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Quality standards

Consultation summary report: Neonatal parenteral nutrition

Quality Standards Advisory Committee post-consultation meeting: 11 January 2022

1. Introduction

The draft quality standard for neonatal parenteral nutrition was made available on the NICE website for a 4-week public consultation period between 8 November and 6 December 2021. Registered stakeholders were notified by email and invited to submit consultation comments on the draft quality standard. General feedback on the quality standard and comments on individual quality statements were accepted.

Comments were received from 12 organisations, which included service providers, national organisations, professional bodies and others.

This report provides the quality standards advisory committee with a high-level summary of the consultation comments, prepared by the NICE quality standards team. It provides a basis for discussion by the committee as part of the final meeting where the committee will consider consultation comments. Where appropriate the quality standard will be refined with input from the committee.

Consultation comments that may result in changes to the quality standard have been highlighted within this report. Comments suggesting changes that are outside of the process have not been included in this summary. The types of comments typically not included are those relating to source guidance recommendations and suggestions for non-accredited source guidance, requests to broaden statements out of scope, requests to include thresholds, targets, large volumes of supporting information, general comments on the role and purpose of quality standards and requests to change NICE templates. However, the committee should read this summary alongside the full set of consultation comments, which are provided in appendix 2.

1. Questions for consultation

Stakeholders were invited to respond to the following general questions:

1. Does this draft quality standard accurately reflect the key areas for quality improvement?

2. Are local systems and structures in place to collect data for the proposed quality measures? If not, how feasible would it be to be for these to be put in place?

3. Do you think each of the statements in this draft quality standard would be achievable by local services given the net resources needed to deliver them? Please describe any resource requirements that you think would be necessary for any statement. Please describe any potential cost savings or opportunities for disinvestment.

1. General comments

The following is a summary of general (non-statement-specific) comments on the quality standard.

* General agreement that the quality standard is an accurate reflection of the key areas for quality improvement.
* Comment that other areas of the guideline would potentially have greater safety and quality impacts than some included in the quality standard.
* Comment that the quality standard assumes all these neonates are managed within neonatal services but some will be in other departments which will impact methods of data collection and involve a wider range of staff.
* Suggestion to make additions to the audience descriptors including neonatal junior doctors, advanced neonatal nurse practitioners and neonatal nursing staff.

### Consultation comments on data collection

* It should be possible to obtain the information from electronic patient records as PN is prescribed.
* Local procurement tender information includes information about selection and purchase of standard PN formulations.
* Local systems are available to collect the data for statements 1-3.
* Some neonatal and paediatric intensive care units have full electronic record systems that can be configured to collect additional data. For those that do not, some of the data collection and analysis will take considerable hours.
* All measures will need to be hand-recorded as most neonatal units do not have fully electronic systems and existing systems such as BadgerNet do not contain the details.
* Systems are not currently in place to collect the required data but this will be achieved in North Wales Units via Badgernet once the National Neonatal Audit Programme (NNAP) questions are updated next year.
* A more precise definition of NPN is needed. Often neonates start on an aqueous solution without added elements but it isn’t clear if this meets the measures.
* One stakeholder noted that their neonatal and paediatric intensive care units have electronic record systems that could collate the data but paediatric wards do not.
* At unit level this can be achieved using local unit data.
* It is difficult to obtain detailed data from multiple units network-wide as units use different systems for record keeping.

### Consultation comments on resource impact

* Resources are required to review clinical records for the measures in statements 1-2.
* All of the statements are achievable across the network but collecting data to audit standards across multiple units requires investment of time and money.

1. Summary of consultation feedback by draft statement
   1. Draft statement 1

Preterm and term babies who need neonatal parenteral nutrition receive it as soon as possible, and within 8 hours of the decision to start.

### Consultation comments

Stakeholders made the following comments in relation to draft statement 1:

**General**

* Comment that this is an appropriate quality statement and the data can be obtained from current clinical NICU records.
* A stakeholder commented this is the standard clinical practice within their unit.
* The NICE PN criteria on gestation and weight are not the same as BAPM.

**Statement/rationale**

* This does not address failure to realise that PN is required in a timely fashion, so PN may still be significantly delayed while still meeting the statement.
* Measuring 8 hours from birth is straightforward for preterm infants. Recording the decision time to start time for other babies may be challenging, particularly in paediatric setting when most patients will be older than 28 days.
* 8 hours is not possible for units that do not already have standardised bags readily available and they may need to invest to achieve this.
* This statement is achievable with standardised PN across units and the network.
* Starting PN that contains vitamins, trace elements and lipids within 8 hours will be a change in practice for many units.
* The licensed standardised bag does not contain vitamins and minerals so needs to be manipulated within pharmacy aseptic services.
* This statement cannot be achieved without achieving statement 2 on the use of standardised PN bags.

**Measures**

* Resources will be required to find the measurement data in clinical records.
* There is no standard system to record the time the decision was made to give NPN.
* For units that already have standard bags and electronic prescribing then collecting this data is easy enough, however it would require time to analyse.
* Putting in place standard bags and electronic prescribing, or other methods to collect data, will require time investment.

**Definitions**

* Definition of neonatal parenteral nutrition:
  + doesn’t state that PN should include amino acids, glucose and lipid
  + unclear if it includes all vitamins and trace elements or lipids, or if it just relates to starting some intravenous fluid containing protein and glucose.

Issues for consideration

**For discussion:**

* Is the decision to give NPN and the start time routinely recorded? Should they be?
* Are amendments needed to the definition of NPN?
  1. Draft statement 2

Preterm and term babies who need neonatal parenteral nutrition are started on a standardised bag.

### Consultation comments

Stakeholders made the following comments in relation to draft statement 2:

**General**

* This is an appropriate quality statement.
* This is standard practice in one stakeholder’s unit but can be limited by supply.
* Comment that using PN in babies in non-neonatal units has not been considered
* There are standardised PN 1 and PN 2 bags in all units in North Wales.
* Standardised bags that contain vitamins, minerals and lipid would save money in the long term however a product like this does not already exist nationally.
* Developing standard PN bags requires specialist skills of expert clinicians. This is not always possible at unit level but can be done with collaborative network level working.
* Implementation of standardised PN formulations is possible at unit and network level.

**Definitions**

* The definition of standardised bags does not include the licensed 3 in 1 emulsion. This clarity is needed as it impacts the light protection aspect in statement 3.

**Measures/data collection**

* The structure measure on guidelines in addition to the process measure is practical.
* Provision of data for neonates outside of neonatal units may be more challenging as babies under 28 days of age may not be recognised by usual systems.
* Clarify if the process measure on the proportion of babies started on a standardised bag refers to each episode of PN and if it means only the first bag.
* The process measure denominator should include the number who are started on PN.
* The outcome measure of PN prescribing errors could lead to an incentive not to report incidents and impact negatively on patient safety.
* Prescribing errors should not be an outcome as starting on a bespoke PN bag would not be a prescribing error.
* It is easy to collect data on which units have standardised bags and this can be used to estimate the proportion of neonates started on standardised bags, but anything more refined than that is more difficult.
* Data can easily be obtained via network groups and network wide PN audits.

Issues for consideration

**For discussion:**

* Clarity on statement/measure
* Is there a need to make it clearer that the statement means babies are started on a standardised bag for each episode of PN and that they should continue on these unless clinically necessary to have bespoke PN?
* Standardised bag
* clarity needed on what is contained in nationally available standardised bag
* Definition of standardised bags
  1. Draft statement 3

Preterm and term babies who need neonatal parenteral nutrition receive it through nutrition bags, infusion sets and syringes that are protected from light.

### Consultation comments

Stakeholders made the following comments in relation to draft statement 3:

**General**

* Agreement that this is an area for quality improvement.
* One stakeholder commented this is standard practice in their regional neonatal unit.
* This will be difficult as the line that the aqueous PN solution flows through is often difficult to protect from light. Supplementary information on which infusion sets are available for different infusion pumps would be helpful.
* Concerns that it may be harder to see air bubbles within the syringe and line so this could be a risk to patient safety.
* A stakeholder commented that there is stronger evidence for light protecting lipid than aqueous component so they only do this for lipids.

**Rationale**

* Suggestion to specify aqueous, lipid or 3 in 1 bag for light protection in addition to syringes if used.

**Measures**

* Guidelines and standard operating procedures can be used to assess if the use of light protection is common practice in that unit.
* Measuring the proportion of individual bags used with light protective sets would involve a disproportionate amount of work to record each giving set type.
* Data on the purchase and use of light protective sets could be used as an indirect measure.
* Reword the process measure denominator as the infusion sets and syringes are not administered to babies.
* The process measure should specify if it refers to PN days, hours, number of patients etc.

**Resource impact**

* Resources will be required to ensure reliable supply of light protected bags, giving sets and infusion pumps.
* Light protecting syringes and giving sets are more expensive, may not be available for all types of pumps and drivers and the limited number of manufacturers may lead to difficulties with supplies.
* Additional resource is required to fund light protection to all delivery sets in all units.
* One stakeholder’s units use full light protection for lipid and aqueous component PN and they do not have cost concerns as this is embedded practice.

**For discussion:**

* Based on some comments from stakeholders, is this achievable?
* Is the resource impact significant? Note that the recommendation on light protection in the [NICE guideline on neonatal parenteral nutrition](https://www.nice.org.uk/guidance/ng154) re-enforces the recommendation in the existing MHRA safety guidance sent to healthcare professionals and compounding centres in September 2019. It was noted in the briefing paper for this topic that where centres are not currently following the existing MHRA guidance there may be a resource impact to bring practice in line with the guidance and the NICE guideline.

**For decision:**

* Should this quality statement remain in the quality standard?
  1. Draft statement 4

Parents and carers of preterm and term babies receiving neonatal parenteral nutrition have regular opportunities to discuss their baby’s care with healthcare professionals.

### Consultation comments

Stakeholders made the following comments in relation to draft statement 4:

**General**

* Statement is unnecessary as there are two National Neonatal Audit Programme. (NNAP) audit measures for all babies in neonatal units. There is no obvious benefit in producing slightly different data on the same topic for a subgroup.
* Statement relates to general neonatal care, rather than specifically to babies receiving PN.
* Suggestion to expand the statement to cover parents and carers being involved in their baby’s care and emotional and practical support being available to them.
* Suggestion to embed nutrition focussed ward rounds at unit level and have unit and network education on PN to help support parental understanding.
* Education of unit staff on PN and nutrition is essential.

**Measures**

* The outcome measures are not specific to parenteral nutrition.
* A more useful measure may be the provision of simple written information around neonatal PN.
* The outcome measure on parental satisfaction with communication is too general and PN will be a very minor part of it. The data source suggested does not measure satisfaction.
* Define “regular” and clarify whether this applies only when the neonate is on PN.
* For units that already have electronic documentation it would be easy to pull this data, however for units that are paper-based then it would not be easy.
* Collection of data to identify this quality statement will require specific audit of parental involvement in nutritional planning and decision making. Working alongside parent groups to develop this where it doesn’t exist is essential.
* It is difficult to see how the outcome numerator would be measured.

**For discussion:**

* Measures in the NNAP are:
* Is there a documented consultation with parents by a senior member of the neonatal team within 24 hours of a baby’s first admission?
* For a baby admitted for more than 24 hours, did at least one parent attend a consultant ward round at any point during the baby’s admission?
* This is a subpopulation of babies receiving neonatal care
* Note: no recommendations in the guideline to support the suggestion to cover parents and carers being involved in their baby’s care and emotional and practical support being available to them.

**For decision:**

* Should this quality statement remain in the quality standard?
  1. Draft statement 5

Preterm and term babies receiving neonatal parenteral nutrition are cared for by healthcare professionals with access to a neonatal parenteral nutrition multidisciplinary team.

### Consultation comments

Stakeholders made the following comments in relation to draft statement 5:

**General**

* Support for the statement.
* Most important statement in the quality standard because a neonatal PN MDT will positively influence achievement of the other statements.
* Governance should include oversight of PN formulation procurement to ensure input into product standards, regulatory compliance and procurement.
* Neonatal networks should demonstrate funded neonatal dietetic, pharmacist and neonatologist time to support units across each network.
* Neonatal intensive care units should have a defined MDT with the appropriate staff having time clearly funded within their job plan.
* A network MDT can help to ensure continuity of care for infants transferred between units and has the knowledge and experience to deal with the most complex cases.
* A neonatal MDT would be responsible for babies receiving PN outside a neonatal unit. The neonatal unit isn’t in the same hospital as paediatric services in some trusts.
* A paediatric nutritional MDT should have the relevant expertise, at least for term babies, if not preterms.

**Statement**

* It reads as though the neonatal MDT should be responsible for neonates receiving PN outside of a NICU.

**Measures**

* Denominator should only include neonatal units that give PN as not all units do
* Collecting data about the number of units or networks that have access to an MDT is simple but it is hard to define 'access'.

**Resource impact**

* This is not available in Northern Ireland meaning a significant investment of resources will be required to meet this quality statement.
* Some neonatal MDTs are unfunded and done within current job descriptions so they are not always available. Funding is needed to ensure that every infant on PN has access to an MDT.
* Using expert clinicians from across the network would be a better use of resources than having an MDT in each trust. Being on the MDT would be time-consuming so funding support would be required.
* One trust would need to invest in several consultant PAs along with nursing, pharmacy and dietetic sessions to form a multidisciplinary Neonatal PN team.

**Definitions**

* The roles on the neonatal nutritional MDT are appropriate but the definition should clarify whether their role includes neonates in areas outside of NICU.

**For discussion:**

* Stakeholders seem to be concerned that the MDT would be responsible for neonates receiving NPN outside of NICU. Is this the case and, if so, is this reasonable?
* Are there neonatal units that do not give NPN?
* Some stakeholders made reference to all neonates on PN having access to an MDT. This is not what the statement intends so does this need to be clearer?

1. Suggestions for additional statements

The following is a summary of stakeholder suggestions for additional statements.

* Speed of infusion: A stakeholder noted that the National Patient Safety Team issued a Patient Safety Alert on 27 September 2017 on [Risk of severe harm and death from infusing total parenteral nutrition too rapidly in babies](https://www.england.nhs.uk/wp-content/uploads/2019/12/Patient_Safety_Alert_-_TPN_in_babies_FINAL.pdf). The alert outlined reported incidents relating to the danger of infusing PN too quickly; fluid overload, coagulopathy, and fat overload syndrome. It was followed up in March 2019 with additional information listing lessons learnt by a trust following the death of a premature baby.

There are no NICE guideline recommendations to support a quality statement in this area.

* Growth monitoring: A stakeholder commented that inadequate growth monitoring (weight and head circumference) is common and noted that supporting adequate growth is a basic function of adequate PN.

There are no NICE guideline recommendations to support a quality statement in this area.

* Monitoring: A stakeholder commented that monitoring babies on NPN was identified as problematic in the NCEPOD audit.

This was discussed at QSAC 1. It was agreed that this is an important clinical area but it was not suitable for developing a specific, measurable statement.

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# Appendix 1: Response log for key stakeholders

Responses from key stakeholders and action taken:

* **The Association of British Dieticians (BDA):** Emails reminding of deadline sent to BDA and directly to the Chair of the Neonatal Sub-Group – no response received.
* **BLISS:** Response received.
* **British Society of Paediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN):** Response received.
* **NHSE&I Neonatal critical care Clinical Reference Group:** Response received.
* **Neonatal Nurses Association (NNA):** Emails reminding of deadline sent to NNA – no response received. Note no response was received at topic engagement.
* **Neonatal and Paediatric Pharmacists Group (NPPG):** Response received.
* **Royal College of Nursing (RCN):** Response received.
* **Royal College of Paediatric and Child Health (RCPCH):** Response received.

# Appendix 2: Quality standard consultation comments table – registered stakeholders

| ID | Stakeholder | Section | Comments |
| --- | --- | --- | --- |
| **General comments** | | | |
| 1 | BSPGHAN | General | The standards appear to assume that all of these neonates will be managed within neonatal services. However a proportion of babies under 28 days corrected age will be in paediatric departments such as PICU, gastroenterology and cardiology. This will affect methods of data ascertainment in addition to involving a wider range of staff. |
| 2 | BSPGHAN | General | It is not clear if these standards are intended to apply to the first episode of PN or to each episode |
| 3 | Neonatal and Paediatric Pharmacists Group | General | Audiences – definition of healthcare professionals is not all inclusive.  We would recommend including neonatal junior doctors, advanced neonatal nurse practitioners and neonatal nursing staff in the list of examples. |
| 4 | Royal College of Paediatrics and Child Health | General | The reviewer had no specific comments to make as they noted that this quality standard is an accurate reflection of the key areas and should be achievable without the need for additional resources. The reviewer noted that a local (Kent Surrey Sussex) ODN audit of parenteral nutrition is planned and could cover these standards. |
| 5 | University Hospitals Bristol and Weston NHS Foundation Trust | General | These standards are written for all neonates up to 44 weeks corrected age. This will include babies outside of neonatal units in a variety of departments in children hospitals and paediatric wards. This does not appear to have been taken into consideration. |
| 6 | University Hospitals Bristol and Weston NHS Foundation Trust | General | It is not clear if these standards are intended to apply to the first episode of PN or to each episode. |
| **Question 1** | | | |
| 7 | Belfast H&SC Trust | Question 1 | 4 of the 5 questions reflect key areas for QI in neonatal parenteral nutrition. Statement 4 is not specific enough to neonatal PN delivery to be a relevant high quality standard; it is a high quality standard for general neonatal care of all patients rather than those for whom PN is delivered. An alternative could be that written information about PN should be made available to parents/carers. |
| 8 | Nottingham University Hospitals NHS Trust | Question 1 | Other areas of the guideline would potentially have greater safety and quality impacts than some included here |
| 9 | Neonatal and Paediatric Pharmacists Group | Question 1 | Agree that all 5 standards reflect the key areas for quality improvement. |
| 10 | West Midlands Neonatal Operational Delivery Network | Question 1 | Yes- the standards reflect areas for improvement and we haven’t highlighted others at this time |
| **Question 2** | | | |
| 11 | Baxter Healthcare Ltd | Question 2 | As parenteral nutrition is a prescribable medicine, EPR systems should be interrogatable to general standard reports to confirm adherence to the quality standards. Local procurement tender information would provide a source of information relating to selection and purchase of standard PN formulations, note that there may be different sources of information for licensed manufactured bags and unlicensed compounded formulations. |
| 12 | Belfast H&SC Trust | Question 2 | Local systems are available in the Belfast Trust to collect the data for statements 1-3. To meet statement 5, a significant investment in resources needs to be made in order to create a multidisciplinary Neonatal PN team. This could take months to years. |
| 13 | BSPGHAN | Question 2 | Comments on each standard as below. Some neonatal and paediatric intensive care units have full electronic record systems that will permit reconfiguration to facilitate additional data collection. However many do not. Some of the data collection and analysis will take considerable man hours. |
| 14 | BSPGHAN | Question 2 | This requires a more precise definition of PN when collecting data. Most neonates are started on an amino acid containing aqueous solution that may not have added trace elements at vitamins. Clarity is needed as to whether this is sufficient to determine that PN has been started. Lipids are usually given separately in neonatal units, although all in one bags maybe suitable for more mature neonates. |
| 15 | Nottingham University Hospitals NHS Trust | Question 2 | All these measures require hand recording as the majority of neonatal units do not have fully electronic bedside systems and existing summary systems eg BadgerNet do not contain these details |
| 16 | Royal College of Nursing | Question 2 | Systems are not currently in place to collect the required data but this will be achieved in North Wales Units via Badgernet once the National Neonatal Audit Programme (NNAP) questions are updated next year. |
| 17 | University Hospitals Bristol and Weston NHS Foundation Trust | Question 2 | Comments on each standard as below. Our neonatal and paediatric intensive care units have full electronic record systems that will permit reconfiguration to facilitate additional data collection. However the paediatric wards do not, nor do the majority of units in the neonatal network in the Southwest. |
| 18 | University Hospitals Bristol and Weston NHS Foundation Trust | Question 2 | This requires a more precise definition of PN when collecting data. Most neonates are started on an amino acid containing aqueous solution that may not have added trace elements at vitamins. Lipids are usually given separately in neonatal units |
| 19 | West Midlands Neonatal Operational Delivery Network | Question 2 | At unit level this can be achieved using local unit data. This can be difficult to obtain detailed data from multiple units Network wide as units are using various systems for record keeping. However, with the increasing use of Badgernet EPR data set collection could be improved, but this will come with associated cost of embedding EPR. |
| **Question 3** | | | |
| 20 | Belfast H&SC Trust | Question 3 | Resources are required in order to enable personnel to trawl through clinical records to determine performance against statements 1-2. |
| 21 | Royal College of Nursing | Question 3 | Refer to answers for question 1 regarding differences between NICE and BAPM. |
| 22 | University Hospitals Bristol and Weston NHS Foundation Trust | Question 3 | Additional resource will be required to fund light protection to all delivery sets in all units ( this is already the care in NICU in UHBW but not uniformly around the South West network). Additional resource will also be required to fund access to a neonatal nutritional MDT |
| 23 | West Midlands Neonatal Operational Delivery Network | Question 3 | Each of the standards is achievable across the Network- but data collection to audit standards across multiple units requires investment of time and money |
| **Statement 1** | | | |
| 24 | Baxter Healthcare Ltd | Statement 1 | Statement 1 definition of parenteral nutrition does not explicitly state that parenteral nutrition should include amino acids, glucose and lipid. |
| 25 | Belfast H&SC Trust | Statement 1 | This is an appropriate quality standard and can be obtained from current clinical NICU records. It is the standard clinical practice within the Regional Neonatal Unit of Belfast Trust. Resources will be required to trawl through those clinical records in order to quantify the individual performance against the 8 hour threshold |
| 26 | BSPGHAN | Statement 1 | While administering PN within 8 hours of decision to start is a good target this does not address failure to realise that PN is required in a timely fashion, so that PN may still be significantly delayed while still meeting the target. It may be a less useful standard outside of the preterm 8 hours from birth measure. |
| 27 | BSPGHAN | Statement 1 | Measuring 8 hours from birth is straightforward for preterm infants. Recording the decision time to start the clock for the PN administration target for all other babies at all other times may be challenging, particularly in paediatric setting when most patients will be older than 28 days and thus hard to implement consistently for those less than 28 days. |
| 28 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 1 | Measuring 8 hours from birth is straightforward for preterms. Recording the point in time for decision to start PN for all other babies at all other times may be challenging, particularly outside of the neonatal unit. This may be possible in areas with electronic records but not outside of that. |
| 29 | Nottingham University Hospitals NHS Trust | Statement 1 | Statement 1: To determine the time the decision was made to the time the PN was available (<8 hours) requires new paper recording of the “time the decision was made” and no standard system for doing this is currently available. New recording systems will be needed in many instances. As in the ‘Mixed Bag’ report, collecting this information is likely to be only undertaken by ‘hand’ / medical records audits. |
| 30 | Neonatal and Paediatric Pharmacists Group | Statement 1 | Statement 1: For units that already have standard bags AND electronic prescribing then collecting this data is easy enough, however it would still require time to analyse, and assess anomolies. Even then, the data coming out is only as good as the data being documented, so may not be a true reflection of practice. Putting in place standard bags and electronic prescribing, or other methods to collect this data, will require investment of time when people are already overloaded and struggling. |
| 31 | Neonatal and Paediatric Pharmacists Group | Statement 1 | Statement 1: 8 hours is not possible for units that do not already have standardised bags readily available on the Neonatal Unit. Units may need to invest in this first before achieving the 8 hours target. It takes a lot of time and experience to develop these bags, and associated guidelines; then staff need to be trained; it might be necessary to buy new equipment, pumps for example, so even though this is a great target it will not be achievable for a large number of neonatal units.  The other problem is what is the definition of 'neonatal parenteral nutrition' for this statement. Does it include all vitamins and trace elements, or lipids even, or is it just starting some intravenous fluid containing protein and glucose. Being able to start PN that contains everything within the 8 hours will be a huge change in practice for many units. The licensed standardised bag Numeta does not contain vitamins and minerals so needs to be manipulated within pharmacy aseptic services. Achieving this is not possible within 8 hours of decision to start PN for every infant. |
| 32 | Royal College of Nursing | Statement 1 | Neonatologists (members example: BCUHB) have identified a problem with Standard 1 as the PN criteria according to NICE are not the same as the BAPM and they are not sure at present that they want to change to NICE guideline. NICE and BAPM advice on different gestation and weight cut off. They are happy to start PN within 8 hours. |
| 33 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 1 | For units that already have standard bags AND electronic prescribing then collecting this data is easy enough, however it would still require time to analyse, and assess anomalies. Even then, the data coming out is only as good as the data being documented so may not be a true reflection of practice. Putting in place standard bags and electronic prescribing, or other methods to collect this data, will require investment of time when people are already overloaded and struggling. |
| 34 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 1. | 8 hours is not possible for units that do not already have standardised bags readily available on the Neonatal Unit. Units may need to invest in this first before achieving the 8 hours target. It takes a lot of time and experience to develop these bags, and associated guidelines; then staff need to be trained; it might be necessary to buy new equipment, pumps for example, so even though this is a great target it will not be achievable for a large number of neonatal units. |
| 35 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 1 | The other problem is what is the definition of 'neonatal parenteral nutrition' for this statement. Does it include all vitamins and trace elements, or lipids even, or is it just starting some intravenous fluid containing protein and glucose. Being able to start PN that contains everything within the 8 hours will be a huge change in practice for many units. The licensed standardised bag Numeta does not contain vitamins and minerals so needs to be manipulated within pharmacy aseptic services. Achieving this is not possible within 8 hours of decision to start PN for every infant. |
| 36 | West Midlands Neonatal Operational Delivery Network | Statement 1 | This Quality Statement is achievable with standardised PN across units and the Network. This in turn allows for standardised policies / guidelines / algorithms etc on use including timing of initiation in both term and preterm infants. Robust education programmes including criteria of patient & timing of initiation of PN to accompany policy implementation and updates are feasible with drive and support of the Network Multi-professional Nutrition Group. Sharing practice and adapting Network policies / guidelines to ensure standard administration is met at all levels of unit across the Network is already underway in our region. For example, our network standard bags have a 3-month expiry, so it is feasible for LNUs within a network to keep standard aqueous bags in stock to facilitate commencing within 8 hours. The lipid bags (ie *without* the addition of fat- or water-soluble vitamins,) have a 2 year expiry and don’t need to be kept in the fridge if the outer wrapper is kept on them and to alleviate wastage of Lipid syringes (which have a 7 day shelf life with added fat- or water-soluble vitamins), these bags of lipid are easily be kept within an LNU to start immediately, with lipid syringes being ordered for each patient as needed.  This Quality Standard cannot be achieved without achieving Quality Statement 2 on the use of standardised PN bags. |
| **Statement 2** | | | |
| 37 | Baxter Healthcare Ltd | Statement 2 | Statement 2 definition of standardised bags refers to aqueous and lipid solutions, it does not include reference to the licensed 3in1 emulsion. The clarity of this definition is required as it impacts the light protection aspect in Statement 3. |
| 38 | Belfast H&SC Trust | Statement 2 | This is an appropriate quality standard and is the standard practice in Belfast H&SC Trust Regional Neonatal Unit but is occasionally limited by supply from Pharma. Resources will be required to ensure reliable supply of standardised bags to the NICU |
| 39 | BSPGHAN | Statement 2 | Data collection – provision of guidelines ( network and local) in addition to trust level data re the number of standardised bags vs individualised bags that are provided to neonatal units are practical measures.  Provision of data for neonates outside of neonatal units may be more challenging as babies < 28 days of age may not be recognised by usual stock systems. |
| 40 | BSPGHAN | Statement 2 | Proportion of babies started on a standardised bag vs total number receiving PN – Is this per episode of PN? Does this mean the first bag only? |
| 41 | BSPGHAN | Statement 2 | Again the use of PN in babies in PICU/gastroenterology/surgical wards do not seem to have been considered. If it is intended that each episode of PN should start with a standard bag (regardless of environment) then this should be made clear. |
| 42 | BSPGHAN | Statement 2 | The outcome measures of PN prescribing errors is inappropriate. Standardised bags should reduce serious errors But incident reports are not a measure of standard bag use. High levels of reported errors may reflect a very safe culture, with engaged staff who recognise and report minor errors but low levels may reflect lack of recognition of significant problems.  This measure will lead to an incentive not to report and may therefore impact negatively on patient safety. |
| 43 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 2 | Is this intended to be applicable to all areas at all times? Again the use of PN in babies in PICU/gastroenterology/surgical wards do not seem to have been considered. If it is intended that each episode of PN should start with a standard bag then this should be made clear. |
| 44 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 2 | The outcome measures of PN prescribing errors is inappropriate. This is not a measure of standard bag use. High levels of reported errors may reflect a very safe culture with multiple small errors recognised and reported while low levels may reflect lack of awareness and lack of recognition of significant problems. This measure will lead to an incentive not to report and thus impact negatively on patient safety. |
| 45 | NHS England and NHS Improvement - National Patient Safety Team | Statement 2  Statement 3 | Quality statement 2: preterm and term babies who need neonatal parenteral nutrition are started on a standardised bag  Quality statement 3: preterm and term babies who need neonatal parenteral nutrition receive it through nutrition bags, infusion sets and syringes that are protected from light  The use of standardised bags and to protect administration sets from light are key issues, but as outlined above there are other issues that need to be considered. Please review which elements of the issues raised above could be included in the QS to further ensure the safe use of PN in neonates. |
| 46 | Nottingham University Hospitals NHS Trust | Statement 2 | This standard/ statement is appropriate but the measure is not. Proportion of preterm and term babies who receive neonatal parenteral nutrition who are started on a standardised bag = Numerator – the number in the denominator who are started on a standardised bag/ Denominator – the number of preterm and term babies **who are started on** neonatal parenteral nutrition. The Denominator MUST include the number who are STARTED ON neonatal PN to determine the proportion who are STARTED on a standardised bag. Else the demoninator will include ALL babies on PN at any time and many babies later in their period of care will require tailored or bespoke prescribing depending on medical need.  This would not give the “Number of neonatal parenteral nutrition prescribing errors.” as an outcome. Starting a baby on a bespoke PN bag would not fit with the intended quality standard but would not be a PRESCRIBING ERROR per se. |
| 47 | Neonatal and Paediatric Pharmacists Group | Statement 2 | Statement 2: It is easy to collect crude data stating which units/networks have standardised bags and which don't which can then be used to estimate the proportion of infants started on standardised bags, however anything more refined than that will take man hours to collect. |
| 48 | Neonatal and Paediatric Pharmacists Group | Statement 2 | Statement 2: Having standardised bags that are 'complete' i.e. contain vitamins, minerals and lipid (as well as everything else) all within target intake ranges, would save money in the long term as it would be 'ready to use'. It would release time back to the pharmacy aseptic unit, it would improve the nutritional intakes of our preterm and term infants promoting better rates of growth and neurodevelopmental outcomes, as well as reducing length of stay, however a product like this does not already exist nationally. Units and networks have had to develop these themselves, usually without any additional funding. |
| 49 | Neonatal and Paediatric Pharmacists Group | Statement 2 | How can the outcome of the standard 'Number of neonatal parenteral nutrition prescribing errors' be assessed by determining the proportion of babies 'who are started on a standardised bag'? |
| 50 | Royal College of Nursing | Statement 2 | Standard 2: There are standardised PN 1 and PN 2 BAGS in all units in North Wales. |
| 51 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 2 | Data collection - It is easy to collect crude data stating which units/networks have standardised bags and which don't which can then be used to estimate the proportion of infants started on standardised bags, however anything more refined than that will take man hours to collect. |
| 52 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 2 | Having standardised bags that are 'complete' i.e. contain vitamins, minerals and lipid (as well as everything else) all within target intake ranges, would save money in the long term as it would be 'ready to use'. It would release time back to the pharmacy aseptic unit, it would improve the nutritional intakes of our preterm and term infants promoting better rates of growth and neurodevelopmental outcomes, as well as reducing length of stay, however a product like this does not already exist nationally. Units and networks have had to develop these themselves, usually without any additional funding. |
| 53 | West Midlands Neonatal Operational Delivery Network | Statement 2 | Implementation of standardised PN formulations is possible at both unit and Network level. Development of the composition of standard PN bags is a time-consuming task which requires the specialist skills and knowledge of clinicians who are experts in nutritional management of neonates (neonatologists, pharmacists, dietitians, nutrition nurses etc). This is not always possible at unit level due to a lack of expert staff across the disciplines. However, at Network level this is possible to work collaboratively as a multiprofessional team to develop the overarching best practice for each of the units in the region.  This ensures nutritional needs of the infant are met in line with NICE, BAPM and ESPGHAN recommendations, staff are familiar across the region with prescribing and administration, which reduces risks in all areas associated with the use of PN.  Data for meeting the standard can easily be available via Network multiprofessional groups and Network wide PN audits. |
| **Statement 3** | | | |
| 54 | Baxter Healthcare Ltd | Statement 3 | In the rationale section please consider specifying aqueous, lipid or 3in1 bag for light protection in addition to syringes if used. |
| 55 | Belfast H&SC Trust | Statement 3 | This is an appropriate quality standard and is the standard practice in Belfast H&SC Trust Regional Neonatal Unit. Resources will be required to ensure reliable supply of “light protected” bags, giving sets and infusion pumps for the NICU |
| 56 | BSPGHAN | Statement 3 | Guidelines and standard operating procedures can used to assess if the use of light protection is common practice in that unit. Data on unit purchase of light protective sets could be used to demonstrate compliance. |
| 57 | BSPGHAN | Statement 3 | Measuring the actual proportion of individual bags used with light protective sets is potentially possible but would involve a significant amount of work to record each giving set type. There is no currently available mechanism to record actual disposables used per patient, even for those with electronic records ( which is the minority). This would be a very burdensome requirement for minimal benefit |
| 58 | BSPGHAN | Statement 3 | We are supportive of the requirement to use light protecting syringes and giving sets but it should be recognised that these are much more expensive; they may not be available for all types of pumps and drivers; limited numbers of manufacturers may lead to difficulties with supplies and staff may be concerned that it may be harder to see air bubbles within the syringe and line so be a risk to patient safety. |
| 59 | BSPGHAN | Statement 3 | To enable units to routinely use light protecting products it will be necessary to ensure that the supply is guaranteed and that the increase in costs will be provided. |
| 60 | BSPGHAN | Statement 3 | Additional resource will be required to fund light protection to all delivery sets in all units where it is not yet standard. |
| 61 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 3 | Guidelines can be assessed to determine if the use of light protection is common practice in that unit, however collecting data to assess if this has actually occurred would not be possible retrospectively. If the use of light protection is stated in the unit guideline then incident reporting forms should be completed if this does not happen, so data could be collected from these, however it cannot be guaranteed that these are completed 100% of the time. Data on unit purchase and usage of light protective sets could be used as an indirect indicator. |
| 62 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 3 | Measuring the proportion of individual bags that were used with light protective sets is theoretically possible but would involve a significant amount of work to record each giving set type. Units do not currently record each disposable so there is no currently available mechanism to do so, even for those with electronic data. This would be a very burdensome requirement for minimal benefit |
| 63 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 3 | Using products that protect the PN from light is great but may not always be practical for several reasons: light protecting syringes and giving sets are much more expensive; it may not actually be possible for units to get light protecting products that actually fit their pumps or giving sets that attach to their syringes; if everyone is buying from one manufacturer that will cause a monopoly in the market, and possible problems in the future if there is a manufacturing delay; it may be harder to see air bubbles within the syringe and line so be a risk to patient safety. |
| 64 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 3 | To enable units to routinely use light protecting products it will be necessary to ensure that the supply is guaranteed and that the increase in costs will be provided. |
| 65 | NHS England and NHS Improvement - National Patient Safety Team | Statement 2  Statement 3 | Quality statement 2: preterm and term babies who need neonatal parenteral nutrition are started on a standardised bag  Quality statement 3: preterm and term babies who need neonatal parenteral nutrition receive it through nutrition bags, infusion sets and syringes that are protected from light  The use of standardised bags and to protect administration sets from light are key issues, but as outlined above there are other issues that need to be considered. Please review which elements of the issues raised above could be included in the QS to further ensure the safe use of PN in neonates. |
| 66 | NHSE/I Clinical Reference Group (CRG) for Neonatal Critical Care | Statement 3 | In our opinion, it will be difficult to meet this standard as the line that the aqueous PN solution flows through is often difficult to protect from light.  Is there any supplementary supportive information on which infusion sets are available for the different infusion pumps that would comply with the quality standard? |
| 67 | Nottingham University Hospitals NHS Trust | Statement 3 | “Denominator – the number of neonatal parenteral nutrition bags, infusion sets and syringes that were administered to preterm and term babies.” Syntax is incorect as infusion sets and syringes are not themselves administered to babies. |
| 68 | Neonatal and Paediatric Pharmacists Group | Statement 3 | Statement 3: Guidelines can be assessed to determine if the use of light protection is common practice in that unit, however collecting data to assess if this has actually occurred would not be possible retrospectively. If the use of light protection is stated in the unit guideline then it may be that incident reporting forms are completed if this does not happen, so data could be collected from these, however it cannot be guaranteed that these are completed 100% of the time.  With regards to the numerator/denominator-what does this refer to PN days, hours, number of patients? It is not specific enough. |
| 69 | Neonatal and Paediatric Pharmacists Group | Statement 3 | Statement 3: Using products that protect the PN from light is great in theory however being able to achieve this is not always practical for several reasons: light protecting syringes and giving sets are much more expensive; it may not actually be possible for units to get light protecting products that actually fit their pumps or giving sets that attach to their syringes; if everyone is buying from one manufacturer that will cause a monopoly in the market, and possible problems in the future if there is a manufacturing delay; it may be harder to see air bubbles within the syringe and line so be a risk to patient safety.  To enable units to routinely use light protecting products it will be necessary to ensure that the supply is guaranteed and that the increase in costs will be provided. |
| 70 | Royal College of Nursing | Statement 3 | Standard 3-5: No problems. |
| 71 | West Midlands Neonatal Operational Delivery Network | Statement 3 | Light protection of PN across the region has been determined at local unit level. Light protection of lipid is embedded practice across the region with bags, syringes and giving sets being light protected with covers or opaque sets. However, some units, after an in-depth literature review, felt evidence stronger for light protecting lipid than aqueous component. With the faster run rate of aqueous component and associated increase in costs of light protective giving sets it was agreed that the aqueous bag, and lipid (either the syringe or bag) should be covered and use the light protective giving sets for the lipid only, whether this is by syringe or bag. Light protective syringes are not used for lipid syringes as pumps effectively cover up the syringes and there are some concerns about being able to see contaminant particles through opaque syringes.    If light protective giving sets were used for all PN solutions there would be a considerable cost pressure for those units who currently don’t use them.  We do have units who have used full light protection (covers and opaque sets) for both PN components and do not have any concerns of cost pressure as this has been embedded practice for some years.  Local amendments to polices/ guidelines and teaching reflect unit practice around light protection. |
| **Statement 4** | | | |
| 72 | Baxter Healthcare Ltd | Statement 4 | No comment |
| 73 | Belfast H&SC Trust | Statement 4 | This is a quality standard for neonatal care in general, rather than specific to babies receiving PN. It is difficult to see how the numerator suggested for outcome measurement would be able to be measured. |
| 74 | Belfast H&SC Trust | Statement 4 | 4 of the 5 questions reflect key areas for QI in neonatal parenteral nutrition. Statement 4 is not specific enough to neonatal PN delivery to be a relevant high quality standard; it is a high quality standard for general neonatal care of all patients rather than those for whom PN is delivered. An alternative could be that written information about PN should be made available to parents/carers. |
| 75 | Bliss | Statement 4 | Statement 4 Quality Statement: Bliss would suggest this is extended to reflect that parents and carers are supported to be involved in care, as well as given information and having regular opportunities to discuss their baby’s care. The scope of the quality standard should also consider referring to emotional and practical support being available to parents and carers – particularly the mother. 3 of 4 The Quality Standard should consider if there are ways for parents to be actively involved in their baby’s care while they are receiving PN. Feeding is an important caregiving activity and an opportunity for parents to learn about their baby’s cues, to be close to them and to support bonding. Opportunities for parents to be involved in delivering all aspects of caregiving to their baby should be maximised. If unable to be involved directly in feeding their baby while receiving PN, consideration should be given to other activities parents can be supported with while their baby is being fed this way which parents may do when feeding their baby (e.g when breast or bottle feeding) such as using comfort touch, practicing skin-to-skin care, watching and learning about their baby’s cues etc. Many parents will consider how they want their baby to be fed after they are born and will consider what will be most suitable to them and their family. However, these feeding expectations are often altered when a baby is born extremely unwell, and this can be emotionally difficult, and many parents will also want to eventually feed their baby the way they had intended to. The availability of support, including feeding support, as well as regular information about their baby’s care and progress on PN, is important. Quality measures: While a data source does not currently exist, the use of audits such as Bliss Baby Charter Audit can be used by units to evidence their protocols for communication, ward round policies etc. Most neonatal units in England use the Bliss Baby Charter, and the tool and online platform is available for all neonatal units who want to benchmark the quality of their care, from a family-centred care perspective, and identify how to improve. Data source: while NNAP ward round and consultation on admission statistics provide some useful insight, it’s important to realise their limitations. For example, the ward round measure currently captures whether parents have attended any ward round during admission, rather than assessing how regularly parents are attending ward rounds. These measures also do not capture what has been discussed during these conversations. Units should consider using data entered into Badger to audit their own assessments and consider other methods (parent surveys/communication checklists) for monitoring how frequently, and satisfactorily, conversations about PN/feeding are taking place with parents. What the quality statement means for different audiences: Reference should be made in these sections to ensuring that parents receive information and are supported to be involved in their baby’s caregiving, 4 of 4 including while receiving PN, in a way that is suited to their individual communication or other needs. The ability to be involved and to understand why a baby is receiving a certain treatment will not automatically be equitable unless services and healthcare professionals have the tools to address potential barriers. For example, ensuring written information is image led and uses simple language and ensuring translated materials can be sourced where needed. Additionally, ensuring that a parent’s only opportunity to discuss PN is not just during ward rounds which may not be accessible to all parents (these are often quite early in the morning – some parents may be at work during these times or tending to older children before they go to school). |
| 76 | BSPGHAN | Statement 4 | While it is important that parents are fully involved and informed, there are currently 2 national NICU standards on this for all admissions to neonatal units. An additional standard (4) appears unnecessary |
| 77 | BSPGHAN | Statement 4 | This seems unnecessary given the two NNAP audit measures (parental discussion within 24 hours by a senior member of medical staff and parental presence on ward rounds) are currently applied to all babies in neonatal units, with no obvious benefit to producing slightly different data on the same topic for a subgroup of neonatal patients. |
| 78 | BSPGHAN | Statement 4 | The outcome measures are not specific to parenteral nutrition and are non-specific – “regular” should be defined and clarification should be given as to whether this applies only to the time on PN.  A more useful measure may be the provision of simple written information around neonatal PN. |
| 79 | BSPGHAN | Statement 4 | Outcome re the number of parents who are satisfied with communication – this is a binary measure for a complex outcome and PN will be a very minor part. Parents may be happy with communication and update from nurses but not doctors or with dieticians for example – or happy with some aspects but not others. It is not specific to PN. The data source suggested does not measure satisfaction. |
| 80 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 4 | Standard 4 (Parents of babies on PN requiring regular opportunities to discuss their babies care) is subsumed by 2 current NNAP audit measures. It would appear unnecessary to have a specific subgroup for babies on PN. |
| 81 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 4 | This seems unnecessary given the 2 NNAP audit measures applied to all babies in neonatal units, with no obvious benefit to producing slightly different data on the same topic for a subgroup of neonatal patients. |
| 82 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 4 | The outcome measures are not specific to parenteral nutrition and are vague – what does “ regular” mean – daily/weekly/monthly? Do these just apply for the period that the baby is on PN? |
| 83 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 4 | Outcome re the number of parents who are satisfied with communication – this is a binary measure for a complex outcome. Parents may be happy with communication and update from nurses but not doctors or with dieticians for example – or happy with some aspects but not others. It is not specific to PN. The data source suggested does not measure satisfaction. |
| 84 | Neonatal and Paediatric Pharmacists Group | Statement 4 | Statement 4: For units that already have electronic documentation it would be easy to pull this data, however for units that are paper-based then it would not be easy. However, see answer to question 3. |
| 85 | Neonatal and Paediatric Pharmacists Group | Statement 4 | Statement 4:This is a really ambiguous statement as it only mentions '...regular opportunities to discuss their baby's care...'. It does not state that this discussion needs to be about parenteral nutrition!  The numerator and denominator does not state what 'number' means. Is the quality statement looking for just 1 conversation, or repeated updates over the length of stay? Over what timeframe is this data collection based? |
| 86 | Royal College of Nursing | Statement 4 | Standard 3-5: No problems. |
| 87 | West Midlands Neonatal Operational Delivery Network | Statement 4 | Embedding nutrition focussed ward rounds at unit level (if appropriately trained staff exist), unit and network education of unit staff on PN – use and composition - to help them support parental understanding.  Developing parent resources across the network.  Collection of data to identify this quality statement will require specific audit of parental involvement in nutritional planning and decision making. Working alongside parent groups to develop this where it doesn’t exist is essential.]  This statement links to statement 5 re NST’s.  Where unit expert teams do not exist education of unit staff on PN and nutrition is essential to meet this statement. |
| **Statement 5** | | | |
| 88 | Baxter Healthcare Ltd | Statement 5 | Baxter fully support the involvement of an MDT in neonatal nutrition. Baxter believes that the governance section should be expanded to include governance and oversight of PN formulation procurement to ensure relevant input into product quality standards, regulatory compliance and ensure these are embedded into procurement specifications. |
| 89 | Belfast H&SC Trust | Statement 5 | This is an appropriate quality standard. It is the most important quality standard in the whole document because formation of a Neonatal PN MDT will positively influence the adherence to all other standards.  This is not available to the regional Neonatal Unit of Belfast Trust or any neonatal unit in Northern Ireland. A significant investment of resources will be required to set up a Neonatal PN multidisciplinary team in order for the Belfast Trust (or any other Trust in Northern Ireland) to meet this standard. |
| 90 | Belfast H&SC Trust | Statement 5 | The Belfast Trust needs to invest in several consultant PAs along with nursing, pharmacy and dietetic sessions in order to form the multidisciplinary Neonatal PN team |
| 91 | BSPGHAN | Statement 5 | Additional resource will also be required to fund access to a neonatal nutritional MDT for many areas. |
| 92 | BSPGHAN | Statement 5 | This is a potentially useful standard that needs clarification. It should be directed to neonatal networks who need to demonstrate funded neonatal dietetic/pharmacist/neonatologist time to support units across each network. This should direct network guidelines, design and tendering on PN contracts and ensuring that equity of care across units. They should ensure continuity of care for infants if they are transferred between units, providing suitable knowledge and experience to deal with the most complex cases. |
| 93 | BSPGHAN | Statement 5 | Neonatal intensive care units, particularly surgical centres, should have a defined MDT, with the appropriate staff having time clearly funded within their job plan |
| 94 | BSPGHAN | Statement 5 | It reads as though the neonatal MDT should be responsible for those neonates receiving PN outside of a NICU. A paediatric nutritional MDT should have also the relevant expertise, at least for term babies, if not preterms. |
| 95 | BSPGHAN | Statement 5 | The denominator should only include those units who use PN |
| 96 | BSPGHAN | Statement 5 | The constitution and roles of the neonatal nutritional MDT are appropriate but it should clarify whether their role should include neonates in other areas outside of NICU |
| 97 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 5 | This is a potentially useful standard that needs more clarity. “Access” should be defined. It should be directed to neonatal networks who need to demonstrate funded neonatal dietetic/pharmacist/neonatologist time to support units across each network. Working within the Network, rather than unit based, would help to ensure continuity of care for infants if they are transferred between units. It would also help ensure that the team has suitable knowledge and experience to deal with the most complex cases. Working within a network to ensure continuity will also provide the best training experience for the trainee medics as they move around throughout the Deanery. |
| 98 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 5 | Neonatal intensive care units (particularly those who care for surgical patients) should have a defined MDT. Currently there is a lack of Neonatal PN MDTs. For units that have a MDT these are often done in lunch hours, or within current job descriptions; they are not funded and therefore not always available. Funding would be required to ensure that every infant on PN has access to a MDT with time specifically funded within job plans. |
| 99 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 5 | It would appear that a neonatal MDT would be responsible for those babies receiving PN outside of a neonatal unit. While these should be reviewed by an MDT, the paediatric nutritional MDT should have the relevant expertise, as in trusts such as ours the neonatal unit is not based in the same hospital as paediatric services. |
| 100 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 5 | The denominator should only include those units who use PN |
| 101 | University Hospitals Bristol and Weston NHS Foundation Trust | Statement 5 | We are in agreement with the “job description” for the neonatal MDT with the caveat that it should clarify whether their role should be limited to the NICU or should be expanded to include neonates in other areas in the trust. |
| 102 | Nottingham University Hospitals NHS Trust | Statement 5 | Denominator –the number of neonatal units. Should read “Denominator –the number of neonatal units administering PN” as not all neonatal units do administer PN. |
| 103 | Neonatal and Paediatric Pharmacists Group | Statement 5 | Statement 5: Collecting data about the number of units or networks that have access to a multidisciplinary team (MDT) would be simple. However, defining what that 'access' looks like is harder. Should there be a minimum amount of time per unit/ per patient allowed within the network MDT job description? Should they be available all the time etc? |
| 104 | Neonatal and Paediatric Pharmacists Group | Statement 5 | Statement 5: Currently there is a lack of Neonatal PN MDTs. For units that have an MDT these are often done in lunch hours, or within current job descriptions; they are not funded and therefore not always available. Funding would be required to ensure that every infant on PN has access to an MDT.  Working within the Network, rather than unit based, would help to ensure continuity of care for infants if they are transferred between units. It would also help ensure that the team has suitable knowledge and experience to deal with the most complex cases. Working within a network to ensure continuity will also provide the best training experience for the trainee medics as they move around throughout the Deanery. |
| 105 | Royal College of Nursing | Statement 5 | Standard 3-5: No problems. |
| 106 | West Midlands Neonatal Operational Delivery Network | Statement 5 | To meet this quality statement across all NNU will need significant investment if the desire is to have a multi-professional expert nutrition support team (NST) in each unit. Most units, irrespective of the level of neonatal care, in this network don't have expert MDT access.  Using expert clinicians from across the Network to develop an expert Network NST may be an alternative option and better use of limited resources (both expert staff, skill mix and funding). This Network NST can develop guidelines, policies, algorithms, education programmes and act as an expert group to advise on complex case that fall outside of the robust PN administration guidelines. This is a time-consuming process and as such relevant funding support would be required to allow these staff to participate in the Network NST.  The advent of recruitment expert neonatal dietitians at network level can support establishment of collaborative network NSTs where they don’t already exist at network level.  There is also an issue with the availability of a NST review in LNUs, but robust guidelines, standardised bags and a network dietician/ NST available for advice remotely goes some way to address this. |
| **Additional areas** | | | |
| 107 | NHS England and NHS Improvement - National Patient Safety Team | Additional area | The national patient safety team issued a Patient Safety Alert on 27 September 2017 entitled [Risk of severe harm and death from infusing total parenteral nutrition too rapidly in babies](https://www.england.nhs.uk/wp-content/uploads/2019/12/Patient_Safety_Alert_-_TPN_in_babies_FINAL.pdf). The alert outlined reported incidents relating to the danger of infusing PN too quickly; fluid overload, coagulopathy, and fat overload syndrome. The main error types were:   * Administration set primed with lipid threaded through the infusion pump intended for the aqueous component, and vice versa. * Incorrect infusion rate entered into administration pump * Miscalculation of volumes when fluid or pump related changes were made.   The Alert outlined potential mitigating actions:   * Double-checking (including by pharmacist on ward rounds) * Visually distinct light covers * Different syringe pumps/administration sets for each component * Use of safety software within administration pumps   Regular checks of fluid volumes infused |
| 108 | NHS England and NHS Improvement - National Patient Safety Team | Additional area | The Alert was followed up in March 2019 with additional information relating to this issue – [Rapid over infusion of Parenteral Nutrition](https://www.sps.nhs.uk/articles/rapid-over-infusion-of-parenteral-nutrition/) available on the SPS website. Following the death of a premature baby, this document outlined an incident where a new PN bag was hung and attached to the patient, before the giving set had been attached to the pump and before the previous bag had been taken down. As a result, when the new bag was started the PN bag was running free-flow; resulting in the neonate receiving 150mls in 1 hour.  Lessons learnt by the organisation included:   * Remove old bag before hanging new bag * All fluids must have the giving set attached to the pump before attaching to the patient * Consider the use and number of octopus extensions in use and the potential for error. |
| 109 | BSPGHAN | Additional area | Inadequate growth monitoring (weight and head circumference) is common but not addressed in these. Given that supporting adequate growth is a basic function of adequate PN this is unfortunate. |
| 110 | University Hospitals Bristol and Weston NHS Foundation Trust | Additional area | Monitoring on babies on PN has not been addressed, although identified as problematic in NCEPOD audit. |
| **Other comments** | | | |
| 111 | Baxter Healthcare Ltd | Other | Baxter are aware of a quality improvement project by Oxford Hospitals Trust, updating their approach to standardised nutrition support in neonates using a 3in1 formulation to address the issue of wrong rate errors highlighted by NHSI. Moreno, M., McCormick, K., Macfarlane, L. and Scrivens, A., 2020. P36 Numeta G13% preterm neonatal parenteral nutrition solution–a licensed all-in-one triple chamber, ready to use and terminally sterilised parenteral nutrition for preterm newborn infants. Archives of Disease in Childhood, 105(9), pp.e25-e25. |

Note: Comments received in the course of consultations carried out by NICE are published in the interests of openness and transparency, and to promote understanding of how quality standards are developed. The comments are published as a record of the submissions that NICE has received, and are not endorsed by NICE, its staff or its advisory committees.

## Registered stakeholders who submitted comments at consultation

* Baxter Healthcare Ltd
* Belfast Health & Social Care Trust
* BLISS
* British Society of Paediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN)
* NHSE&I National Patient Safety Team
* NHSE&I Neonatal critical care Clinical Reference Group
* Neonatal and Paediatric Pharmacists Group (NPPG)
* Nottingham University Hospitals NHS Trust
* Royal College of Nursing (RCN)
* Royal College of Paediatric and Child Health (RCPCH)
* University Hospitals Bristol and Weston NHS Foundation Trust
* West Midlands Neonatal Operational Delivery Network