Our Vision
The best care for every patient

Norfolk and Norwich University Hospitals NHS Foundation Trust

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks' gestation)

A clinical guideline recommended

For use in:	Delivery Suite, NICU, Antenatal Clinic
By:	Obstetricians, Midwives, Neonatal unit medical and nursing staff
For:	Premature babies and their families
Division responsible for document:	Women and Children
Key words:	Premature, infant, limit of viability, extreme prematurity
Names and job titles of document authors:	Charles Bircher, Consultant Obstetrician David Booth, Consultant Neonatologist Ankur Sharma, Clinical Fellow
Name of document author's Line Manager:	Beth Gibson and Dr Priya Muthukumar
Job title of author's Line Manager:	Chief of Service Maternity and Service Director, Neonatal Unit
Supported by:	Beth Gibson
Assessed and approved by the:	Maternity Guidelines Committee Chair and NMCP Board
Date of approval:	20/09/2022
Ratified by or reported as approved to (if applicable)**:**	NMCP
To be reviewed before:	08 July 2024
To be reviewed by:	Charles Bircher
Reference and / or Trust Docs ID No:	7508
Version No:	8
Compliance links:	No
If Yes - does the strategy/policy deviate from the recommendations of NICE?	N/A

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

Version and Document Control:

Version Number	Date of Update	Change Description	Author
7	23/04/2021	Section added on fetal monitoring in labour and references updated	Charles Bircher David Booth
7	08/07/2021	Checked and approved by Neonatal Governance	Charles Bircher David Booth
8	20/09/2022	Updated – Antenatal corticosteroids to reduce neonatal morbidity and mortality, RCOG Green Top No. 74	Mr Charles Bircher

This is a Controlled Document

Printed copies of this document may not be up to date. Please check the hospital intranet for the latest version and destroy all previous versions

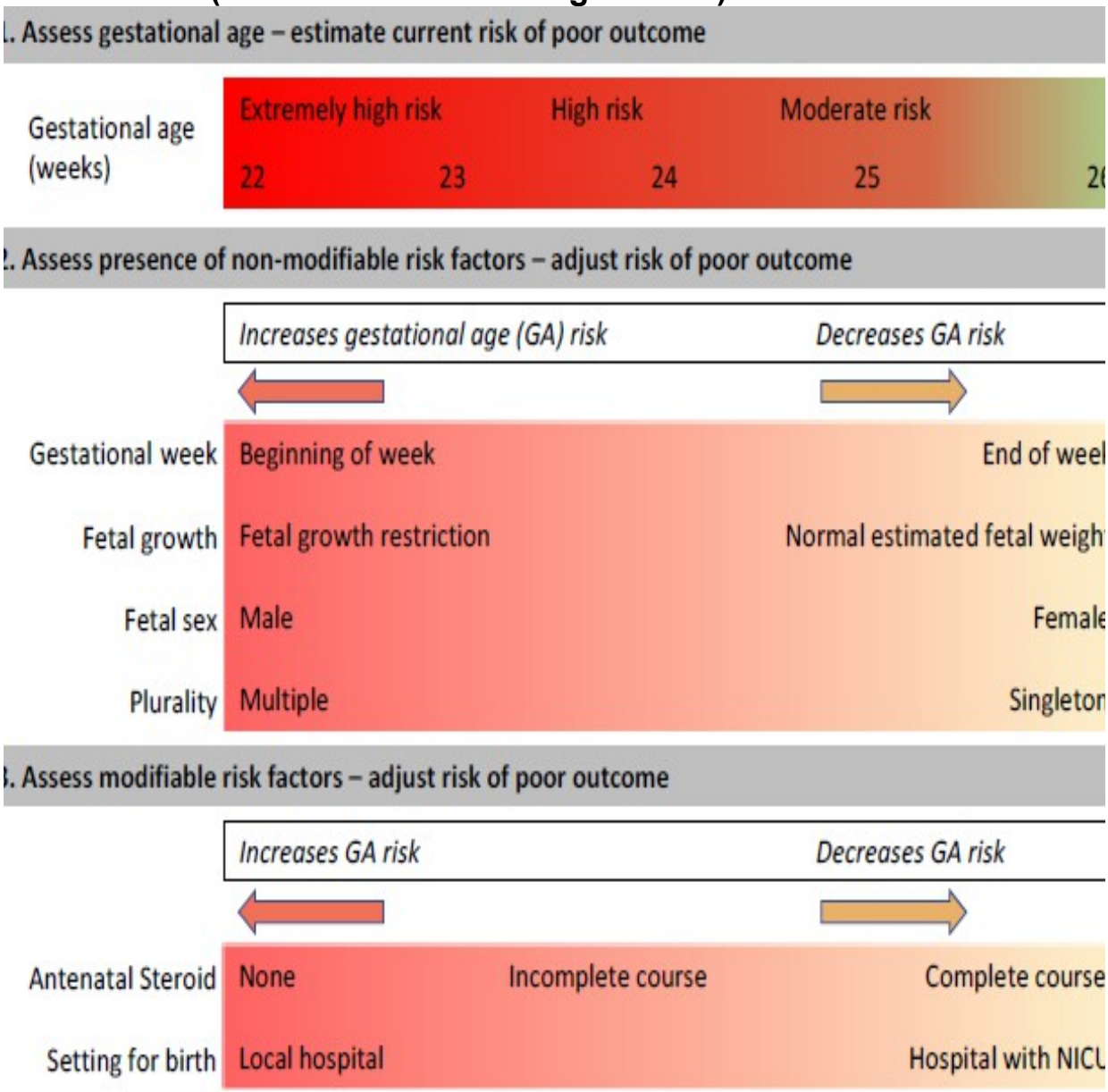
Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

Quick reference guideline

* - see next pages for risk assessment tool

Refinement of Risk based on Visual Tool BAPM 2019 [1]

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)



Risk Stratification

Extremely high risk: > 90% chance of either dying or surviving with severe impairment if active care is instigated. This includes -

- Babies at 22^{+0} - 22^{+6} weeks of gestation with unfavourable risk factors
- Some babies at 23^{+0} - 23^{+6} weeks of gestation with unfavourable risk factors, including severe fetal growth restriction
- (rarely) Babies ≥ 24^{+0} weeks of gestation with significant unfavourable risk factors, including severe fetal growth restriction

- Palliative (comfort-focused) care would be in the best interests of the baby and life-sustaining treatment should not be offered.
- No absolute indication for paediatric attendance at the birth although for individual families this may be helpful

High risk: 50-90% chance of either dying or surviving with severe impairment if active care is instituted. This includes

- Babies at 22^{+0} - 23^{+6} weeks of gestation with favourable risk factors
- Some babies ≥ 24^{+0} weeks of gestation with unfavourable risk factors and/or co-morbidities

Parents should be counselled carefully → parental wishes should inform a joint decision to provide either active or palliative treatment.

Moderate risk: < 50% chance of either dying or surviving with severe impairment if active care is instituted. This includes:

Most babies ≥ 24^{+0} weeks of gestation

Some babies at 23^{+0} – 23^{+6} weeks of gestation with favourable risk factors.

Active management would be in the best interests of the baby

A senior neonatal clinician should attend the birth

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

Objectives

Advances in perinatal care have seen the limits of human viability move towards less mature and smaller babies. There is increased survival of babies born prematurely, although considerable morbidity and mortality persist with social, ethical, medical and economic implications.

In the perinatal period there are complex and demanding decisions to be made at various stages, which can be broadly categorised as:

- The care of a fetus and mother before the birth – including decisions on monitoring, mode of delivery and administration of steroids and magnesium sulphate
- Whether to resuscitate a newborn baby and admit him or her to neonatal intensive care.
- Whether to continue invasive intensive care or replace active treatment with palliative care.

This guideline focuses *mainly* on the second point and aims to provide a pathway of care for the management of such babies (based on consensus views, best practice and available evidence) in order to support clinicians faced with difficult decisions, at times when immediate action may be required.

Rationale

Relevant UK publications have provided guidance and an evidence base to support decision-making. These are included in the references.

Broad recommendations:

Individualisation of Care

Care of the mother, her fetus and the baby should always be individualized and should be led by senior staff in all disciplines. Parental hopes and expectations should be explored in a realistic way, drawing upon the available evidence.

Prior to delivery

When it appears that a mother will deliver her baby at a very early gestational age, all clinical information must be reviewed by the most senior available obstetric and neonatal staff. The obstetric history and antenatal care must be considered carefully.
Antenatal management decisions should involve the parents and the clinical staff who will be responsible before and after the delivery.

Documentation

All communication with parents and agreed plans must be documented in full and the plans revised as needed.

Estimation of gestational age

To avoid discrepancy in gestational age estimation, an early (between 10 weeks and 13 weeks + 6 days) dating scan should be used as the most accurate estimate of the gestational age. When carried out by an experienced ultrasonographer, scans are very accurate tools for estimation of gestational age. Similarly, if the mother is sure of her dates, the last menstrual period method of estimation may be best.

The best estimation of gestational age should be agreed with the parents and clearly documented in early pregnancy – if this has not been done prior to admission with threatened preterm delivery, it should be a priority.

Risk Factors Affecting Outcome

Growth restriction, estimated foetal weight, plurality of pregnancy, fetal abnormalities, antenatal interventions, vascular Doppler flow velocity waveforms, antenatal steroids, setting of birth (local hospital vs hospital with NICU) and risk factors for infection.

Antenatal Corticosteroids (ACS)

Treatment of women with threatened preterm birth with antenatal corticosteroids decreases neonatal mortality and morbidity. The local policy would be to routinely give steroids between 24^{+0} and 34^{+6} if there is good evidence of preterm labour (cervical changes and /or raised risk on QUIPP or Fetal Fibronectin).
We also would consider a second course after discussion with the on call Obstetric consultant and it is greater than 7-14 days since the original course.

The decision to administer corticosteroids at gestations less than 24+0 weeks should be made at a senior level taking all clinical aspects into consideration.

There is growing evidence that ACS are of benefit to preterm infants born at less than 24 weeks gestation[1, 4] and therefore, local policy at this unit is that:

- *If, following discussion with parents (and where delivery is anticipated) resuscitation of the infant born between 22^{+0} and 23^{+6} is to be offered, then antenatal steroids **should** form part of this package of care.*
- *Below 22 weeks gestation, steroids should not be given.*
- *Steroids should not be given in the presence of signs of infection*

Note caution with giving steroids in diabetic patients. See diabetic guidelines for more information.

Magnesium Sulphate $MgSO_4$

$MgSO_4$ has been shown to be neuroprotective against cerebral palsy and cystic periventricular leucomalacia (PVL).

- $MgSO_4$ is recommended in women with imminent delivery between 24 and 30 weeks
- Use at extreme prematurity (under 24 weeks) should be made on a case by case basis by a senior clinician. Similar principles to steroid administration for decision-making should be made, i.e. if a decision has been made for active resuscitation, $MgSO_4$ would seem a logical next step.
- When a decision to give Mg SO_4 has been made, it should be administered if the birth is expected within the next 4-24 hours and should be continued for 24 hours or to delivery, whichever occurs first. This would be expected in a woman with regular uterine contractions with a cervical dilatation of 4 cm or more.
- Such treatment is recommended regardless of mode of delivery and corticosteroid administration.
- An intravenous loading dose of 4g over 20-30 minutes followed by a maintenance dose of 1g/hr should be given. If the woman weighs **under 50kg**, the doses should be **halved**.

- Monitoring should include maternal blood pressure (BP), pulse rate(PR) and respiratory rate (RR) and patellar reflexes done hourly.
  - The urine output should be monitored with a strict input output chart to ensure the output is more than 100ml per 4 hours. Consider use of an indwelling catheter to monitor output.
  - Discontinuing the infusion and seek medical review if the RR<16/min, UOP <100mL/ 4 hours or the patellar reflexes are absent.
  - Antidote for suspected magnesium toxicity
    - Calcium gluconate (1 gram = 10 mL of 10% solution - slowly via intravenous route over 10 minutes) should be given if there is clinical concern over respiratory depression.

Tocolysis

Although the benefit of corticosteroids at extreme early gestations is limited to the neuroprotective effects, if the decision is made to administer corticosteroids, consideration should be given to tocolysis.

Antibiotics

All women in **established** preterm labour (i.e. regular uterine activity and ≥4cm dilated)should receive GBS antibiotics see Group B Streptococcus in Pregnancy Trust Docs ID 845

Discussion with parents

- An agreed, accurate gestational age estimate should form the starting point for a detailed discussion with parents, which should also include other factors

affecting outcome.

- If there are difficulties in reaching an agreed gestational age estimate with parents, a further discussion with another senior member or members of the perinatal team should be offered.
- Outcome predictions should be based on the best available figures for mortality and morbidity. It is especially important that parents are given consistent information - guidance on this is included in A*ppendix A*. *All staff members involved in counselling regarding expected outcomes should use these locally agreed data in their discussions with parents*.
- To help parents prepare for the different possible outcomes after delivery, the practicalities of commencing, withholding and withdrawing intensive care, and the positive role of palliative care (where appropriate) should be included in the discussion.
- A clear plan for the delivery and subsequent care of the baby must be made and documented.
- Parental wishes, following the discussion, should be sought, discussed and clearly documented within the plan for delivery and subsequent care. *Appendix C* is a proforma for prenatal consultation and management plan, undertaken by neonatal staff.
- If appropriate, parents should be offered the opportunity to visit the Neonatal Unit.

Mode of Delivery

A Caesarean section at <26 weeks is likely to be a classical incision on the uterus and therefore the immediate and long term risks of this for the mother need to be taken into account.

A decision for C-Section should involve a consultant obstetrician and should be individualised and follow careful discussion with parents.

These discussions should be fully documented

Fetal Monitoring in Labour

Currently there is no consistent evidence to suggest that continuous or intermittent fetal heart rate monitoring is of benefit in infants below 26 weeks gestation. CTG can be difficult to interpret at low gestational ages because the autonomic nervous system may be immature.

In general we do not recommend CTG during labour unless all active interventions, including emergency caesarean section in the presence of an abnormal CTG and neonatal support are planned[19]

If a mother would want all active interventions, including a Caesarean section, there is no consistent evidence as to which is safer between CTG and intermittent auscultation at these gestations and the mother should be given the choice between these.

If Caesarean section is not planned for fetal heart rate abnormalities, a CTG may be indicated to help plan intrauterine resuscitation[20]

If a mother decides she would not have a Caesarean section for fetal indications, intermittent auscultation should be performed at the mother's request, and the mother needs to be clear that abnormalities in the fetal heart rate will not result in a Caesarean section.

Decisions around fetal monitoring in labour at these gestations should involve a Consultant Obstetrician and should be clearly documented.

Deferred Cord Clamping

Deferred cord clamping for at least 60 seconds and ideally 120 seconds should be routine practice (unless contraindicated by snapped cord, placental abruption or separation, uterine inversion, monochorionic twins or maternal condition). More information in Clinical Guideline for Delayed Cord Clamping (DCC) Therapy Trustdocs Id: 17346

Resuscitation

At birth, a decision should be made, based on the condition of the baby, as to whether resuscitation should proceed - once begun, the response of heart rate to lung inflation will be crucial in judging how long to continue resuscitation.

If there has been insufficient time to hold a detailed discussion with parents, the available clinical information, to include the best available estimate of gestational age, should be used to guide the decision.

In the absence of a pre-existing management plan, the condition of the infant at birth (apparent maturity, extent of bruising, spontaneous activity level, respiratory effort and heart rate) should be used to guide the decision to start resuscitation or not.

In situations where the most senior member of staff in attendance remains uncertain, it is reasonable to proceed with resuscitation and evaluate further with other senior colleagues.

Resuscitation should be carried out as described in the Newborn Life Support course handbook

Team

Ideally the resuscitation team should be experienced in stabilisation of extremely preterm babies and led by a consultant neonatologist.

Maintain Normothermia

Particular attention should be paid to the maintenance of normothermia, with the use of a plastic bag and/or other methods of delivering thermal care, and skin protection.

Lung Inflation

Stabilisation and supported transition with lung inflation, using an appropriately sized facemask, should be initiated.

If there is no response to mask ventilation and doubt around the *adequacy* of mask ventilation, the baby should be intubated and surfactant administered.

Use of advanced measures for resuscitation including cardiac massage and endotracheal or intravenous adrenaline are rarely required following extreme preterm birth.

However, if advanced resuscitation is considered appropriate the algorithms for resuscitation used in more mature babies should be used.

Absent heart rate or severe bradycardia persisting despite *effective* cardiopulmonary resuscitation for more than a few minutes is associated with high rates of mortality and neurodevelopmental impairment in extremely preterm babies.

The most senior experienced attending professional should decide if or when attempts to stabilise and/or resuscitate the baby should stop.

Parents' Presence

Stabilisation should normally be undertaken in the same room as the parents, who should be offered the opportunity to see, touch and photograph their baby. Following successful stabilisation of the baby, the mother should be supported to cuddle the baby where judged safe to do so and subsequently supported to express breast milk as early as possible. There should be ongoing facilitation of parental contact and family involvement as partners in care.

Palliative Management

Care for babies where resuscitation was not started or was discontinued.
With an extremely high risk of a poor outcome for the baby it is considered best practice not to offer active management. If the family wishes, a senior neonatal team member may be present at delivery to provide a brief assessment and to support midwifery staff and the family.

- Respiratory support (including provision of positive pressure ventilation) should not be provided.
- Aim to avoid interventions that may cause discomfort or pain or separation of baby and family
- Emphasise family-centred care.

The baby should be given all the care needed for his/her comfort and the parents encouraged by appropriate staff to hold and spend time with their baby, if they wish, in a quiet and private location.

The parents should be offered bereavement counselling, including advice about post mortem examination.

Uncertain gestational age

- If gestational age is uncertain, (i.e. no dating ultrasound scan) an ultrasound scan by an experienced sonographer should be carried out, if time permits.

- If the fetal heart is heard during labour, a team experienced in resuscitation should be called to attend birth.

- At birth, a decision should then be made, in the best interests of the baby, as to whether resuscitation should proceed - once begun, the response of heart rate to lung inflation will be crucial in judging how long to continue resuscitation.

- For an infant already born (e.g. rapid delivery following arrival on delivery suite or delivery en route to hospital) where gestational age is uncertain, the neonatal team should be informed and should attend immediately to assess the baby and make a decision on whether to proceed with resuscitation.

Less than 22 Weeks

Expectant mothers should ideally be managed on the gynaecology ward. The obstetric team should counsel parents that at these gestations a fetus is pre-viable and cannot live. Neonatal team input should be sought if the parents require further reassurance. The parents should be informed that, even though the baby is pre-viable, it may still show some signs of life at delivery and in these circumstances it should be registered as a live birth.

22^{+0} to 22^{+6} Weeks

Babies born in this gestational age group are always in the *High Risk* or *Extremely High Risk* group for poor outcome.

It is now standard practice to include babies between 22 – 22^{+6} to consider resuscitation, *based on their risk assessment*.

This is a change in practice: it is of note here that previous practice considered resuscitation in this gestation to not be in the best interest of the baby born at this gestation.

Under all circumstances, parents should have the opportunity to discuss outcomes with a senior member of the neonatal team. Senior neonatology presence at the delivery can be offered.

Resuscitation should only be attempted and intensive care offered, if, after thorough discussion with an experienced neonatologist about the risks and long-term outcomes, the clinicians and parents agree that it is in the baby's best interests.

23^{+0} to 23^{+6} WEEKS

If gestational age is 23^{+0} – 23^{+6} (i.e. at 23 weeks) a senior member of the NICU medical team or ANNP experienced in resuscitation should be available to attend the birth.

The decision to initiate resuscitation should be based on a risk assessment before the birth in conjunction with an assessment of the baby at birth.

In the best interests of the baby a decision **not** to start resuscitation is an appropriate approach if the parents have expressed this wish.

24^{+0} to 24^{+6} WEEKS

If gestational age is ***certain*** at 24^{+0} – 24^{+6} resuscitation should be commenced unless the parents and clinicians have considered that the baby will be born severely compromised.

If the baby is assessed to be more immature than expected, and / or born in poor condition, it may be appropriate not to start resuscitation even if the pre-birth plan was for active care.

25^{+0} to 25^{+6} WEEKS

When gestational age is 25^{+0} weeks or more, it is appropriate to resuscitate babies routinely at this gestation.

Clinical audit standards

- Documentation: all discussions regarding premature birth, prior to the birth, should be clearly documented in the maternal hospital records using the agreed proforma.
- Survival and morbidity: discussion with parents that include morbidity and mortality statistics should be based on the agreed figures outlined in Appendix A.
- Antenatal corticosteroids: decisions not to administer antenatal corticosteroids for threatened preterm birth should be clearly documented in maternal hospital records.
- Resuscitation: use of chest compressions and adrenaline in the context of resuscitation at birth in infants of less than 26 weeks gestation.

Summary of development and consultation process undertaken before registration and dissemination

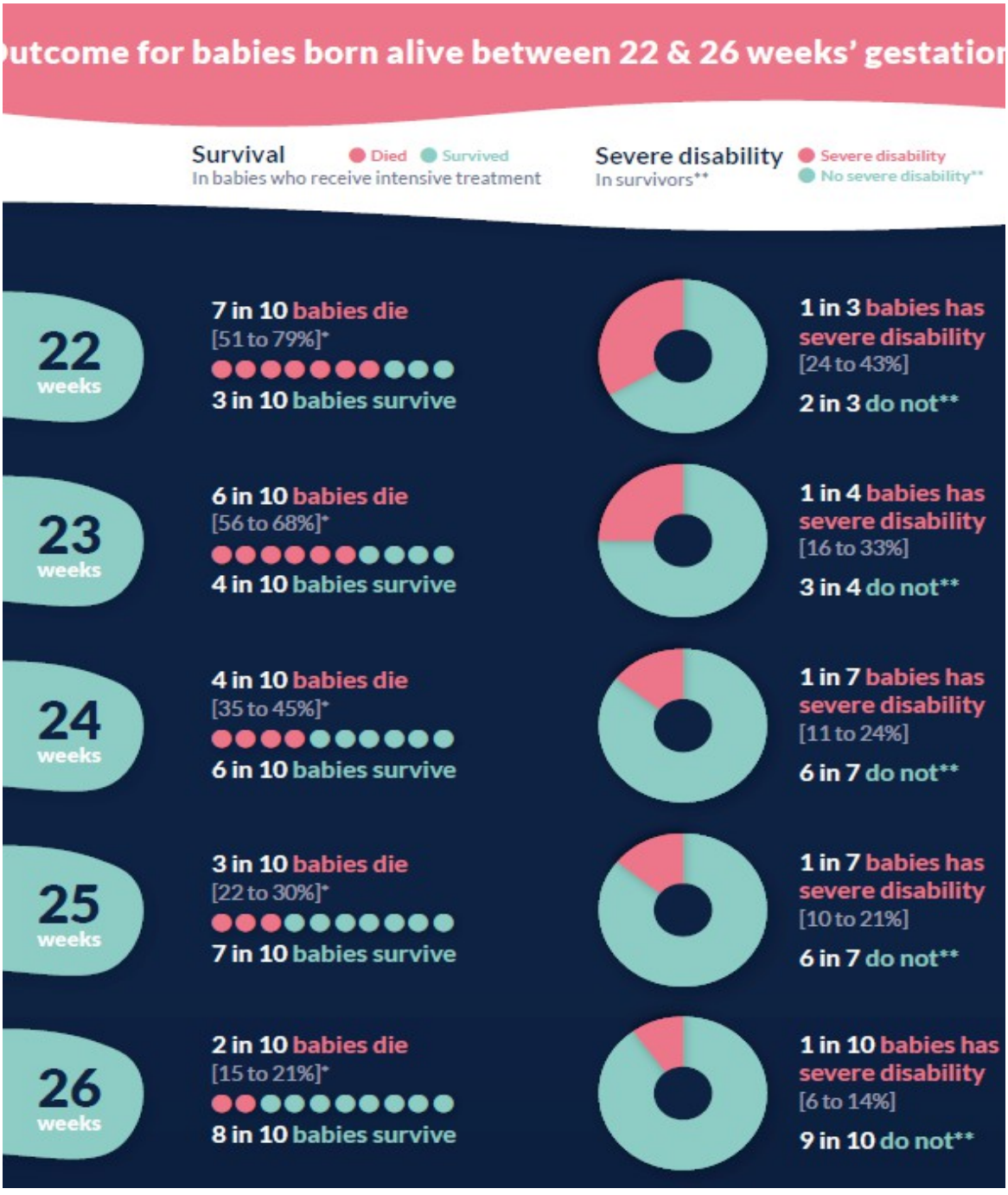
Draft versions of this guideline on behalf of were circulated for comment to all consultant neonatologists and to the Department of Obstetrics and Gynaecology. Draft versions were discussed at guideline meetings within each department. Survival and morbidity figures were discussed and reviewed jointly by neonatology and obstetric colleagues.
This version has been endorsed by the Clinical Guidelines Assessment Panel.

Distribution list / dissemination method

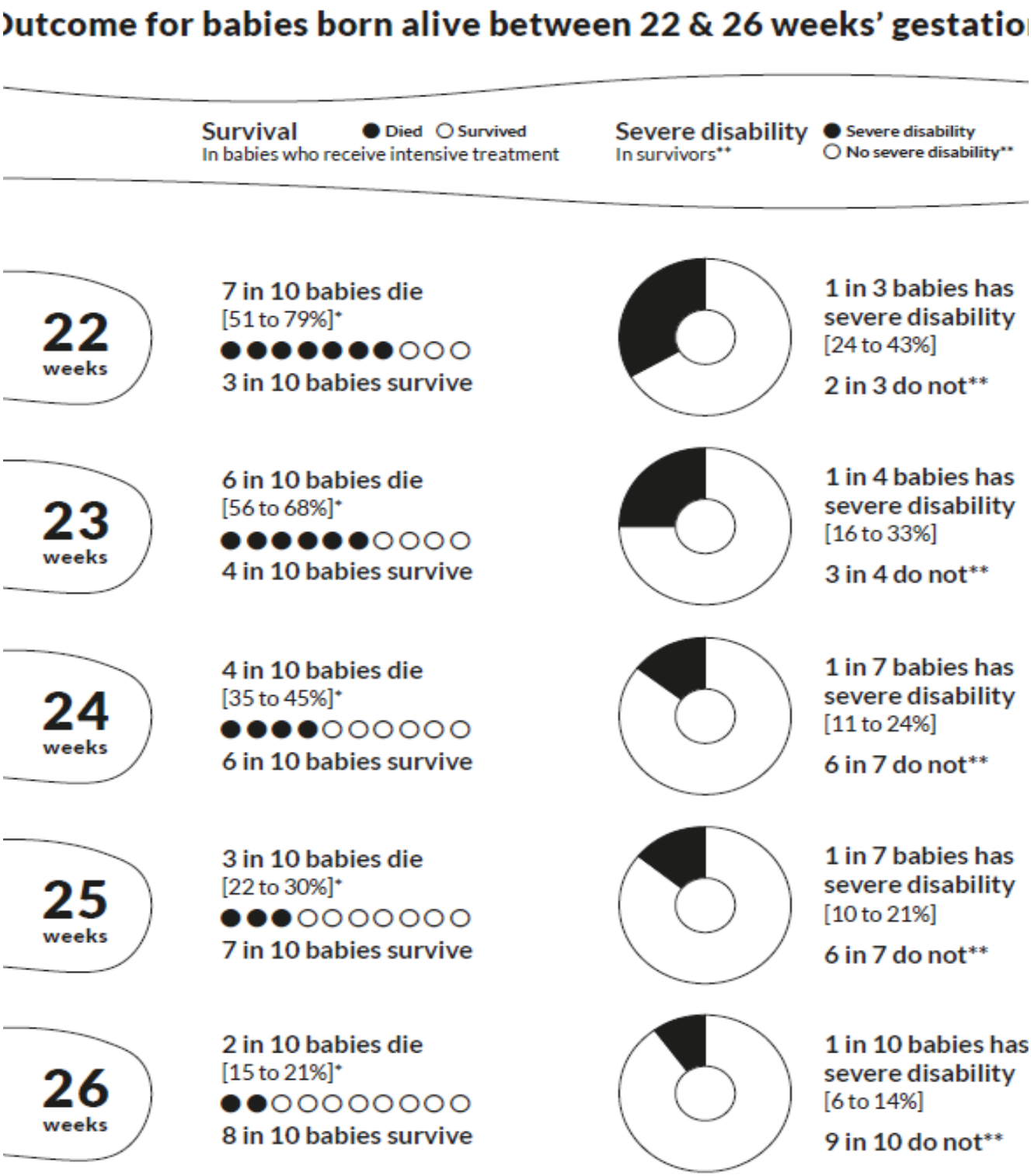
Trust intranet.

Appendix A:

Outcome of Babies Born alive between 22 and 26 weeks – BAPM Framework Guidelines 2019



Printer friendly version – for parents



<u>Outcomes for extremely preterm babies</u> – more detail

Outcome is most often discussed in terms of *survival* and whether survival is accompanied by *impairment*.

Difficulties in data interpretation have always arisen when considering outcome data because of variations in provision of active treatment, variations between place of birth and choice of cohort to study and report.

However, despite the differences, there has been steady improvement in survival over the last 20 years and improvement is most marked in the lower gestational ages.

The earlier version of this guideline used what was considered to be the most relevant, most complete and most up to date UK data to inform discussions about survival and impairment - the EPICURE studies data [9,10,11,12]

This data was from cohorts in the UK in 1995 and subsequently 2006.

The latest data used in ***this version*** of the guideline is from 2016 in the UK (MBRRACE data) [6]

This data is consistent with other recent international studies [7,8,9]

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

MBRRACE-UK 2016 data: survival up to one year of age of babies born before 27 weeks gestational age

Gestational Week	22 weeks	23 weeks	24 weeks	25 weeks	26 weeks
All births	486	510	656	664	832
Births alive at onset of labour	290	362	497	508	674
Live births	183	301	456	486	662
% live births of those alive at onset of labour	**63%**	**83%**	**92%**	**96%**	**98%**
Range	57 to 69	79 to 87	90 to 94	94 to 98	97 to 99
Delivery room deaths	155	78	26	19	16
% deaths before admission	85%	26%	6%	4%	2%
Range	80 to 90	21 to 31	4 to 8	2 to 6	1 to 3
Live births receiving active care	**43**	**264**	**449**	**486**	**662**
% receiving active care (of all live births)	**23%**	**88%**	**98%**	**100%**	**100%**
Admitted for neonatal care	28	223	430	467	646
% admitted for neonatal care (of births receiving active care)	**65%**	**85%**	**96%**	**96%**	**98%**
Range	51 to 79	81 to 89	94 to 98	94 to 98	97 to 99
Deaths < 1 year	13	122	160	108	106
Survivors to 1 year	15	101	270	359	540
Survival					
Of those alive in labour	**5%**	**28%**	**54%**	**71%**	**80%**
Range	2 to 8	23 to 33	50 to 58	67 to 75	77 to 83
Of live births receiving active care	**35%**	**38%**	**60%**	**74%**	**82%**
Range	21 to 49	32 to 44	55 to 65	70 to 78	79 to 85
Of those admitted to intensive care	**54%**	**45%**	**63%**	**77%**	**84%**
Range	36 to 72	38 to 52	58 to 68	73 to 81	81 to 87

Survival with Impairment

Estimated prevalence rates of severe impairment in four major studies may be

summarised as:

22^{+0} - 22^{+6} weeks	**1-in-3** survivors has severe impairment
23^{+0} - 23^{+6} weeks	**1-in-4** survivors has severe impairment
24^{+0} - 25^{+6} weeks	**1-in-7** survivors has severe impairment
26^{+0}- 26^{+6} weeks	**1-in-10** survivors has severe impairment

Impairment: an injury, illness, or congenital condition that causes or is likely to cause a loss or difference of physiological or psychological function.

Disability is the result of negative interactions that take place between a person with impairment and their social environment.

Impairments arising from consequences of premature birth will inevitably be viewed differently by different families – how disabling a particular impairment is can be viewed very differently based on experience, attitude and knowledge – an unacceptable predicted outcome for one family may not be so for another family.

This guideline uses the BAPM working group category of severe impairment to inform parents when discussing the risks following preterm birth.

The severe impairment outcome category includes:

- Severe cognitive impairment: an IQ lower than 55 (<-3 standard deviation); this will usually result in the need for educational support and require supervision in daily activities
- Severe cerebral palsy – classified as Gross Motor Function Classification System (GMFCS) level 3, 4 or 5
- Blindness or profound hearing impairment

Severe Cerebral Palsy:

Gross Motor Function Classification System (GMFCS) Level 3, 4, 5:

Level III: Children walk using a hand-held mobility device in most indoor settings. When seated, children may require a seat belt for pelvic alignment and balance. Sit-to-stand and floor-to-stand transfers require physical assistance of a person or support surface. When travelling long distances, children use some form of wheeled mobility. Children may walk up and down stairs holding onto a railing with supervision or physical assistance. Limitations in walking may necessitate adaptations to enable participation in physical activities and sports including self-propelling a manual wheelchair or powered mobility.

Level IV: Children use methods of mobility that require physical assistance or powered mobility in most settings. Children require adaptive seating for trunk and pelvic control and physical assistance for most transfers. At home, children use floor mobility (roll, creep, or crawl), walk short distances with physical assistance, or use powered mobility. When positioned, children may use a body support walker at home or school. At school, outdoors and in the community, children are transported in a manual wheelchair or use powered mobility. Limitations in mobility necessitate adaptations to enable participation in physical activities and sports, including physical assistance and/or powered mobility.

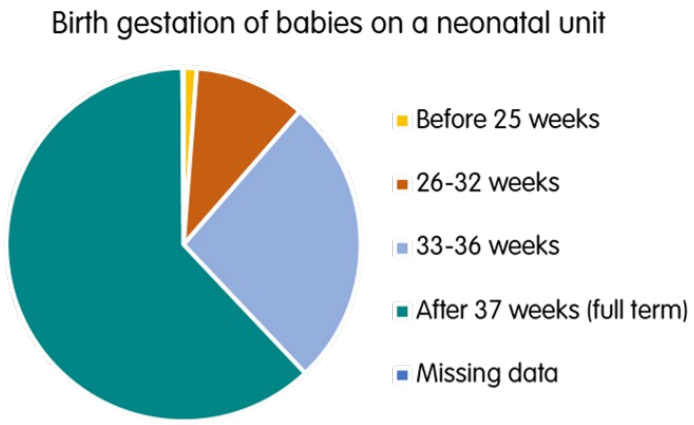
Level V: Children are transported in a manual wheelchair in all settings. Children are limited in their ability to maintain antigravity head and trunk postures and to control arm and leg movements. Assistive technology is used to improve head alignment, seating, standing, and/or mobility but limitations are not fully compensated by equipment. Transfers require complete physical assistance of an adult. At home, children may move short distances on the floor or may be carried by an adult. Children may achieve self- mobility using powered mobility with extensive adaptations for seating and control access. Limitations in mobility necessitate adaptations to enable participation in physical activities and sports including physical assistance and using powered mobility.

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

Appendix B – Statistics about Neonatal Care

60,000 babies are born prematurely in the UK every year which is equivalent to 1 in every 13 babies. In 2016, of the 100,762 babies who received neonatal care in the UK, only 1.2 per cent were born before 25 weeks.

Gestation of baby at birth	Number of babies	Percentage of the total number of babies admitted on to a neonatal unit
Total	**100,762**	**100%**
≤25 weeks	1,189	1.2%
26-32 weeks	10,283	10.2%
33-36 weeks	26,758	26.6%
≥37 weeks	62,427	62%



How long will a baby typically spend on a neonatal unit?

- The average length of a stay in neonatal care in England and Wales is seven days – however this includes figures for both premature and full term babies.
- The average length of stay for a baby born between 28 to 31 weeks is 44 days

Gestation of baby at birth	Average length of stay (days)	Average age at discharge (gestational age in weeks)
≤27 weeks	92	39.4
28-31 weeks	44	36.4
32-36 weeks	12	36.6
≥37 weeks	4	40.3
Average	7	38.6

References/ source documents

1. Perinatal Management of Extreme Preterm Birth Before 27 weeks of Gestation (2019) A BAPM Framework for Practice - October 2019 (https://www.bapm.org/resources/80-perinatal-management-of-extreme-preterm-birth-before-27-weeks-of-gestation-2019)

2. Provisional births in England and Wales: 2020 (https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/articles/provisionalbirthsinenglandandwales/2020)

3. Prematurity statistics in the UK (https://www.bliss.org.uk/research-campaigns/neonatal-care-statistics/prematurity-statistics-in-the-uk)

4. Antenatal Corticosteroids Promote Survival of Extremely Preterm Infants Born at 22 to 23 Weeks of Gestation. Mori R, Kusuda S, Fujimura M; Neonatal Research Network Japan. J Pediatr. 2011 Jul;159(1):110-114.e1. doi: 10.1016/j.jpeds.2010.12.039. Epub 2011 Feb 22. PMID: 21334006.

5. Smith LK, Draper ES, Manktelow BN, Fenton A, Kurinczuk J on behalf of the MBRRACE-UK Collaboration. MBRRACE-UK Report on survival up to one year of age of babies born before 27 weeks gestational age for births in Great Britain from January to December 2016. Leicester: The Infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester. 2018.

6. Norman M, Hallberg B, Abrahamsson T, Björklund LJ, *et al*. Association between year of birth and 1-year survival among extremely preterm infants in Sweden during 2004-2007 and 2014-2016. JAMA 2019;321:1188–12.

7. Patel RM, Rysavy MA, Bell EF, Tyson JE. Survival of Infants Born at Periviable Gestational Ages Clin Perinatol 2017;44:287–303.

8. Mehler K, Oberthuer A, KellerT, Becker I *et al.* Survival among infants born at 22 or 23 weeks' gestation following active prenatal and postnatal care. JAMA Pediatrics 2016;170:671–77.

9. The EPICure Study: Outcomes to Discharge from Hospital for Infants Born at the Threshold of Viability. Kate Costeloe, Enid Hennessy, Alan T Gibson, Neil Marlow, and Andrew Wilkinson, for the EPICure Study Group. Pediatrics, Vol 106, No 4, October 2000, p. 659-671

10. Neurologic and Developmental Disability After Extremely Preterm Birth. EPICure study group. Nicholas S Wood, Neil Marlow, Kate Costeloe, Alan T Gibson, and Andrew R Wilkinson, for the EPICure Study Group. The New England Journal of Medicine 2000Vol 343(6) p.378-384

11. Neurologic and developmental disability at 6 years of age following extremely preterm birth. Marlow N, Wolke D, Bracewell M, Samara M. New England Journal of Medicine 2005 352(1): 9-19

12. Patterns of Outcome at Borderline Viability: Epicure 2 survival and early morbidity Kate Costeloe: *Arch Dis Child Fetal Neonatal Ed 2008;93:Fi-Fviii (abstract from RCPCH meeting, York, 2008)*

13. Royal College of Obstetricians and Gynaecologists. Scientific Advisory Committee Opinion Paper; Magnesium sulphate to prevent cerebral palsy following preterm birth. RCOG press 2011.

14. The Management of Babies Born Extremely Preterm at less than 26 weeks of gestation. A Framework for Clinical Practice at the Time of Birth. Report of a Working Group, British Association of Perinatal Medicine. Wilkinson AR, Ahluwalia J, Cole A, Crawford D, Fyle J, Gordon A et al. Arch Dis Child Fetal Neonatal Ed 2009; Vol 94 (1): 2-5.

15. Critical Care Decisions in Fetal and Neonatal Medicine: ethical issues. Nuffield Council on Bioethics 2006.

16. Specialist neonatal care: quality standard NICE 4 November 2010

17. Toolkit for high quality neonatal services. Department of Health (DH) (2009)

18. WHO recommendations on interventions to improve preterm birth outcomes. ISBN 978 92 4 150898 8 , WHO 2015, FRANCE

19. Anna L David, Aung Soe, *Extreme prematurity and perinatal management*, The Obstetrician & Gynaecologist, 2018;20:109–17

20. American College of Obstetricians and Gynaecologists and the Society for Maternal-Fetal Medicine, *Obstetric Care Consensus Number 6, Periviable Birth*, October 2017

Prenatal Consultation: NICU

Maternal Details

Date *(dd/mm/yyyy)*	Time (*24 hour clock)*
Reason for consultation:	
Consultation with: (name and designation)	

Maternal Age:____ G____ P___ Blood group:_____ Antibodies:

PMH and problems in this pregnancy:

Overview

e ❑ Listened to parents' understanding of situation

f ❑ Discussed survival odds / morbidity & mortality

g ❑ Discussed uncertainty of dates / Prognosis

h ❑ Explained NICU team presence / Role at delivery

Other

❑ Benefits of breast milk / Nutrition

a ❑ Location of NICU / Visiting policy

b ❑ Approximate length of stay

c ❑ Parental questions and concerns addressed

Trust Guideline for the Management of Babies Born Extremely Preterm (at less than 26 weeks gestation)

Summary / Plan

***Agreed gestational age*:**

- ❑ **Parents told that plan may need to be modified after baby has been born and examined**

Signature