{\text{numerator}}{\text{Denominator}} \times 100$</p> <p>Charts are compliant when (a) there is evidence that escalation was not required, or (b) escalation was required and there was evidence it was carried out appropriately and at the first trigger.</p>	<p>Random sample of 20 MEWS charts, as a minimum where the woman or birthing person required MEWS observations. For boards using electronic records, a larger sample size can be selected.</p> <p>Inclusion Criteria: MEWS should be used in all inpatient settings including early pregnancy, antenatal and postnatal wards no matter the clinical presentation, day bed units, triage and as local policy dictates.</p> <p>Exclusion Criteria:</p> <ul style="list-style-type: none"> •Women or birthing people receiving intra partum care •Antenatal or postnatal women or birthing people undergoing operative delivery in a theatre setting
NNAP perinatal optimisation composite measure	There are a number of recognised practices which have been shown to improve both short and long term outcomes of babies born prematurely including; reducing Intraventricular Haemorrhage, Chronic Lung Disease, Sepsis, Cerebral Palsy, Necrotising enterocolitis and overall mortality.	<p>Not required to submit data – SPSP Perinatal will obtain overall compliance data directly from NNAP dashboard. Teams can still use the collection tool to measure individual interventions if they wish.</p> <p>Numerator: Number of babies admitted to a neonatal unit whose birth gestation is between 22 and 33 weeks inclusive and who are adherent for all the component measures</p>	<p>Data source: National Neonatal Audit Programme - Data dashboard</p> <p>https://www.rcpch.ac.uk/resources/nnap-data-dashboard</p> <p>See measure definitions: National Neonatal Audit Programme (NNAP) measures RCPCH</p>

Measure Name	Why measure	What/how to measure	Data Source
		<p>for which they are eligible. Denominator: Number of babies admitted to a neonatal unit whose birth gestation is between 22 and 33 weeks inclusive and who have either:</p> <ul style="list-style-type: none"> Recorded outcomes for all the component measures for which they are eligible or; Have at least one non adherent outcome <p>Measure aligned with NNAP definitions</p>	

2.3 Balancing measures

Balancing measures determine if the changes are affecting things elsewhere in the system, highlighting any unintended consequences. Below you will find a list of example balancing measures. Teams should develop balancing measures that relate to their planned improvement work.

Measure Name	Why measure	What/how to measure	Data source
Number of maternity admissions to ITU		To be determined	

Published November 2023

You can read and download this document from our website.
We are happy to consider requests for other languages or formats.
Please contact our Equality and Diversity Advisor on 0141 225 6999
or email his.contactpublicinvolvement@nhs.scot