Ymateb i adroddiad Pwyllgor Cyfrifon Cyhoeddus y Cynulliad Cenedlaethol ar Wasanaethau Mamolaeth: Adroddiad Pwyllgor (3) [D5 120210]

Rydym yn croesawu'r canfyddiadau ac yn cynnig yr ymatebion canlynol i'r saith argymhelliad yn yr adroddiad.

1 Argymhelliad

Rydym yn argymell y dylai Llywodraeth Cymru roi manylion pellach i ni ynghylch sut y mae'n bwriadu rhoi argymhellion adroddiad yr Archwilydd Cyffredinol ar waith, neu sut y mae eisoes wedi'u rhoi ar waith, a hynny ar unwaith.

Wedi'i dderbyn

Yn Doc. 1 sydd ynghlwm ceir y diweddaraf am bob un o argymhellion Swyddfa Archwilio Cymru.

Mae Prosiect Clinigol Cenedlaethol dan arweiniad y Cyfarwyddwr Strategaeth a Chynllunio wedi'i roi ar waith. Mae'r prosiect hwn yn cyfuno camau gweithredu pwrpasol dros gyfnod byr a chynllunio strategol dros gyfnod hir. Mae canlyniadau'r prosiect yn cynnwys datblygu Strategaeth Mamolaeth i Gymru erbyn Rhagfyr 2010, gweithredu'r achos busnes newyddenedigol, sicrwydd ynghylch paratoi a chyflawni cynlluniau gweithredu mamolaeth lleol a datblygu strategaeth ddrafft ar gyfer gwasanaethau pediatrig mewn ysbytai erbyn mis Mawrth 2011.

2 Argymhelliad

Yn unol ag argymhelliad cyntaf yr Archwilydd Cyffredinol, rydym yn argymell bod Llywodraeth Cymru yn cyhoeddi strategaeth glir ar gyfer darparu gwasanaethau mamolaeth yng Nghymru erbyn diwedd 2010. Dylai'r strategaeth hon gynnwys y manylion a ganlyn:

- Sut y bydd Llywodraeth Cymru'n cwblhau'r gwelliannau a amlinellwyd i ni gan y Swyddog Cyfrifyddu
- Y targedau y mae Llywodraeth Cymru wedi'u pennu a sut y mae'r rhain yn alinio ag ansawdd a chanlyniadau
- Sut y bydd Llywodraeth Cymru'n monitro perfformiad

Wedi'i dderbyn

Rydym yn cydnabod bod angen datblygu strategaeth sy'n adeiladu ar y Fframwaith Gwasanaeth Cenedlaethol, a hefyd ar safonau a chanllawiau dros y DU gyfan, megis y rhai a osodwyd gan Goleg Brenhinol yr Obstetryddion a'r Gynaecolegwyr a NICE.

Mae gwaith craffu cychwynnol wedi dechrau o fewn cwmpas y Prosiect Clinigol Cenedlaethol a amlinellir yn yr ymateb i Argymhelliad 1 uchod. Caiff ei ddatblygu erbyn Rhagfyr 2010 fel sy'n ofynnol gan y Pwyllgor.

3 Argymhelliad

Rydym yn argymell bod Llywodraeth Cymru, fel gofyniad sylfaenol, yn sicrhau bod yr offer a nodir yn y rhestr safonol y cyfeiriodd y Prif Swyddog Nyrsio ati ar gael ym mhob ward sydd angen yr offer o fewn y 12 mis nesaf.

Wedi'i dderbyn

Cytunwyd ar restr safonol Cymru gyfan o gyfarpar angenrheidiol mewn amgylcheddau geni, gyda'r holl Benaethiaid Bydwreigiaeth. Mae'r holl Fyrddau Iechyd yn gweithio tuag at gydymffurfiaeth lawn gan gynnwys rhoi cynllun gweithredu i'r Prif Swyddog Nyrsio i'w weithredu'n llawn o fewn y deuddeg mis nesaf lle nad yw hynny eisoes wedi'i wneud.

Caiff adroddiad, o dan Hanfodion Gofal, ei gyflwyno gan y Byrddau Iechyd i'r Prif Swyddog Nyrsio ar ddiwedd pob blwyddyn ariannol. Dyma'r cyfrwng ar gyfer adrodd am gydymffurfiaeth.

4 Argymhelliad

Rydym yn argymell bod Llywodraeth Cymru yn rhoi copi o'r fframwaith newyddenedigol i ni cyn gynted â phosibl.

Wedi'i dderbyn

Yn Doc 2a, cewch hyd i'r Safonau Newyddenedigol a gyhoeddwyd ym mis Rhagfyr 2008 ac yn Doc2b yr achos busnes newyddenedigol ar gyfer 'Rhwydwaith Newyddenedigol a Gwasanaethau Trosglwyddo i Gymru' y cytunwyd arno ym mis Rhagfyr 2009 gan y Gweinidog dros Iechyd a Gwasanaethau Cymdeithasol sydd, gyda'i gilydd, yn ffurfio'r rhwydwaith newyddenedigol.

5 Argymhelliad

Rydym yn argymell bod y Swyddog Cyfrifyddu yn rhoi cyflwyniad ysgrifenedig mwy sylweddol i ni sy'n egluro'r rhesymau y tu ôl i'r data ar faint o bobl sy'n mynychu dosbarthiadau cynenedigol cyn gynted â phosibl.

Wedi'i dderbyn

Mae'r nifer sy'n mynychu dosbarthiadau cynenedigol yn amrywio ledled Cymru am sawl rheswm. Y prif resymau am y gwahaniaethau yw bod darpar rieni am ddefnyddio dulliau gwahanol i gael yr wybodaeth berthnasol. Er enghraifft, y dull mwy traddodiadol oedd bod bydwragedd yn cynnal cyfres o 6-8 dosbarth wythnosol. Tybir fod hyn bellach yn amhriodol oherwydd mae'r cyhoedd yn aml yn chwilio am wybodaeth ar y we, ar y teledu ac mewn cylchgronau menywod a ffynonellau eraill.

Er mwyn sicrhau fod yr wybodaeth yn cael ei darparu mewn ffordd hygyrch, mae'r Penaethiaid Bydwreigiaeth yn asesu ar hyn o bryd sut orau i ddiwallu anghenion menywod wrth eu paratoi ar gyfer rhoi genedigaeth a dod yn rhieni.

Bydd hyn yn cynnwys defnyddio gwefannau'r Bwrdd Iechyd Lleol yn well, teithiau lleol ar y wardiau esgor, sesiynau ar ddydd Sadwrn ar baratoi ar gyfer y geni, neu gydweithredu gyda'r Ymddiriedolaeth Genedlaethol Geni Plant i ddarparu dosbarthiadau.

Ymhlith yr enghreifftiau o ymgysylltu mewn ardaloedd difreintiedig, fel yn ardaloedd penodol Bwrdd Iechyd Aneurin Bevan, mae cynlluniau a ariennir gan Cychwyn Cadarn, Dechrau'n Deg a Chymorth.

6 Argymhelliad

Rydym yn argymell bod Llywodraeth Cymru yn gwerthuso ei dull newydd o ymdrin â gofal ôl-enedigol i weld a yw'n gwella profiadau defnyddwyr y gwasanaeth, ac a yw cynnydd yn nifer y staff wedi arwain at gynnydd mewn cyfraddau bwydo ar y fron.

Wedi'i dderbyn

Gofynnodd y Prif Swyddog Nyrsio i Grŵp Cynghori'r Penaethiaid Bydwreigiaeth adolygu'r modd y caiff gofal ôl-enedigol ei ddarparu ym mhob ardal Bwrdd Iechyd. Mae hyn ar fin cael ei gwblhau, a bydd modelau gofal newydd yn cael eu rhoi ar waith yn yr haf. Caiff effaith y modelau newydd hyn ar ddefnyddwyr gwasanaethau ei werthuso'n barhaus a bydd ciplun yn cael ei greu yn yr hydref.

Lansiwyd Strategaeth Bwydo ar y Fron Cymru 'Buddsoddi mewn Gwell Cychwyn' yn 2001. Mae Rhaglen Genedlaethol Bwydo ar y Fron Llywodraeth Cynulliad Cymru yn gyfle i hybu bwydo ar y fron yn genedlaethol ac yn lleol. Mae'n cefnogi'r GIG drwy Fenter Cyfeillgar i Fabanod UNICEF y DU sy'n rhoi hyfforddiant proffesiynol mewn gwasanaethau mamolaeth a gwasanaethau cymunedol eraill yng Nghymru. Mae hyfforddiant ar fwydo ar y fron ar gael i Gynorthwywyr Gofal Mamolaeth, a lle datblygwyd eu rôl hwy, dangoswyd ei bod yn gwella ansawdd y gofal ac yn cynyddu nifer y mamau newydd sy'n bwydo eu babanod ar y fron.

Mae enghraifft o'r gwelliant i'w weld yng ngwasanaethau bydwreigiaeth Bwrdd Iechyd Lleol Prifysgol Caerdydd a'r Fro. Mae cynllun wedi'i ddatblygu i neilltuo 5 Cynorthwyydd Gofal Mamolaeth gyda sgiliau cymorth bwydo ar y fron i dimau bydwreigiaeth cymunedol. Mae'r gwaith hwn yn cynnwys cymorth un i un ar fwydo babanod gartref, grwpiau galw heibio a gweithdai rhianta. Bydd y gwaith hwn yn dechrau ar Ddiwrnod 4 ar ôl rhoi genedigaeth ac yn parhau am 28 diwrnod wedyn. Dros gyfnod o 6 mis (Ebrill-Hydref 2009), mae'r Cynorthwywyr Gofal Mamolaeth hyn wedi helpu dros 600 o famau i fwydo ar y fron, gan arwain at gynnydd o 7.3% yn rhagor o famau sy'n bwydo ar y fron yn unig wrth adael yr ysbyty.

I'r gwrthwyneb, mae ystadegau'r DU yn dangos fod y gostyngiad mwyaf yn y cyfraddau bwydo ar y fron yn digwydd yn y 4 diwrnod cyntaf ar ôl y geni (12%) a phythefnos ar ôl y geni (22%). Mae gwelliannau Cymru'n mynd ar goll yn ystadegau cyffredinol y DU, lle nad yw gwledydd eraill y DU yn adrodd am gynnydd o'r fath.

7 Argymhelliad

Rydym yn argymell bod Llywodraeth Cymru'n sicrhau bod lefelau hyfforddi bydwragedd, clinigwyr a staff meddygol eraill yn cael eu cynnal a bod systemau yn cael eu sefydlu i osgoi diffyg staff yn y dyfodol.

Wedi'i dderbyn

Soniodd y Prif Swyddog Nyrsio, yn ei thystiolaeth lafar i'r Pwyllgor, fod pob Bwrdd Iechyd Lleol newydd naill ai wedi recriwtio'n gyfan gwbl i fodloni'r diffyg yn archwiliad Birthrate Plus neu ar fin gwneud hynny o blith y graddedigion bydwreigiaeth nesaf. Yr unig eithriad yw Bwrdd Iechyd Lleol Hywel Dda. Mae'r Cyfarwyddwr Cyffredinol wedi ysgrifennu at y Prif Weithredwr yn gofyn iddo gadarnhau erbyn pa ddyddiad y bydd angen cyrraedd y lefelau staffio sy'n ofynnol, ynghyd â'r modd y bydd y Bwrdd Iechyd Lleol yn diwallu'r diffyg presennol.

O ran staff meddygol, ym mis Ionawr 2010 roedd y swyddi gwag canlynol ledled Cymru o fewn Obstetreg a Gynaecoleg: 5 meddyg ymgynghorol, 8 meddyg ar y raddfa ganolig ac 8 meddyg iau.

Dywedir fod y ceisiadau am y swyddi hyfforddi o fis Awst 2010 ymlaen yn dda, ac y bydd cynigion yn cael eu gwneud ar gyfer y swyddi hyn ym mis Mawrth 2010. Erbyn mis Ebrill 2010 bydd nifer y rhai sydd wedi derbyn y cynigion yn hysbys.

Her Iechyd Cymru Health Challenge Wales

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

All Wales Neonatal Standards

for Children and Young People's Specialised Healthcare Services

CMK-22-12-126
D432 08 09
ISBN: 978 0 7504 4712 6

Foreword

It gives me great pleasure to introduce this series of documents which set out to address the specific needs of children and young people accessing specialised healthcare services in Wales and will form the foundation for the establishment of managed clinical networks to deliver these services.

The development of this document is thanks to an enormous amount of work by clinicians, service commissioners, service providers, healthcare professionals, voluntary organisations, parents and our children and young people and I would like to express my thanks to all those involved.

These documents will build on the important improvements already underway following the publication of the Children's National Service Framework in 2005 in delivering the best services for the children and young people of Wales. The Welsh Assembly Government continues to believe that the best investment we can make in the future is ensuring that high quality and equitable services are provided for our children and young people.

Edwina Hart AM, MBE
Minister for Health and Social Services

Children and Young People's Specialised Services

Introduction

In 2002, the Specialised Health Service Commission for Wales undertook a review of specialised healthcare services for the children and young people of Wales, which identified that these services were being delivered in an ad hoc and fragmented way.[1, 2] Following this review, the Minister for Health and Social Services announced that Managed Clinical Networks (MCNs) would be developed to deliver specialised healthcare services for children and young people.[3]

The Children and Young People's Specialised Services Project (CYPSSP) was established by the Welsh Assembly Government (WAG) to take this work forward. The project's remit was to:

> *develop high quality, equitable and sustainable specialised children's health services across Wales based upon the best available evidence and with children and their carers at the centre of all planning and provision.*

This would be achieved by the following aims:

- To develop service specific standards for specialised healthcare services for the children and young people of Wales
- To enable equity of access through effective managed clinical network models for all children and young people in Wales requiring specialised services.

The agreed specialised services for the project are:

- Paediatric Critical Care (standards already published)
- Neonatal Services
- Paediatric Neurosciences
  - Neurosurgery
  - Neurology
  - Neurodisability
- Paediatric Oncology
- Paediatric Palliative Care
- Paediatric Specialist Anaesthetics and Surgery
  - Anaesthetics
  - General surgery
  - Trauma and Orthopaedics
  - Ear, Nose and Throat

- Ophthalmology
- Plastic Surgery
- Burns
- Maxillofacial
- Cleft Lip and Palate

- Nephrology
- Cardiology and Congenital Cardiac Services (and access to Cardiac Surgery)
- Endocrinology
- Gastroenterology, Hepatology and Nutrition
- Inherited Metabolic Disease
- Respiratory

The Standards Documents

This document is one of a series of standards for specialised services for children and young people, which were issued for consultation between 2005 and 2008. The standards and key actions in this document are written from an all Wales perspective and therefore apply to all children and young people with this particular health need, wherever they live in Wales.[4, 5, 6]

There is also a Universal Standards document which contains key actions (KAs) that apply to all specialised services for children and young people. This document was initially consulted on in 2005; however it has continued to evolve, as further "universal" key actions have been identified during the development of the service specific standards. The Universal Standards should be read and used in conjunction with each of the service specific standards documents and can be accessed electronically on the CYPSSP website (www.wales.nhs.uk/cypss).

The CYPSSP standards should also be read and used in conjunction with the National Service Framework for Children, Young People and Maternity Services in Wales (Children's NSF)[7] in particular Chapter 2, "Key actions universal to all children" which is relevant to all services and all children and young people.

The standards and key actions within the CYPSSP documents apply to all children and young people accessing the specific specialised service who are between the ages of 0-18 years of age. However, key actions that relate to transition apply to all young people who may require ongoing services beyond this age range. The age for transition to adult services must be flexible to ensure that all young people are treated by the most appropriate professional and in the most appropriate setting. This will depend on the young person's mental, emotional and physical development.

Purpose of standards

The standards and their key actions have been developed to provide a basis for service commissioners and providers to plan and deliver effective services.[8,9] They are to be used to benchmark current services and inform the development of future services to meet the specialised health needs of children and young people across Wales.[10]

Developing the standards

An External Working Group (EWG) representative of key stakeholders has developed the standards for each service. Membership details can be found in Appendix 1 of the service specific standards documents.

The contribution made by EWG members is greatly appreciated. We are particularly grateful to the children, young people and parents who have been involved in the development of this work.[11,12]

The standards have been Quality Assured by a Project Steering Group comprised of strategic stakeholders, details of which are included as Appendix 2.

The standards have also been mapped against the Welsh Assembly Government's Healthcare Standards.[13] The Healthcare Standards for Wales set out the Welsh Assembly Government's common framework of healthcare standards to support the NHS and partner organisations in providing effective, timely and quality services across all healthcare settings. There are thirty-two Healthcare Standards covering four domains; The Patient Experience, Clinical Outcomes, Healthcare Governance and Public Health. These are designed to deliver the improved levels of care and treatment the people of Wales have a right to reasonably expect. The standards will be taken into account by those providing healthcare, regardless of the setting. Examples of how the healthcare standards relate to the CYPSSP standards are referenced at the end of each section.

The Healthcare Standards are used by Healthcare Inspectorate Wales as part of its process for assessing the quality, safety and effectiveness of healthcare providers and commissioners across Wales.

Since the CYPSSP commenced in 2003, three project managers have successfully managed and facilitated the development of the standards documents. We would like to extend our grateful thanks to all of the Project Managers, namely Eiri Jones, Sian Thomas and Mary Francis for their contribution to this work.

Delivering the standards

Some of the key actions can be delivered within a year; however due to workforce and financial constraints others will take a number of years to achieve. Thus each key action has a timescale for delivery between one and ten years.

Every attempt has been made to ensure that the key actions are clear and measurable. However when terms that cannot be measured such as 'timely' and 'appropriate' have been used it will be for the specific MCN to agree on the acceptable definition of the term. This will allow each standard and key action to reflect the particular needs of each individual specialist service.

Whenever 'children' are referred to in this document it should be accepted that this also includes young people. Reference to "parents" includes mothers, fathers, carers and other adults with responsibility for caring for the children.

The standards within this document are based on the current configuration of the NHS. A recent consultation document 'Proposal to Change the Structure of the NHS in Wales'[14] issued by the Welsh Assembly Government in April 2008, outlines a possible new structure for the NHS in Wales, which could impact on the key actions, specifically the responsible organisations for their delivery. Therefore, it should be understood that if the current responsibilities are transferred to another organisation, then they will then become responsible for delivery of the key actions. These Standards will continue to be enforceable subject to any changes to the structure of the NHS in Wales.

Monitoring the standards

Standards will be monitored and audited annually as part of the MCN arrangements and will include audit of training, practice and compliance with pathways, protocols and agreed outcomes.

Managed Clinical Networks (MCNs)

Children and young people accessing specialised services in Wales inevitably experience different patterns of care depending on the geography and population characteristics that impact on service provision in their locality. However it is crucial that although the pattern of care provided may differ, the standard of care provided does not. Developing MCNs is a way of ensuring that all Welsh children and young people receive equitable and high quality specialised services wherever they live in Wales.

MCNs can be defined as:

> *"Linked groups of health professionals from primary, secondary and/or specialist care, working in a co-ordinated manner, unconstrained by existing organisational boundaries, to ensure equitable provision of high quality and clinically effective services."*[15]

Through the formal establishment of MCNs, children and young people in Wales requiring specialised healthcare will access services in accordance with the following principle:

> *Age appropriate, safe and effective (high quality) care delivered as locally as possible, rather than local care delivered as safely and effectively as possible.*[16]

An MCN is comprised of a number of disciplines working together in a co-ordinated, non-hierarchical manner, unconstrained by professional and organisational boundaries. As a result of this collaborative mechanism, MCNs aim to facilitate and promote equitable, quality services through the provision of seamless care.

Many disciplines already work in an informal professional network. However this is not the case across all professions and health sectors. MCNs provide a co-ordinated and managed structure, integral to which are agreed protocols and pathways of care, clinical audit, training and continuing professional development.

It should be acknowledged that a child or young person might need to access more than one of the CYPSSP speciality services. The MCN framework and structures for each speciality should ensure flexibility to work together to meet the needs of the child and the delivery of appropriate seamless care.

Dental Care

Dental care is a service that has not been addressed separately. It is important to recognise that oral healthcare is a significant consideration for all children and young people and, because of their medical conditions, many of the children and young people requiring specialised healthcare services may:

- be at higher risk of oral disease and oral complications
- be at higher risk when treated for oral disease e.g. children with respiratory disorders requiring general anaesthetics and children who have had cardiac surgery
- have particular problems that make the management of their dental treatment difficult, e.g. there may be associated learning disabilities.

Prevention of oral and dental disease is therefore highly desirable for this group of children and thus preventative oral healthcare advice should be part of every child's overall care plan so that families and carers are well informed as to the specific risks for each child. Specific oral assessment and care should also be available where appropriate.

To facilitate this it is essential that the dental team is considered an integral part of the multidisciplinary approach advocated throughout this project and there should be a named dentist with specialised skills and knowledge in the oral healthcare of children e.g. a Specialist in Paediatric Dentistry linked to each large District General Hospital (DGH) to provide support and advice to the broader teams and ensure referral of children for appropriate healthcare.

Neonatal Services in Wales - the need for critical change

During the 1990's there was a significant improvement in the survival of newborn babies, particularly those born prematurely. This change came about in the main due to the advent of antenatal steroids and post-natal surfactant and the impact their administration has had on the survival and outlook of very premature babies (<32 weeks gestation).[17,18]

This change led to both a greater usage of existing cots and an increased demand for new cots. As this newly developing service evolved, cot occupancy increased in both usage and length of stay.

Crisis in the current service

Since the Stroud Report[19] and the additional resources that were invested as a result of its recommendations, there has been little change. As a result, the current configuration of units in Wales is unsustainable. They are grossly under-resourced and therefore inefficient.

Significant shortage of trained neonatal intensive care nurses and concerns about future recruitment means new ways of delivering this service need to be explored. Intensive care cots need to be more centralised in lead centres to maximise usage and efficiency. Properly resourced MCNs will allow a lead centre to utilise intensive care cots (Level I care in a Level III Unit) in a recognised, planned way whilst also allowing babies requiring high-dependency (Level II care in a Level II unit) and special care (Level III care in a Level I unit) to return locally sooner. This will minimise the current problem whereby babies remain in intensive and high dependency care cots inappropriately, often at a distance from home. This compounds the cot shortage problem and increases further the need for long distance transfers that separate the baby from mother and family. An overall increase in cots is needed with careful planning as to where they are located and at what level of intensity.

The crisis outlined is further compounded by the currently unsatisfactory transfer arrangements for either the mother in labour or the sick neonate. Transfer of mothers in labour and sick neonates have also historically been delivered by an under-resourced and over stretched maternity or neonatal service from within the clinical services on duty at the time the transfer has been required. Transfers fall into two categories, emergency and planned and need to be managed differently. Whether emergency or planned, this essential component of maternal, fetal and neonatal care also needs to be properly resourced. This is to minimise the risk presented to both to the mothers and babies requiring transfer and to the mothers and babies who are inpatients whilst the service is depleted for the duration of the transfer.

To improve the safety of these situations, the section on transportation reflects the need to invest significantly in this element of the service. Transport teams will therefore need to be commissioned as an additional resource to the inpatient services. The model of transport service will very likely vary depending on the geographical area and will need to be agreed by the neonatal MCN.

The changes outlined also need to be considered within the context of the changes being made to configuration of maternity and obstetric services. Neither service can be reconfigured without integrating the other. A key to the success of any outlined change will be that stakeholders are fully committed.

This standards document should be read in conjunction with the British Association of Perinatal Medicine document, Standards for Hospitals providing Neonatal and High Dependency Care[20] and are based on the evidence base used within.

Standard 1: Access to Neonatal Care

Rationale: All newborn babies who require healthcare over and above the normal birth pathway have equitable access to the appropriate level of care in a timely manner.

Key Actions:

Key Action	Responsible organisation	Timescale
1.1 Neonatal care is commissioned to meet the local and national population need.	HCW LHBs	Less than 1 year
1.2 Neonatal care is available at all levels as close to home as possible as part of a MCN. Each MCN has defined Level III unit(s).[20]	HCW LHBs Lead Centres Trusts MCN	1-3 years
1.3 There is a clear referral pathway to and from all levels of care. These pathways include: • feto-maternal assessment • transfer of the mother antenatally (including from home to specialist centre for high-risk management) • neonatal transfer • access for step up from level I to II and subsequent step down • access for step up from Level II to III and subsequent step down • access to other specialist services i.e. surgery, cardiology, neurology and ECMO.	Lead Centres Trusts LHBs	Less than 1 year
1.4 Effective communication mechanisms are in place for access to and discharge from level I, II and III services.	Lead Centres Trusts	Less than 1 year

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 2, 6, 12 and 24.

Standard 2: Staffing of Neonatal Services

Rationale: Neonatal services are staffed with appropriately trained, multi-disciplinary professional teams, according to the level of service they provide.

Key Actions:

Key Action	Responsible organisation	Timescale
2.1 All units involved in the care of babies have established arrangements for the prompt, safe and effective resuscitation and stabilisation of babies.[21]	Lead Centres Trusts LHBs	Less than 1 year
2.2 Staff trained in neonatal resuscitation are available at every birth. When delivery of a baby at <30 weeks gestational age is anticipated, a consultant or career grade/training grade doctor with neonatal training and experience should also be present.	Lead Centres Trusts LHBs Ambulance Trust	1-3 years
2.3 All staff involved in the delivery of high- risk pregnancies are trained to recognise and manage neonatal and obstetric emergencies.[22]	Lead Centres Trusts	Less than 1 year
2.4 When a delivery is planned at <28 completed weeks, arrangements are in place for the baby to be delivered at a level III centre.[22]	Lead Centres Trusts LHBs	Less than 1 year
2.5 All neonatal units have a designated neonatal nurse with protected time dedicated to providing teaching and education of the neonatal team.	HCW LHBs Lead Centres Trusts	1-3 years
2.6 All neonatal networks should have in place a MCN with a clinical Chair who has time dedicated to the role.	HCW LHBs Lead Centres Trusts	Less than 1 year

Key Action	Responsible organisation	Timescale
Level 1 Care in Level III Unit Neonatal Intensive Care		
2.7 A nursing ratio of 1:1 is provided for babies requiring Neonatal Intensive Care. The named nurse has post-registration qualification in Neonatal Intensive Care.[20]	HCW LHBs Lead Centres Trusts	4-10 years
2.8 The unit can provide evidence that the establishment is correct for the number of Neonatal Intensive Care cots commissioned.[20]	HCW LHBs	4-10 years
2.9 Level III unit consultants have their principal duties to the Neonatal Intensive Care Unit. There is a neonatal consultant on-call rota.	HCW Lead Centres	1-3 years
2.10 All consultants appointed to Trusts with Level III units have CCST in Paediatrics, Neonatal Medicine or equivalent training.[23]	HCW Lead Centres	1-3 years
2.11 A Level III unit has a separate middle grade staff rota.	HCW Lead Centres	1-3 years
2.12 A Level III unit has SHO/SHO equivalent dedicated to the neonatal service.	HCW Lead Centres	1-3 years
2.13 Clerical and support staff are in place in all units to provide discharge support, e.g. specialist nurse, liaison health visitor. This is in addition to the clinical establishment.	HCW Lead Centres	1-3 years
2.14 Follow up support near the baby's home is provided by the local community children's nursing team in liaison with a specialist neonatal nurse.[7]	HCW LHBs Lead Centres Trusts	1-3 years

Key Action	Responsible organisation	Timescale
2.15 Every level III unit should have a designated senior nurse manager who is supernumerary to the staff establishment. An element of this role will be to manage the Level III unit and its relationship with Level I and II units in its network.	HCW Lead Centres	1-3 years
Level II Care in Level II Unit **Neonatal High Dependency Care**		
2.16 A nursing ratio of 1:2 is provided for babies requiring High Dependency care. The named nurse has training in neonatal care.[20]	HCW LHBs Lead Centres Trusts	1-3 years
2.17 The unit can provide evidence that the establishment is correct for the number of High Dependency cots commissioned.	HCW LHBs Lead Centres Trusts	1-3 years
2.18 A Level II unit has one consultant who is responsible for the direction and management of the unit including the monitoring of clinical policies, practice and standards.	HCW LHBs Lead Centres Trusts	1-3 years
2.19 A Level II unit has 24-hour availability of a consultant or non-consultant career grade doctor with neonatal training. This consultant can evidence up to date CME in neonatology and new developments.	HCW LHBs Lead Centres Trusts	1-3 years
2.20 A Level II unit has trained and experienced middle grade staff readily available to resuscitate and stabilise babies unexpectedly requiring short term intensive care.	HCW LHBs Lead Centres Trusts	1-3 years

Key Action	Responsible organisation	Timescale
2.21 A Level II unit has SHOs/ANNPs dedicated to the neonatal service.	HCW LHBs Lead Centres Trusts	1-3 years
Level III Care in Level I Unit Neonatal Special Care		
2.22 A nursing ratio of 1:4 is provided for babies requiring Special Care.[20]	LHBs Trusts	1-3 years
2.23 The unit can provide evidence that the establishment is correct for the number of Special Care cots commissioned.	LHBs Trusts	1-3 years
2.24 A Level I unit has a designated consultant paediatrician responsible for the clinical standards of care of the newborn babies.	LHBs Trusts	1-3 years

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 11, 12, 22 and 24.

Standard 3: Facilities for Neonatal Services, including Equipment.

Rationale: Appropriate, up to date and safe equipment and facilities are available to care for babies with neonatal care needs and their families.

Key Actions:

Key Action	Responsible organisation	Timescale
3.1 Neonatal facilities are commissioned based on population need, taking into account local differences.	HCW LHBs	1-3 years
3.2 Neonatal facilities are adjacent to labour suites.[20]	HCW LHBs Lead Centres Trusts	4-10 years
3.3 All units within a neonatal network have in place an IT infrastructure that allows consistent information to be collected and collated across the network.[24]	WAG HCW LHBs	1-3 years
3.4 All neonatal units are able to transfer clinical details of a baby electronically when a baby is transferred.[24]	WAG HCW LHBs	4-10 years
3.5 Support services are readily available. These include: • pharmacy • dietetics • therapy • screening • genetics • physiotherapy • social worker • speech and language therapy. Theses include staff with expertise in the care of neonates.	HCW LHBs Lead Centres Trusts	1-3 years

Key Action	Responsible organisation	Timescale
3.6 An agreed appropriate budget is available to purchase and maintain equipment for neonatal care to meet these standards.	HCW LHBs Lead Centres Trusts	1-3 years
3.7 Joint working arrangements are in place with the local Medical Technical Department responsible for equipment safety and maintenance including the blood-gas analyser.	Lead Centres Trust	1-3 years
3.8 24-hour laboratory services are available which are orientated to neonatal needs.	HCW LHBs Lead Centres Trusts	1-3 years
3.9 Each cot on a Neonatal Intensive Care Unit or High Dependency Unit has the following equipment: a. Incubator or unit with radiant heating b. Ventilator* and NCPAP driver with humidifier c. Syringe/infusion Pumps d. Facilities for monitoring the following variables: i. Respiration ii. Heart rate iii. Intra-vascular blood pressure iv. Transcutaneous or intra-arterial oxygen tension v. Oxygen saturation vi. Ambient Oxygen. * Intensive Care Cot only	HCW LHBs Lead Centres Trusts	1-3 years

Key Action	Responsible organisation	Timescale
3.10 Each Neonatal Intensive Care or High Dependency Unit has access to the following equipment: a. Resuscitation b. Blood gas analysis (on the neonatal unit by unit staff) c. Phototherapy d. Non-invasive blood pressure measurement e. Transillumination by cold light f. Portable x-rays g. Ultrasound scanning h. Expression of breast milk i. Transport equipment (including mechanical ventilation) j. Instant photographs (consent based).	HCW LHBs Lead Centres Trusts	1-3 years

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 2, 4, 12, 19, 24, 25 and 28.

Standard 4: Care of the baby and family/ Patient Experience

Rationale: The baby and the family receive holistic child and family centred care as close to home as possible, with ease of access to specialist centres when this care is required.

Key Actions:

Key Action	Responsible organisation	Timescale
4.1 Breast feeding is actively encouraged in the unit.[25,26]	Lead Centres Trusts LHBs	Less than 1 year
4.2 Breast feeding is facilitated by the provision of breast pumps, an area for expressing and for storing expressed milk.[25,26]	HCW LHBs Lead Centres Trusts	Less than 1 year
4.3 Access to the following support services are available: • Social Worker • Spiritual Adviser • Bereavement Counsellor • Breastfeeding support staff • Psychological/Psychiatric Advice • Multi-ethnic health advocates and translators.	HCW LHBs Lead Centres Trusts	1-3 years
4.4 Post discharge care is provided for all babies by appropriate staff with specialist training.[7]	HCW LHBs Lead Centres Trusts	1-3 years
4.5 Resources are available to support parent training.[27]	HCW LHBs Lead Centres Trusts	Less than 1 year
4.6 Information is available at all antenatal facilities about post natal service provision.	Lead Centres Trusts LHBs	Less than 1 year

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 4, 12, 22 and 24.

Standard 5: Transportation

Rationale: A transport service, staffed by trained personnel is in place 24/7 for all areas of Wales, to provide rapid and timely transport of neonates to and from appropriate services across the network and country boundaries. At the same time, safe care is maintained at the inpatient units.

Key Actions:

Key Action	Responsible organisation	Timescale
5.1 Transport services are planned and commissioned[20] on an all Wales basis with working arrangements in place for each network and across the border with England. All units accepting and/or referring neonates have, or have access to, an appropriately staffed and equipped transport service.	HCW Ambulance Trust	1-3 years
5.2 Arrangements are in place in partnership between maternity and neonatal units for the timely transfer of the mother (in-utero transfer) when a high-risk situation is anticipated. Written arrangements are in place for the transfer of the neonate who requires care at a level not available at the place of birth.	HCW LHBs Lead Centres Trusts Ambulance Trust	Less than 1 year
5.3 Written arrangements are in place for: • the transfer of a mother with a high-risk pregnancy across the network. • the transfer of mother and baby together when moving back to a unit near home.	HCW LHBs Lead Centres Trusts Ambulance Trust	Less than 1 year

Key Action	Responsible organisation	Timescale
5.4 Staff responsible for transfers are in addition to those of the clinical inpatient team.	HCW LHBs Lead Centres Trusts	1-3 years
5.5 Each unit keeps a detailed log of all transfers including unmet requests with the reasons. This information should be included as part of the MCN annual audit process.	Lead Centres Trusts MCN	Less than 1 year

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 2, 11, 12, 24 and 26.

Standard 6: Clinical Pathways, Protocols and Guidelines/ Clinical Governance

Rationale: Care will be delivered based on the best available evidence. Pathways and guidelines circulated widely and agreed nationally will ensure that the child receives high quality care wherever it is delivered.

Key Actions:

Key Action	Responsible organisation	Timescale
6.1 Clinical pathways, guidelines and protocols are in place and audited within the MCN.[20] These include as a minimum, hand washing, use of alcohol gel and the care and management of babies requiring: • Antenatal steroid administration • Surfactant therapy • Ventilatory support • Fluid management • Inotropic support • Inhaled nitric oxide • ECMO.	Lead Centres Trusts MCN	1-3 years
6.2 An agreed protocol is in place for the resuscitation and management of the extremely preterm infant.[28]	Lead Centres Trusts LHBs Ambulance Trust	Less than 1 year
6.3 Protocols are in place to ensure babies are transferred between units within the network according to clinical need. Arrangements are in place with neighbouring networks to ensure a seamless service when babies need to be transferred across in Wales or across the border to England.	Trusts HCW Lead Centres MCN LHBs	Less than 1 year

Key Action	Responsible organisation	Timescale
6.4 Protocols are in place for: a. Cerebral Ultrasound examination of the brain b. Screening and treatment for retinopathy of prematurity c. Screening for hearing loss d. Screening of hip abnormalities e. Post mortem examination procedures[29] f. Infection control (including HIV and Hepatitis B).	Lead Centres Trusts LHBs NPHS	1-3 years
6.5 Every unit must submit detailed reports on morbidity to the MCN. The MCN will produce an annual report that assesses morbidity.[30]	Lead Centres Trusts MCN	1-3 years
6.6 All babies with an identified neurodevelopmental condition should be referred to a local child development team.	Lead Centres Trusts	1-3 years
6.7 Systems are in place to feed into National Databases - CARIS and CESDI.	Lead Centres Trusts	Less than 1 year

Key Action	Responsible organisation	Timescale
6.8 It is essential that each designated specialist centre:- • identifies a named individual who is responsible to the Trust clinical governance lead for the comprehensive capture of information on all neonatal cases admitted to the designated specialist centre • produce an annual report for the Trust on quality of care • participate in the all Wales audit programme co-ordinated through the MCN • participate in national neonatal audit programmes coordinated through the BAPM - set up a clinical audit group • to consider the audit report produced by the lead clinician and to recommend improvements within the Trust • audit the service against these standards and report the outcome to the Trust clinical governance committee on an annual basis • ensure exception reporting to the Trust Board occurs when patient safety is compromised • ensure systems are in place for reporting, investigating and learning from adverse incidents.	Lead Centres Trusts MCN	1-3 years

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 11 and 12.

Standard 7: Education and Training/Clinical Governance

Rationale: All members of the multi-professional team are trained to the required standard to deliver a high quality service safely.

Key Actions:

Key Action	Responsible organisation	Timescale
7.1 Staff attending home births, including paramedics are trained in Newborn Life Support (NLS).	LHBs Trusts Ambulance Trust	Less than 1 year
7.2 All doctors and nurses caring for critically ill neonates have initial access to and a rolling revalidation programme for Newborn Life Support (NLS).[21]	HCW LHBs Lead Centres Trusts	1-3 years
7.3 Post registration neonatal education is readily available based on a competency framework.[20]	WAG HCW LHBs MCN	1-3 years
7.4 All staff involved in feeding babies receive training on supporting the family unit for successful breastfeeding.[26,27]	Lead Centres Trusts LHBs	Less than 1 year
7.5 Research into neonatal care is a core component of the service.	WAG HCW LHBs	1-3 years

Examples of some of the Healthcare Standards for Wales (HCS) that map across to the above standard are HCS 11 and 22.

Glossary

This glossary should be used in conjunction with the glossary provided in the Children's NSF.

Health Commission Wales (HCW)	Commissioners of specialised services
Lead Centres	Trusts delivering specialised services
Local Health Boards (LHBs)	Commissioners of local primary and secondary services
Trusts	All Trusts delivering children's services
Universal Standards and Key Actions	Standards and key actions which apply to all of the specialised services

Appendix 1

External Working Group Members

Jane Atkinson	Neonatal Lead Nurse, Conwy and Denbighshire NHS Trusts
Ian Barnard	Consultant Paediatrician, Conwy and Denbighshire NHS Trust
Patrick Cartlidge	Consultant Neonatologist, Cardiff and Vale NHS Trust
Mike Cronin	Consultant Paediatrician, North West Wales NHS Trust
Andrew Dawson	Consultant Obstetrician, Gwent Healthcare NHS Trust
Andrew Ferguson	Specialised Commissioner, Health Commission Wales
David Ferguson	Consultant Neonatologist, Gwent Healthcare NHS Trust
Mary Glover	Neonatal Lead Nurse, Cardiff and Vale NHS Trust
Alison Howell	Parent
Matthew Jones	Consultant Neonatal Surgeon, Royal Liverpool Children's Hospital
Mike Maguire	Consultant Paediatrician, North Glamorgan NHS Trust
Jean Matthes	Consultant Paediatrician, Swansea NHS Trust
James Moorcraft	Consultant Neonatologist, Pontypridd and Rhondda NHS Trust
Colin Morgan	Neonatologist, Liverpool Women's Hospital
Deborah Owen	Health Commission Wales
Gwyneth Ratcliffe	Lead Midwife, Gwent Healthcare NHS Trust
Brenda Rees	Lead Midwife, Cardiff and Vale NHS Trust
Ruby Robinson	Neonatal Lead Nurse, Bro Morgannwg NHS Trust
Robin Viles	Consultant Obstetrician, North East Wales NHS Trust
Professor Andrew Wilkinson	Neonatologist (Chair), John Radcliffe Hospital, Oxford
Rob Williams	Chief Executive Bliss
Huw Jenkins	Director of Healthcare Services for Children and Young People, Welsh Assembly Government

We are grateful to Bliss and the parents involved in Bliss for their work on this document.

Appendix 2

Project Steering Group Members (as at time of consultation)

Rhian Davies (Observer)	Children Commissioner's Office
Dr Layla Al Jader	National Public Health Service
Alison Lagier	Local Health Board Chief Executives
Becky Healey	Welsh Nursing & Midwifery Committee
Angela Hillier	Welsh Therapies Advisory Committee
Jane Perrin	NACE
Andrew Ferguson	Health Commission Wales
Andrea Mathews	All Wales Community Health Councils
Dr Michael Badminton	Welsh Scientific Advisory Committee
Sue Greening	Welsh Dental Committee
Dr Eddie Coyle	Welsh Centre for Health
Caroline Crimp	Association for the Welfare of Children in Hospital (AWACH)
Keith Bowen	Contact a Family
Irene Allen	Head of Children's Health and Wellbeing Branch, Welsh Assembly Government
Dr Huw Jenkins	Director of Healthcare Services for Children and Young People, WAG

Sections 76, 77 and 81 of the Government of Wales Act 2006 provide a basis for our equality work. The National Assembly for Wales is under statutory duties to aim to ensure that its business is conducted, and its functions exercised, with due regard to the principle that there should be equality of opportunity for all people. As the majority of the National Assembly's functions have been delegated to the First Minister and are carried out by the Welsh Assembly Government, in practical terms it is the Welsh Assembly Government which has principal responsibility for fulfilling these equality duties. This is further underpinned by UK Equality legislation, covering equality and human rights.

References

1. Specialised Health Service Commission for Wales (May 2002) *Review of Tertiary Services for the Children of Wales*. Pontyclun: SHSCW.

2. Specialised Health Service Commission for Wales (June 2002) *A Special Service: The future of specialised healthcare for the children of Wales*, Pontyclun: SHSCW.

3. Welsh Assembly Government (Oct 2002). *Health and Social Services Committee papers*. HSS-18-02 (p.3). Cardiff: Welsh Assembly Government.

4. Welsh Office (1998) *Quality Care and Clinical Excellence*. Cardiff: Welsh Office.

5. National Public Health Service (NPHS) (2004) A *Profile of the Health of Children and Young People in Wales*, Cardiff: National Public Health Service.

6. Townsend P. (2001) NHS *Resource Allocation Review: Targeting Poor Health. Vol. 1*, Cardiff: National Assembly for Wales.

7. Welsh Assembly Government. (2005) *National Service Framework for Children, Young People and Maternity Services in Wales*. Cardiff: Welsh Assembly Government.

8. Welsh Assembly Government (June 2003) NHS *Planning and Commissioning Guidance*, WHC (2003) 063, Cardiff: Welsh Assembly Government.

9. Welsh Assembly Government (March 2007) NHS *Commissioning Guidance, WHC (2007) 023*, Cardiff: Welsh Assembly Government.

10. Welsh Assembly Government (June 2003) The *Review of Health and Social Care in Wales [advised by Derek Wanless]*, Cardiff: Welsh Assembly Government.

11. Contact a Family (September 2003) *The National Service Framework for Children, Young People and Maternity Services*. *Parent Consultation - Acute and Chronic Illness and Injury Module Report*. Cardiff: Contact a Family.

12. Welsh Assembly Government (September 2003) *Signposts Two, Putting public and patient involvement into practice in Wales*. Cardiff: Welsh Assembly Government.

13. Welsh Assembly Government (May 2005) *Healthcare Standards for Wales*. Cardiff: Welsh Assembly Government.

14. *Welsh Assembly Government (April 2008)* Proposals to Change the Structure of the NHS in Wales. Consultation Paper. *Cardiff: Welsh Assembly Government*.

15. Baker, C D. Lorimer, A R. (2000) Cardiology: the development of a managed clinical network. *BMJ*. Vol 321 No 7269, 4 November 2000, 1152-3.

16. National Institute for Clinical Excellence (August 2005) *Improving Outcomes in Children and Young People with Cancer*. London: NICE.

17. Crowley P, Chalmers I, Keirse MJNC. The Effects of corticosteroid administration before preterm delivery: An overview of the evidence from controlled trials. *British Journal of Obstetrics and Gynaecology*. 1990; 97: 11-25.

18. British Association of Perinatal Medicine. (1994). *Report of the British Association of Perinatal Medicine Working Party. The use of exogenous surfactant in newborn infants*. London; BAPM.

19. Stroud, E (1989), Perinatal Intensive Care Service in Wales, Cardiff: Welsh Office.

20. British Association of Perinatal Medicine (December 2001) *Standards for Hospitals Providing Neonatal Intensive and High Dependency Care*. London. BAPM.

21. British Paediatric Association. (1993) *Neonatal Resuscitation*. London. BPA.

22. Confidential Enquiry into Stillbirths and Deaths in Infancy (2003) *Project 27/28. An Enquiry into quality of care and its effect on the survival of babies born at 27/28 weeks*. London. CESDI.

23. Royal College of Paediatrics and Child Health (2001) *Sub-Speciality Training in Neonatal Medicine*. London. RCPCH.

24. Welsh Assembly Government (July 2003) Informing *Healthcare. Transforming healthcare using information and IT*. Cardiff: Welsh Assembly Government.

25. World Health Organisation/United Nations Children's Fund. (1989) *Ten steps to successful breastfeeding in protection, promotion and support of breastfeeding: the specialist role of maternity services*. Geneva. WHO/UNCF.

26. Welsh Assembly Government (2001) *Investing in a better start; promoting breastfeeding in Wales*. Cardiff. Welsh Assembly Government.

27. Welsh Assembly Government (2008) All Wales Universal Standards for Children and Young People's Specialised Healthcare Services. Cardiff: Welsh Assembly Government.

28. Gee H, Dunn PM. (2000) Foetuses and newborn infants at the threshold of viability: a framework for practice. *Perinatal and Neonatal Medicine*; 5: 209-11.

29. Redfern M., Keeling J.W. and Powell E. (Jan. 2001) The *Royal Liverpool Children's Inquiry*. London: House of Commons.

30. British Association of Perinatal Medicine (April 2004) *Review of the 1997 Report of a Working Party. Dataset for the annual reporting of data by neonatal intensive care units*. London. BAPM.

A Neonatal Network and Transfer Service for Wales

Business Case

A NEONATAL NETWORK AND TRANSFER SERVICE FOR WALES

EXECUTIVE SUMMARY 4

1. INTRODUCTION 5

1.1 DEMOGRAPHY 5
1.2 CURRENT SERVICES 5
1.3 STRATEGIC CASE FOR CHANGE 7

2 BACKGROUND 7

2.1 REVIEW OF NEWBORN CARE IN ENGLAND 7
2.2 REVIEW OF NEONATAL CARE IN WALES 8
2.3 FUNDING FOR NEONATAL DEVELOPMENT 9

3 ESTABLISHMENT OF A NEONATAL NETWORK FOR WALES 10

3.1 THE ROLE OF A MANAGED CLINICAL NETWORK 10
3.2 PROPOSED NETWORK STRUCTURE FOR WALES 10
3.3 RESPONSIBILITIES OF THE NETWORK 10
3.4 THE BADGERNET / CLEVERMED NEONATAL DATABASE 11

A NEONATAL TRANSFER SERVICE FOR WALES 12

3.5 THE ROLE OF A NEONATAL TRANSFER SERVICE 13
3.6 SERVICE DELIVERY OPTIONS 15
Option 1: One Unit Providing the Service. 15
Option 2: Unified service but each Level 3 unit responsible for delivery in rotation 17
Option 3: A Stand-Alone Service 18
Option 4: A combined PICU/ NICU Service 19
Option 5: A Service Provided Jointly with the West of England (Bristol) 21
3.7 STAFFING OPTIONS 22
Option A. Consultant delivered 23
Option B. Middle grade doctor delivered / consultant led. 24
Option C. Advanced Neonatal Nurse Practitioner delivered / consultant led. 26
Option D. A hybrid model incorporating consultants, middle grade doctors and Advanced Neonatal Nurse Practitioners 28
3.8 PREFERRED MODEL FOR STAFFING AND DELIVERY 29
3.8.1 Service model 29
3.8.2 Staffing 29
3.9 CROSS-CUTTING ISSUES 29
3.9.1 Training 29
3.9.2 Equipment 30
3.9.3 A website 31
3.9.4 Ambulance Services 32

4 ECONOMIC CASE 34

4.1 DO NOTHING 34
4.2 FULL IMPLEMENTATION OF 24 HOUR MODEL ACROSS WALES 36
4.3 IMPLEMENTATION OF 12 HOUR MODEL ACROSS WALES 37
4.4 SUGGESTED OPTION 38

5 CONCLUSION 38

6 REFERENCES 40

7. APPENDICES 42
1. COSTED IMPLEMENTATION PLAN 42
2. A NEONATAL MANAGED CLINICAL NETWORK FOR WALES 44
3. NEONATAL TRANSFER SERVICE SPECIFICATION 47
4. WELSH NEONATAL TRANSPORT STAKEHOLDER GROUP 52

Executive Summary

This document sets out the need to develop a Managed Neonatal Clinical Network in Wales. In the network all constituent units will work together to produce the best outcomes for the babies and their families. Decision making for each family will be made in their best interests and following clear communication. There will be strong clinical leadership and ownership. Family centred care will be provided by an expert and highly skilled workforce. The establishment of a coordinated neonatal network will ensure similarly high quality standards across the whole of Wales with similar guidelines and pathways.

The Network will take a key role in facilitating the establishment of a Neonatal Transfer Service for Wales. The Transfer Service will enable babies to receive the care they need in the most appropriate place and provide equitable access to high quality, safe and timely care including intensive care, high dependency and special care. When the baby no longer requires critical care, he/she may be transferred back to the nearest appropriate home unit for ongoing care.

Another important role for the Network will be the implementation of a consistent Neonatal database across all 13 neonatal units in Wales. Following consideration by the All-Wales Stakeholder Group, the BadgerNet system has been proposed and with engagement and support from Informing Healthcare Wales it is planned that this system will be procured and rolled out. The system will facilitate the generation of summaries of care, and enable information to be shared easily between units, as well as collecting data on activity of units, generating annual reports and has an option of contributing data to the National Neonatal Audit Project

The proposals detailed in the business case are set out separately for the Neonatal Managed Clinical Network, BadgerNet clinical database and the Neonatal transfer Service. The expenditure is described in terms of initial investment from the funding committed by the Minister for investment in Neonatal services, additional resources required to ensure a sustainable 12 hour Neonatal transfer service and step-costs for increasing to a 24 hour Transfer Service.

1. Introduction

Neonatal Services in the UK in general, and in Wales in particular, have been subject to review and scrutiny over a number of years. Standards have been published in England and Wales, and reviews have made a number of recommendations for the improvement of specialist neonatal care.

1.1 Demography

Wales has a population of approximately 3 million people. The birth rate has increased by an average of 3.1% year on year for the last 6 years as shown in the following table.

	2002	2003	2004	2005	2006	2007	2008
Mid and West	8999	9,413	9,904	9,837	10,271	10,407	10,025
South	14,209	14,797	15,318	15,659	16,072	16,362	17,312
North	6174	6,544	6,688	6,732	7,073	7,097	7386
Total	29,382	30,754	31,910	32,228	33,416	33,866	34,723

Table 1 – Total Births By Region
Dr Roshan Adappa, Source: All Wales Perinatal Survey

1.2 Current services

Neonatal intensive care is currently provided mainly at the following hospitals:

- Ysbyty Glan Clwyd
- Wrexham Maelor
- Singleton
- Royal Glamorgan
- University Hospital of Wales [UHW]
- Royal Gwent

Normal care, special care, and high dependency care :are provided at the above hospitals and also in varying combinations in the following obstetric and neonatal units in Wales

- Ysbyty Gwynedd
- Bronglais
- West Wales General Hospital
- Withybush
- Princess of Wales
- Prince Charles
- Nevill Hall

If a baby requiring intensive care is born in any hospital where that service is not available, either he/she may be given short term intensive care, stretching the services of that unit, or the baby may be retrieved on an ad hoc basis. A clinical team will be sent from the Neonatal Intensive Care Unit to the local hospital to stabilise the baby and then transfer him/her while providing mobile intensive care to the nearest intensive care unit where ongoing care can be provided.. However, this service relies upon there being sufficient staff available to release a team to carry out the retrieval (not always possible) and the Ambulance Trust's ability to respond to the calls. Neonatal calls are not afforded a high priority as the baby is considered to be in a safe place, and other calls will take precedence over those for Neonatal Retrieval. This can lead to severe delays in retrieving babies from their place of birth for specialist care, even when the transfer is urgent

Individual units undertook a survey of neonatal transfers in 2007 summarised in the following table:

	Singleton	UHW	Royal Gwent	Royal Glam & Merthyr	Glan Clwyd	Wrexham Maelor	Total
Transfers into centre (intensive care)	59	20	44	11	18	16	134
Transfers out of centre by own team (includes some IC)	40	63	55	54	10		212
Transfers out of centre by accepting hospital (returns home)	48	20	0	27	16		95
Total	147	103	99	92	44		441

Table 2 – Neonatal Transfers, 2007

In South Wales, Neonatologists from across the four hospitals delivering intensive care operate an informal Network, meeting regularly to discuss issues affecting their respective units, but there is no formal network arrangement where standards and audit are discussed. In North Wales, the service is delivered by experienced Paediatricians with an interest in Neonatology, but there is no dedicated Neonatal rota in either Glan Clwyd or Wrexham Maelor. There are no consistent clinical standards applied for the delivery of Neonatal Transfer and staff are not specifically trained to carry out this role. The challenges to Neonatal services have steadily increased to the point that Wales is no longer delivering an effective transport service and currently lags behind most other parts of the United Kingdom in this respect.

1.3 Strategic case for change

In 2004, Dr Huw Jenkins commenced a process to develop clinical standards for specialised children's services in Wales. Over the course of five years, the Children and Young People's Specialised Services Project has produced clinical standards for 12 specialties and 12 further sub-specialties.

The project has so far published six of the 12 sets of standards, including Neonatal Standards. The standards recommend the establishment of Managed Clinical Networks for paediatric specialised services. This business case sets out to address a number of items within the Neonatal Standards, including the standardisation of neonatal transfer, improvement in staffing establishment and creation of a managed clinical network for Wales. The business case advises the procurement of an all-Wales neonatal audit database, which will facilitate the collection of data that will enable audit of standard compliance. Once established, the Clinical Network will be able to oversee the implementation of standards consistently across Wales.

Standard 5 states 'There will be a transport service staffed by trained personnel in place 24 hours a day, seven days a week for all areas of Wales to provide rapid and timely transport of neonates to and from appropriate services across the network and country boundaries.' This business case sets out the full costs for implementation of a 24 hour retrieval service and recommends a phased implementation starting with a 12 hour service within the funding allocated by the Minister in December 2008.

2 Background

2.1 Review of Newborn Care in England

In 2003, the Department of Health published a review of neonatal services in England and reinforced the implementation of its recommendations with the allocation of £72m recurrent revenue increasing in stages to £200m to invest in services along with a further allocation of £20m capital funding. The key recommendations of the review were that:

- Intensive and high dependency care should be considered specialised services;
- All neonatal care should be delivered through managed clinical networks based on populations of about 15,000-25,000 births [i.e. covering more than one PCT area in England];
- Each network should designate their constituent units in terms of the type of care they should deliver. The type of unit would determine the level of staffing, equipment and general support that should be immediately available. The standards for staffing, equipment and support services were set out in the 2001 British Association of Perinatal Medicine [BAPM] document "Standards for Hospitals providing Neonatal Intensive and High Dependency Care"[1];
- Each Network must have sound transport arrangements in place;

[1] http://www.bapm.org/media/documents/publications/hosp_standards.pdf

- Staffing should be matched to the type of unit.

Most of these developments are now in place

In 2006 the National Audit Office announced that they would conduct an audit of the reconfiguration of neonatal services. Their report 'Caring for vulnerable babies' (2007) found it was not possible to account for all the money invested because of a wide variety of financial arrangements governing neonatal care. At a subsequent meeting of the Parliamentary Public Accounts Committee Mr Nicholson, the Chief Executive of the NHS in England, announced that a national taskforce was being assembled to address the various problems which had been identified.

The neonatal taskforce is the most comprehensive review of neonatal care ever undertaken. The quality of care set out in the taskforce document is ambitious and if implemented would make a dramatic and lasting improvement to the way babies and their families are cared for. The task force has been chaired by the NHS Medical Director Sir Bruce Keogh and its membership has been drawn from a wide range of people including doctors, nurses, commissioners and representatives from the Department of Health.

It is also planned that NICE will undertake a review of neonatal care and publish standards in the near future

2.2 Review of Neonatal Care in Wales

In 2004, a review of Neonatal Care in Wales was commissioned by Health Commission Wales. The review's terms of reference covered the following areas

- Undertaking a risk assessment of neonatal services for Wales.
- Updating information regarding medical and nursing staffing, unit activity and cot occupancy.
- Consideration of whether urgent changes were needed to stabilise the services accessed by the population of Wales.
- Making recommendations to LHBs on the commissioning of neonatal services for which they were responsible.
- Informing the Children and Young People Specialised Services Project (CYPSSP), led by Chief Medical Officer, in its work on development of standards and expansion of managed clinical networks for neonatal services.
- Making recommendations on commissioning responsibilities for neonatal services.

Health Commission Wales' Neonatal Services Review, published in draft in July 2005, concluded that neonatal intensive care services should be concentrated in South Wales into three centres – Swansea, Cardiff and Newport. Other units would provide high dependency care and special care. In North Wales it was recommended that one neonatal intensive care unit be designated in Glan Clwyd.

These recommendations have not been implemented and the document has never been formally published nor consulted upon publicly.

The Review recommended investment of £10m in neonatal services in Wales including the establishment of a Managed Clinical Network and development of an integrated transport service for Neonatal services.

2.3 Funding for Neonatal Development

It was agreed in 2008 that the first priorities for investment in Neonatal services in Wales would be the establishment of a Neonatal Managed Clinical Network, the procurement of an audit database system and the development of Neonatal Transfer across Wales. In November 2008, the Welsh Health Minister for Health and Social Services announced the allocation of £2m for the establishment of a Neonatal Network, audit database and Transfer Service. This business case sets out the proposals for development of these services, the funding required and plans for expenditure of the funding already allocated.

3 Establishment of a Neonatal Network for Wales

3.1 The role of a Managed Clinical Network

A Managed Clinical Network is a linked group of health professionals from primary, secondary and tertiary care working in a co-ordinated manner to ensure equitable provision of high quality clinically effective services unconstrained by existing professional and health board boundaries. A Neonatal Network will be an important force in improving care for pre-term babies and other babies who are very sick.

3.2 Proposed Network structure for Wales

The proposed structure for the Network is set out in Appendix 1. In summary, the Network will operate in the following way:

- There will be one network to cover the whole of Wales
- The Network will have clinical leadership in North and South Wales to take account of the distinct issues faced by the services in the different parts of the country
- Nursing time will be provided by senior nurses working within the Network
- The Network will be supported by a Network manager
- The Network Board will represent all Local Health Boards, patient groups and parents, clinicians and the voluntary sector, and be accountable to the Welsh Health Specialised Services Committee.

3.3 Responsibilities of the Network

The principal responsibilities of the Network will be to:

- Drive the establishment of the Neonatal Transfer Service for Wales
- Develop and implement consistent pathways for Neonatal care across Wales
- Audit clinical care against agreed standards
- Agree action plans for service configuration, improvement and modernisation.

The Network will have a key role in driving the establishment of the Transfer Service. Clinical leads will take responsibility for ensuring that consistent protocols are in place for clinical safety and effectiveness, and monitor performance against the agreed specification and make recommendations for future service planning.

One of the first responsibilities of the Network will be to ensure that consistent data are collected across the service for use in service monitoring, service planning and audit. To enable this to happen, it is proposed that a neonatal audit database is procured and installed in all 13 units across Wales offering any level of Neonatal care. The BadgerNet system, widely used in England, has been recommended by the Neonatal Transport Stakeholder Group and endorsed by BLISS for consistency and the ability to compare audit data with centres in England. Informing Healthcare have been engaged with Health Commission Wales with progressing the

procurement to date, and it is expected that once the Network is constituted and staff appointed they would take on the role of jointly leading the procurement and implementation with Informing Healthcare.

3.4 The BadgerNet / CleverMed neonatal database

This system will be used to collect data on all babies in Wales who receive special care, high dependency care or intensive care. The data base contains all data items currently recommended by BAPM, plus other useful information. It enables electronic generation of admission and discharge summaries and data to be transferred electronically from unit to unit. It enables collection of daily levels of care for individual units and production of an annual report. Two year outcome data may also be recorded. The system has interfaces for PAS and the Vermont-Oxford database
The data is stored on a secure NHS database in Scotland.

This data can be used (with the unit's permission) to contribute to the National Neonatal Audit Project (NNAP) which enables information on quality of care and benchmarking to be available for units and commissioners.

The system is used by 160 units in England and 9 units in Scotland and it will soon become compulsory for all units in England to contribute their data via BadgerNet to the NNAP as a condition of funding through the PCTs as advised by the Newborn Networks.

Each unit will be responsible for their own data entry, although agreement on mandatory data items and monitoring of compliance will be a role for the Network. Admission data and the generated admission summary may replace the usual hand written entries in notes, and discharge summaries generated by the system using information entered will provide a complete and standardised overview of treatment given whilst in neonatal care.

Training for representatives of all the neonatal units would be offered in North and South Wales by CleverMed to ensure all units were able to use the system. The costs for this are included in the costs.

It is recommended that this system is purchased for all neonatal units in Wales

A Neonatal Transfer Service for Wales

Neonatal transport services across the UK and the world employ a wide variety of models and support neonatal networks of widely varying size. These models can be characterised in three ways:

- **Degree of centralisation**: drawing support from one or more neonatal unit or entirely self-contained. Some – particularly in areas such as New South Wales and California – combine service delivery with PICU transfer but these tend to be over very large geographical areas and are stand alone services.
- **Staffing models**
- **Hours of operation**

A review of the services in place elsewhere in the UK shows that there is little consensus on either the degree of centralisation or staffing models. Hours of operation also vary across the UK. This document will set out the pros and cons of each option as clearly as possible and suggest the most pragmatic and achievable solution.

In the options set out in this document, centralisation and staffing models are assessed against the following criteria:

- Quality and Safety
- Achievability in the current clinical staffing climate
- Affordability and Efficiency both for the service itself and for neonatal units it supports
- Sustainability both of the transport service itself and of neonatal units it supports

Following the assessment of the options available, this case proposes one model of delivery across Wales with two different methods due to the unique geography and particular issues faced by services in North and South Wales. The service will be unified through shared standards and audit co-ordinated by the Managed Clinical Network.

In South, Mid and West Wales, it is proposed that responsibility for delivering the service will be shared through a weekly rota between Swansea, Cardiff and Newport. In North Wales, transfer will be delivered from one hospital, currently suggested as Glan Clwyd Hospital.

The model will see clinical staff providing the service based in each of the four nominated transfer units across North and South Wales, forming part of the local team. Staff duties would be split between direct provision of transport, supporting transport responsibilities such as audit and training, and ward based care including the repatriation of babies to their local units. When staff are rostered for transport duty, this would be their principal responsibility, but when no transport is required, duties will be split between transport supporting roles and ward duties. Clinical staff

forming these teams in each of the units will be a combination of new staff recruited primarily to provide transport services and existing staff willing to develop that role as part of their responsibilities. It is anticipated that the proportion of the work plan dedicated to transport would be substantially higher in the newly recruited posts, but the proportions might differ between different staff groups and units depending on the wishes, skills and training requirements of existing staff.

Achievability, sustainability and affordability issues predicate a hybrid staffing model involving consultant neonatologists, middle grade trainee staff, Advanced Neonatal Nurse Practitioners as well as neonatal nursing staff.

The transfer service would in due course and with further investment cover a full 24 hours. Constraints in achievability and affordability mean that implementation of a 24 hour service would need to be phased. In the first instance it is proposed that the service should run for 12 hours each day from 0900 to 2100, reverting to existing arrangements for the remaining 12 hours. It will be the responsibility of the Network, drawing on the expertise of its clinicians, to ensure training and development of local paediatric teams to deliver improved resuscitation and stabilisation in local units. It is anticipated that the majority of transports would be delivered within acceptable time standards by a 12-hour model.

There will be a system for collecting data for each transfer undertaken.

The service will be reviewed annually by the Neonatal Network, who will be responsible for ensuring the service's continued fitness for purpose and recommending necessary changes to the modes of service delivery.

3.5 The role of a Neonatal Transfer Service

The proposed neonatal transport service will:

- Provide immediate telephone support for local units with an acutely ill baby.
- Provide a rapid critical care cot location service so that arrangements can be made to transfer the baby to the most appropriate place for the level and type of care needed. Usually this will be within Wales, but occasionally and reciprocally support from England may be required. Infants may also need to access supra-regional services in England – e.g. paediatric cardiac surgery.
- Provide rapid on-site skilled neonatal medical (or Advanced Neonatal Nurse Practitioner - ANNP) and nurse support for local units to allow stabilisation to continue in preparation for transfer.
- Provide skilled and timely critical care transfer between units including appropriate transport equipment and ambulance.
- Support high quality clinical communication between sending and receiving units as well as with the transport service itself to ensure seamless care. This will include telephone communication and detailed structured documentation.

- Support families with information about the clinical condition of their infant and information about the receiving unit including physical and telephone access, facilities etc.
- Provide high quality transport training for transport staff.
- Develop detailed clinical and administrative standards for transport in association with local units.
- Support local services through training in resuscitation and stabilisation prior to transport.
- Provide an audit and review process to ensure continued quality assurance and development in conjunction with local units.
- Provide a timely back transfer service so that locality based care can continue when intensive or highly specialised care is no longer required.
- Liaise with the PICU transport service so that mutual efficiencies in service provision are achieved, mutual support is provided where appropriate at times of high demand for either service and that the two services are complimentary and comprehensive.

Projected Numbers

It is likely that the number of babies requiring transfer for critical care will increase:

1) The number of centres providing neonatal intensive care in Wales will reduce. Critical care and step down care transfers will both need to increase.

2) The birth rate is increasing and the numbers of babies requiring intensive and high dependency care will be expected to increase proportionately.

3) New treatment modalities are being introduced and are becoming standards of care in the level 3 units. E.g. whole body cooling for babies with hypoxic ischemic encephalopathy (ref 7-9). Increased numbers of babies are likely to benefit from transfer for these new modalities of care that are only safely deliverable in Level 3 units.

4) Only a proportion of in utero transfers actually result in the delivery of an infant needing critical care in the receiving unit. Some mothers will not immediately deliver following transfer and others will deliver infants who are relatively well. The balance of perceived risk may change when deciding if in utero transfer is indicated following introduction of a neonatal transfer service. Experience elsewhere is that in utero transfers decrease in this situation (10). Provided that risk assessment is performed carefully, perhaps limited to more mature preterm pregnancies, there may be advantages to families of modestly reduced in utero transfers as long as there are good local stabilisation capabilities and an effective and timely transfer service.

When it is anticipated before delivery that an infant will require critical or specialised care (e.g. for significant prematurity or known major congenital malformation) and

when time allows it remains best practice to transfer in utero as clinical outcomes are better.

Delivery suite capacity and staffing pressures can prejudice acceptance of in utero transfers even if there are intensive care cots available on the associated neonatal unit. Care pathways from Level 1 and 2 units to Level 3 units need to be fully integrated across obstetric and midwifery as well as neonatal services.

We anticipate that ultimately the service will provide about 700 transfers per annum of which about 350 would be of infants receiving intensive care.

3.6 Service Delivery Options

The options set out below are for the possible configurations and staffing models for the South Wales service only. Neonatology in South Wales is provided from a greater number of Units due to the density of population and numbers of births per year. The service is also more developed in South Wales, with dedicated Neonatal rotas in place at each of the nominated Transfer Units.

A Neonatal Transfer Service provided within North Wales can only be delivered in a safe and sustainable way from one unit. The service will, as in South Wales, be provided for babies who require intensive care with a consultant led service supported by middle grade doctors and Advanced Neonatal Nurse Practitioners. The new appointments in North Wales will allow significant progress towards establishing separate neonatal on call rotas as well as supporting the new transfer service through participation, provision of training, and quality assurance.

Option 1: One Unit Providing the Service.

One unit will provide the base for transfers across Mid, West and South Wales. Babies will be retrieved to the nearest unit with an available cot.

- **Quality and Safety:** There is no reason to suppose that given adequate resources the quality and safety of the emergency transfer service could not be very high.

  Repatriation is quite different from acute transfer and it would be inappropriate for this service to be centred on a single unit. As a result, resource would still be needed in other centres. In this model, repatriation might not be integrated and therefore not benefit from the quality standards agreed for the emergency service.

  Given the centralised nature of this service, the high concentration of clinical cases allowing the development of expertise, quality and safety would be high

for the acute transfers in this option. There would be concern about the ability to achieve consistent standards for repatriation of babies for step-down care.

- **Achievability:** Given the population distribution, some argue that it would be difficult for any single unit in South Wales to recruit and retain sufficient nursing staff to support both their current ward-based workload and the extra requirement to run a unified transport service.

  The challenges of recruiting sufficient senior medical staff to a single unit would be greater, especially as, even whilst providing a single-site transfer service across South Wales, this would be seen as one of the lower volume neonatal transport services within the UK. The transport workload would have to be shared among a smaller number of consultants than a more distributed model, making the job plan commitment to transfer particularly high for a service that is not offering an extremely high volume of transfers.

  The risks surrounding the achievability of this option are high.

- **Affordability and Efficiency**: Approximately the same number of additional staff would be required in a centralised model as a more distributed one in order to safely staff the number of hours required to run the service.

  However, emergency transfer staff would not be utilized to maximum efficiency when transports were not in progress as the opportunity for them to get involved in other duties would be less than if they were distributed across a number of centres.

  As this service would have relatively low demands for transportation compared to other areas of the UK, efficiency would be poor in this option.

- **Sustainability:** Centralising transport services at a single unit would run a high risk in South Wales of destabilizing other intensive care units in South Wales by attracting some of their existing senior and more experienced nursing staff. Such staff would be very difficult to replace to maintain capacity in all of the intensive care units.

  Sustainability of the consultant medical staff would be dependent on maintaining ward based skills and eventually of being able to rotate more senior consultant staff into primarily providing ward based care rather than transport. Both of these would be more difficult to achieve in a highly centralized transport model.

  This option carries a high risk for sustainability.

Option 2: Unified service but each Level 3 unit responsible for delivery in rotation

In this model, leadership would be provided by one Clinical Director (Consultant) appointed by the Clinical Network. The Clinical Director would work with the Network Lead Clinician, manager and lead nurse to agree consistent protocols through the Network, where all units would be represented.

The delivery of the emergency transfer would rotate between each of the three units with each unit providing the service for 1 week. Each unit would have a team of nursing and medical staff drawn from existing personnel with an interest in transport and staff newly recruited to adopt a prime transport role.

- **Quality and Safety**
  This model would allow a high quality service to be developed, building on pre-existing skills in each of the existing intensive care units. The Network would co-ordinate the development, implementation and review of consistent protocols and pathways across the service. Step-down transfers would be managed primarily by nursing staff from within the local team according to agreed protocols so quality standards would be maintained for all aspects of the service.

  This would be a high quality option

- **Achievability**
  By distributing service delivery, recruitment of nurses up to the required establishment would have the best chance of success in the shortest possible time.

  Distributed consultant recruitment would provide better integration with the ward based services and provide a model most conducive to achieving sign up to providing some transport sessions by interested existing consultant neonatologists without compromising ward-based work. This would also assist in filling all sessions in the shortest possible time. New consultant posts would offer duties such as neonatal unit based weeks, outpatient duties and on call to the neonatal unit which are attractive to prospective consultants as they would retain all of their generic skills thus enhancing the prospects of successful recruitment.

  The opportunity to offer variety in job roles is also likely to attract Advanced Neonatal Nurse Practitioners and middle grade doctors.

  This model is most likely to be achievable in the shortest time.

- **Affordability and Efficiency**
  Affordability would be broadly similar to other models due to the number of staff hours required to operate the service.

Efficiency would be high in this relatively low volume service as when the duty transport team is not actively engaged in direct or indirect transport activity, they will be well placed to support ward based care in each of the three nominated transport units.

Affordability would be acceptable and efficiency would be high.

- **Sustainability**
  This model would be best designed to sustain not only the transport service but also capacity within existing neonatal units. Movement of staff locally between transfer and ward based services would provide the best model for maintenance and development of skills, a common culture and long term sustainability.

  A highly sustainable model.

Option 3: A Stand-Alone Service

- **Quality and Safety**
  Stand-alone services may work adequately in areas where there is a very high volume of transport activity but this is not the case in Wales. A lower volume service separated from the intensive care units is unlikely to be able to sustain high quality. A service separated from ward-based care will struggle to provide seamless care.

  It is likely that support for step-down care would still need to be provided locally, further challenging lack of integration of the service.

  The likelihood of providing a service that is safe and high quality is low.

- **Achievability**
  Such a service would find difficulty in building on existing staff and skills. A fairly low volume stand-alone service would not be professionally attractive and recruitment would most likely be problematic.

  The likelihood of achieving successful implementation of this model is low.

- **Affordability and Efficiency**
  Due to the numbers of staff required to safely staff the rotas, affordability would be similar to other options.

  Efficiency would be poor as this model would not make the best use of clinical staff employed in this low volume service.

- **Sustainability**

There may be some risk of this model destabilising neonatal services, but the professional unattractiveness of this model in Wales would probably limit that threat. Given that it would be extremely difficult to staff this model as it would be seen as an unattractive option, implementation is unachievable in the short term. As this service will lead to a considerable amount of time for teams spent idle when transfers are not being carried out and the poor opportunities for maintenance of core skills at a ward level, the model is likely to be equally unsustainable in the longer term as the turnover of any staff recruited would likely be high.

Option 4: A combined PICU/ NICU Service

In this model, a joint service would be operated for transfer for children and neonates requiring intensive care. It is likely that this would need to be provided from one centre.

- **Quality and Safety**

  Although there is an overlap between critical care provided for the newborn and that provided for older children, these services and the skill and knowledge-base required to deliver them safely is frequently quite different, particularly at the preterm end of the maturity spectrum in neonates. Few neonatologists would have the skills to provide competent care to older children. Most Paediatric Intensive Care clinicians are concerned about their ability to safely meet the challenges of providing care to even mildly preterm infants as exemplified by PICU admission criteria. It seems inappropriate to suggest that any clinician – nurse or doctor – should provide care to any patient group in the isolated circumstances of an emergency transfer, when they would not feel competent to provide similar care in the more controlled circumstances of a hospital critical care unit.

  This option is not likely to provide a safe or quality service and is not professionally supported within the neonatal body. It has been considered and rejected in most other parts of the UK.

- **Achievability**

  The transport service already in place for PICU might provide a helpful springboard to achievability. However the divergent medical and nursing training pathways for PICU and NICU, the lack of tried and tested UK models for a combined model and lack of Welsh neonatal professional support is likely to deter recruitment.

  Informal discussions with the Paediatric Intensive Care service suggest that they would be unwilling to offer similar priority to Neonatal transfer as to their own cases if there were to be two calls received at the same time. Without clinicians skilled in both Neonatal and Paediatric Intensive Care transfer it would be difficult to afford relative priority to cases. This would make operation of the service difficult to achieve.

- **Affordability and Efficiency**
  Given the diverse skills required for delivery of PICU and Neonatal transport, it is likely that rostered transfer teams would have to double up to make the full range of skills available. It is unlikely that a combined model would be any more affordable than the other models considered here.
  Efficiency would also be low for a service provided in isolation from ward based neonatal care.

  Affordability would be comparable to other options. Efficiency would likely be low.

- **Sustainability**
  It is difficult to assess the sustainability of such a model as there is no other similar model currently functioning in the UK. Lack of professional attractiveness might limit the threat to sustainability of existing neonatal units, but consultant support would probably make the service itself unsustainable.

Option 5: A Service Provided Jointly with the West of England (Bristol)

This model has not been extensively researched and it is unclear how it might be delivered in any detail. We are aware that this model was considered by the West of England team when their transport service was set up but rejected on the grounds that the distances to be covered are too great and the volume of transfers would mean unacceptably long response times. Given this option has already been discounted by the West of England, it would make its achievement at this stage extremely unlikely.

- **Quality and Safety**
  The largely Advanced Neonatal Nurse Practitioner-delivered Bristol transfer service is believed to be high quality, and is currently supported by 2 Advanced Neonatal Nurse Practitioners recently recruited from the Cardiff Neonatal Unit.

  The distances involved in a joint service for both Regions would obviously be much greater, exacerbated by the peculiar split geography determined by the Severn Estuary. This would be reflected in slower response times, particularly to West Wales.

- **Achievability**
  It is known that Advanced Neonatal Nurse Practitioner staff recruitment has been very problematic in Bristol, only has only recently been partially resolved by the movement of staff from Cardiff to Bristol. It is likely that increased staff recruitment to deliver a combined service based on one centre would be problematic. The divergence of health services in Wales and England provides further obstacles to this form of integration.

- **Affordability and Efficiency**
  It is unclear whether a joint service with the West of England would offer affordability advantages. It is known that currently HCW commissions neonatal cardiac transfers from Bristol at considerable expense. The proposals here for Wales provided neonatal transfer models provide the opportunity for repatriation of that expenditure to Wales.

  Investment in services provided outside Wales would do nothing to support and improve the efficiency of neonatal units within Wales.

- **Sustainability**
  Investment in clinical services outside Wales in general decreases the sustainability of specialized services delivered locally in Wales. Although this proposal has not been looked at in detail due to the likely lack of engagement from West of England in this proposal in any case, this is likely to be true for tertiary neonatal services.

3.7 Staffing Options

Staffing options for the service discussed below are for the Neonatal Transfer Service as a whole across North and South Wales. The teams will face the same challenges of safety, achievability and sustainability delivering transfer from the one centre across North Wales or from three in South Wales. The Transport service will require a Clinical Director in both North and South Wales and a senior nurse responsible for the service to lead on training, education, guideline and service development as well as clinical governance and management.

For service delivery, the minimum staff requirement for the safe transport of an infant requiring intensive care is one appropriately trained neonatal nurse and another experienced clinician, either a doctor or Advanced Neonatal Nurse Practitioner. There may be occasions for which it would be desirable for three clinicians to be present depending on clinical circumstances or need for training. As stated above, the current ad hoc arrangements lead to unacceptable clinical risk in both referring and receiving units and it is therefore essential that there are dedicated personnel to provide this service. In order to achieve a sustainable service, this provision should be sufficient to allow natural turnover of staff without destabilisation of the service.

As a principal there should be one consultant neonatologist whose sole duties are to the transport team on for the service at all times to ensure quality of service delivery. If not actively engaged in transfer, the consultant will undertake activities supporting transport such as training, audit and risk management. In addition there should also always be one appropriately trained transport nurse able to operate the equipment, draw up and dispense drugs and infusions, assist with procedures, documentation and communication. If the nurse is not carrying out transfer they can support colleagues in the delivery of ward-based care.

The following staffing options for the provision of neonatal transport were considered and each option appraised with respect to

- Quality and Safety
- Achievability in the current clinical staffing climate
- Affordability and Efficiency both for the service itself and of neonatal units it supports
- Sustainability both of the transport service itself and of neonatal units it supports

Option A. Consultant delivered.

In this model a consultant would lead every transfer.

- **Quality and Safety**
  This would provide a high quality service that would deliver optimal assessment of the baby and reduce risk. There would be improved communication with the referring paediatricians and parents and opportunity to develop teaching and training.

- **Achievability in the current clinical staffing climate**
  Although there are a number of consultants already in post in each of the tertiary neonatal units interested in participating in a transport service, there are not sufficient to provide such a service without significant investment in new consultant posts in order to continue to provide the existing service in neonatal units and the transport service. It is unlikely that recruitment to Transport only posts would be successful as these are not considered attractive, making this option likely to be unachievable.

- **Affordability and Efficiency**
  This would be an expensive option requiring significant investment in Consultants. A minimum of 9 individuals might be required to provide a separate rota for transport on a 24 hour basis. In addition to not being an attractive role, even with commitment to training, service development and management, carrying out only transfer would not be an efficient use of Consultant time. Individuals would need to be part of individual units with service and on-call commitment to those units in order to maintain skills in ongoing patient management in addition to acute care.

- **Sustainability**
  Even if recruitment to these posts were possible, which is unlikely, it is probable that this recruitment would only be short-term making the service unsustainable.

  Trainees in neonatal medicine require training in neonatal transport and therefore any training post in neonatology should include opportunities for neonatal transport and emergency transfer. It is therefore important for the service in Wales to provide that training in order to continue to attract trainees in neonatology to Wales.

Option B. Middle grade doctor delivered / consultant led.

A consultant is available for the transport service at all times. S/he would accompany a middle grade on intensive care transfers for purpose of training and assessment of competency. Once appropriate competency has been achieved, the middle grade would be able to undertake transports unsupervised. However there may still be clinical circumstances in which the consultant may also be required to attend.

- **Quality and Safety**
  For many years, transport of neonates has been provided by middle grade medical staff with nursing support, however more recently there have been significant changes which make this option challenging. Doctors are becoming less experienced due to shorter training times and this will be compounded by the European Working Time Directive deadline in August 2009. With appropriate training and competency assessment however this model will be able to provide a safe and high quality service.

- **Achievability in the current clinical staffing climate**
  There is a crisis in middle grade recruitment. In October 2008 BAPM undertook a survey of the 400 or so middle grade neonatal posts in the UK. There were about 60 vacancies (20% of posts) and in many units consultants were undertaking the middle grade duties to maintain the service. Wales is also experiencing difficulties with recruitment of middle grade doctors in neonatology. For these reasons delivering a transport service using middle grade doctors alone is likely to be unachievable, potentially unsustainable and in some ways undesirable.

- **Affordability and Efficiency**
  This model would be no more expensive than any other model and would incur less cost than a consultant delivered service. Middle grade doctors when not rostered for transport would contribute to service provision on the neonatal units thereby improving staffing and quality of care on the units allowing efficient use of their skills to the benefit of each of the tertiary units in Wales, thereby supporting not just transport but the service as a whole. This would also help facilitate introduction of EWTD compliant rotas and provide efficient use of investment.

- **Sustainability**
  Trainees in neonatal medicine require training in neonatal transport and any training post in neonatology should include opportunities for neonatal transport and emergency transfer. It is important for the service in Wales to provide that training in order to continue to attract trainees in neonatology to Wales. It would therefore be important for the service to include appropriately trained middle grade doctors for transfers once they are deemed to be competent. If middle grade doctors can be recruited to facilitate introduction of EWTD compliant rotas their training should include neonatal transport and all middle grade trainees should be included in a rota for the provision of

neonatal transport. This would enhance neonatal training in Wales which in turn may help improve future recruitment and maintain a sustainable service.

Option C. Advanced Neonatal Nurse Practitioner delivered / consultant led.

A consultant is available for the transport service at all times. S/he would accompany an Advanced Neonatal Nurse Practitioner on transfers for purpose of training and assessment of competency. Once appropriate competency has been achieved, the Advanced Neonatal Nurse Practitioner would be able to undertake transports unsupervised. However there may still be clinical circumstances in which the consultant would also attend.

- **Quality and Safety**
  In some parts of the UK, neonatal transport is delivered satisfactorily by appropriately trained Advanced Neonatal Nurse Practitioners and it is clear that with appropriate training, Advanced Neonatal Nurse Practitioners can deliver a safe and high quality service.

- **Achievability in the current clinical staffing climate**
  Advanced Neonatal Nurse Practitioners are in short supply and highly sought after. At present there are only four employed in Wales – two in Cardiff and two in Swansea. Two others who previously worked in Cardiff have left to work in a transport service in Bristol. There are insufficient Advanced Neonatal Nurse Practitioners currently available to provide this service and those in post are either not experienced enough or would require additional training to provide an emergency transfer service alone. In addition, they also have other commitments such as participating in the first on medical rota and those currently employed in Swansea do not work nights or weekends. It would therefore not be possible to deliver this model immediately. However it will be possible over time to develop Advanced Neonatal Nurse Practitioners into taking more responsibility within the transport service. It takes 18 months for a neonatal nurse to train as an Advanced Neonatal Nurse Practitioner. It would take an additional 3-5 years following training during which skills are further developed before a Nurse Practitioner might be competent to undertake an intensive care transport unsupervised. Therefore whilst not achievable immediately, it is clear that Advanced Neonatal Nurse Practitioners have the potential to provide a valuable role in the future delivery of neonatal transport.

- **Affordability and Efficiency**
  This model would be no more expensive than other models and would incur less cost than a consultant delivered service. Advanced Neonatal Nurse Practitioners are interested in transport and have potential to independently and efficiently provide some of the lower intensity transfers. When not rostered for transport they would contribute to service provision on the neonatal units thereby improving staffing and quality of care on the units allowing efficient use of their skills to the benefit of each of the tertiary units in Wales, thereby supporting not just transport but the service as a whole. This model therefore has potential to deliver an efficient service whilst also supporting the individual units and is therefore an efficient use of investment.

- **Sustainability**
  Any proposal to train Advanced Neonatal Nurse Practitioners for the service would entail risk as the training might not be successful and as with any post there is a natural turnover of staff. Advanced Neonatal Nurse Practitioners are in high demand due to the support they can provide both to the medical and nursing service on neonatal units and there are vacancies for Advanced Neonatal Nurse Practitioners in many neonatal services including transport. Long-term recruitment of Advanced Neonatal Nurse Practitioners alone to deliver transport may not therefore be possible or sustainable.

  In the longer term this mode could be provided with increased training and staffing co-ordinated through the Network.

Option D. A hybrid model incorporating consultants, middle grade doctors and Advanced Neonatal Nurse Practitioners

Neonatal Transport would be delivered by competent staff (consultant/ middle-grade/ Advanced Neonatal Nurse Practitioners) according to perceived clinical need and availability of staff, led by a consultant.

- **Quality and Safety**
  This model would ensure a safe and high quality service and would ensure that safe and efficient neonatal transfer is carried out by appropriately trained individuals most-suited to the clinical situation, thus providing an achievable but high quality service. All practitioners would be trained to achieve specified competencies.

- **Achievability**
  Investment would be required at consultant and middle grade level as well as for Advanced Neonatal Nurse Practitioners and nursing staff however it is believed that this investment across grades would be achievable. This would also provide much needed support to all three tertiary units facilitating an improvement in care provided for babies in Wales.

- **Affordability and Efficiency**
  This model whilst probably not the cheapest option is also not the most expensive and has the advantage of supporting all 3 tertiary units across South Wales thereby improving staffing levels and quality of care and begin the process of delivering the Neonatal Standards for nursing staffing in intensive care published in 2008. It is therefore considered to be both an affordable and efficient use of investment.

- **Sustainability**
  Both for the transport service itself and of neonatal units it supports, this model would ensure optimal care for the baby whilst providing an efficient service and improving opportunities for training in Wales which in turn should improve future recruitment making the service sustainable in the long term.

3.8 Preferred model for staffing and delivery

3.8.1 Service model

Options 1 or 2 would both provide high quality and safe services. Options 3 and 4 both carry very high risk for quality and safety and are rejected on those grounds. The Bristol model 5 is an unknown quantity as regards quality and safety.

Only Option 2 – the unified service with each Level 3 unit responsible for delivery in rotation – offers a high chance of early achievability.

All options are probably broadly similar in affordability, but Option 2 offers the greatest benefits in terms of efficiency.

Options 1, 4 and 5 all carry medium or high risk for sustainability of existing intensive care units and/or of the transport service. Option 3 – the stand-alone service is thought to be unsustainable. Option 2 offers the best chance of sustainability.

The preferred service model is Option 2.

3.8.2 Staffing

Each of options A-C has problems with achievability or sustainability. Option D, the hybrid model, is believed to be the most achievable in the short and medium term. This option is also an efficient and sustainable option for staffing in the long term given the issues explored above. Dedicated staffing for transport will ensure safe environments in individual units for existing patients whilst allowing timely emergency transfer of sick infants. The model would also provide much needed support to the three nominated units, facilitating an improvement in quality and safety of care provided for babies in Wales.

The improvement in nursing staffing will start the process of delivery of the neonatal standards for staffing in intensive care. It is believed that this option provides a high quality, achievable and sustainable service and at the same time provides efficient use of investment across all three tertiary units in South Wales.

3.9 Cross-cutting issues

3.9.1 Training

An important element of any transport service is teaching and training. This encompasses the staff directly involved in providing the service and the staff in the referring hospitals who are involved in the initial resuscitation and stabilization process. The needs of these two groups differ.

The views of the staff will be sought in setting up training programs. Initial feedback indicates that the training may best be provided to the referring hospitals via a combination of a) sabbaticals in the level three centres for the lead consultants in the referring centres, b) in house training and case based discussion provided at the

individual hospitals and c) all Wales neonatal transport study days with local and external speakers

Teaching and training of the staff providing the service will include competency based assessments as an ongoing process

There will be a requirement for training equipment with an estimated one-off capital cost of £25,000. There may also be a small yearly cost of organizing training session venues.

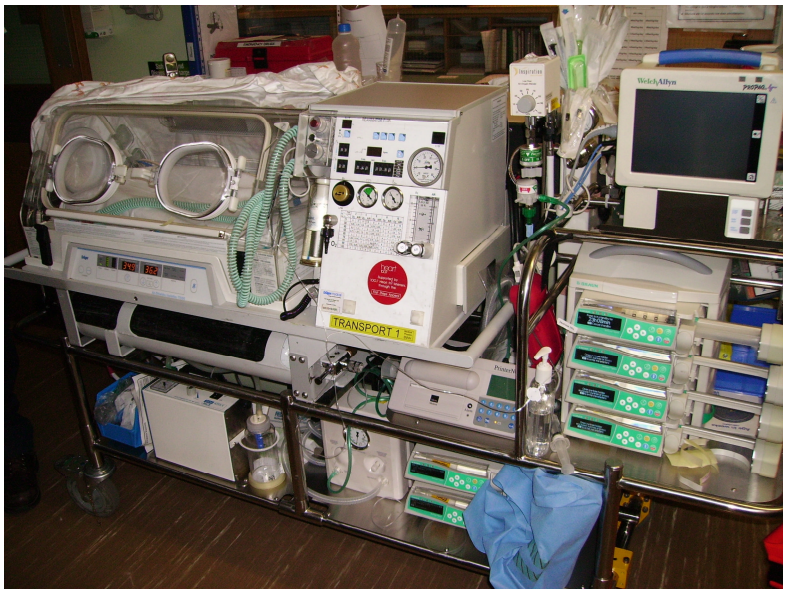
3.9.2 Equipment

Each nominated Transfer unit requires equipment to deliver neonatal care safely during transport. Each unit currently has its own neonatal transport system but each of these systems is different. In many units the equipment is old and needs to be replaced. Furthermore, the old trolleys on which the equipment is mounted no longer meet the safety guidelines to secure into the new ambulances.

The North Wales service has recently replaced its old neonatal transport equipment with two new fully equipped trolleys. There would be many advantages in having the similar transport equipment in each transfer unit in South Wales. This would facilitate training and improve quality and safety by reducing diversification of equipment type and so increase familiarity among staff transferring between units. It would also enable sharing of equipment and cross cover in case of equipment failure or staff sickness.

Costs for procurement of three fully equipped neonatal transport trolleys have been included in the costs of development of the Transfer service, one for each of the three centres in South Wales. The units in North Wales have recently procured new equipment that does not require replacement. Each unit would be responsible for cleaning, maintaining and servicing the equipment, replacing disposables, and ensuring that the equipment that it is fully charged and ready for service. This would enable each unit to undertake its own repatriation regardless of who was on take for that week.

An example of Neonatal Transfer equipment is shown below:



The Paraid trolley is fitted with, in a clockwise direction

- *Globetrotter* Incubator, ventilator and air compressor
- Air/O^2 Blender
- *Propaq* Monitor with *Philips* plugs/sockets, *Masimo* SPO^2 and $EtCO^2$
- Nitric Oxide cylinder and flow meter
- x *Braun* Infuser “space” syringe pumps
- *Printernox* Nitric Oxide monitor
- 2 x *Braun* Infuser “space” syringe pumps
- *Neopuff* resuscitator
- *SAM420* Suction pump
- Oxygen cylinders

In addition to the Transport trolley, the Transport team carries a bag of equipment including ventilator tubing, long lines, catheters, arterial sampling lines, chest drains and any other equipment that might be needed to stabilize and treat the baby. The referring unit is expected to provide some of the drugs required such as surfactant and antibiotics but a small number of drugs (e.g. dopamine, adrenaline) are also carried by the transfer team in case they are required during transit. Restraint harnesses to secure babies in the incubators should also be used to ensure babies’ safety during transfer.

The business case includes a recurrent cost to cover disposables and drugs.

3.9.3 A website

A website will be developed to support the Neonatal Transport service. This will be accessible by all units and will contain:

- Transfer rotas and telephone numbers
- Clinical and procedural protocols
- Information for parents and maps of individual units and directions
- Training materials
- Audit materials
- Annual reports once sufficient data have been collected.

The website will be maintained by the Network in discussion with all units providing Neonatal critical care.

3.9.4 Ambulance Services

Discussions have taken place with the Welsh Ambulance Service Trust and St John's Ambulance to seek costs for providing a responsive ambulance service to enable the delivery of the service. The following possibilities were considered:

- Dedicated neonatal ambulance and driver to be available at all times, either by Welsh Ambulance Service or St John's Ambulance
- Other private ambulance service
- Using the usual ambulance service but ensuring all neonatal calls are made with an amber priority so there would be a response to allow a transport team to set out within 30 minutes maximum for a time critical transfer. Arrangements would also need to be made for timely responses to other transfers and repatriation.

The service in North Wales will continue to be delivered by the Welsh Ambulance Service Trust as there is not a voluntary sector provider such as St John's Ambulance who have enough staff or vehicles in North Wales to provide this service. Given the disparity in the number of transfers likely to be carried out in North and South Wales and the differing modes of service delivery it is likely that the provision of ambulance transport will be different in North and South Wales.

The use of the PICU ambulance in South Wales was considered and discounted at an early stage for the following reasons:

1) PICU want to take priority in the event that both the neonatal team and the PICU team are called out simultaneously. This may not be appropriate clinically. There may be occasions when the ambulance is needed urgently for both a neonatal and paediatric transfer simultaneously.
2) The volume of transports makes it likely that more than one vehicle would be needed for a high proportion of the time.
3) There would be real problems if the PICU ambulance was off the road for servicing or maintenance, as would be likely for approximately 20% of the time.
4) The use of the PICU ambulance, which is located in Cardiff with the PICU Transfer Team does not fit well with the preferred model for a neonatal transport service which would be rotated between three nominated units.

However, there may be scope for both the neonatal and PICU ambulances to be used reciprocally for back-up in each service for situations that demand simultaneous emergency responses, thereby improving the quality and efficiency of both services and reducing clinical risk.

There is an advantage in having a vehicle dedicated to neonatal transfer. A dedicated ambulance enables additional safety features to be incorporated and also enables the ambulance to carry some of the kit which may be required only on an occasional basis

Standards for repatriation transfer of babies requiring step-down care will be agreed across the Network with patient transport vehicles used to carry out these transfers between units.

4 Economic Case

Implementation of the preferred model of care across Wales would ultimately be on a 24 hour basis. However within the funding currently available, offering service at this level would not be possible.

Options set out below state the cost of implementing a range of options. Specific details of costs can be found in Appendix 4.

The options described below set out the differential financial costs and clinical risks of doing nothing, implementing a 12 hour service in the first instance and the development of a 24 hour service. The inclusion of a Do Nothing option is for comparison only.

4.1 Do Nothing

Although infants have been transferred between units for many years, these arrangements have been unplanned, unresourced and unsupported by adequate training. There is a lack of clear responsibility for transport arrangements, lack of uniform clinical standards and such transports as are achieved are performed "as a favour" when resources can be scraped together. Although there are some potential benefits of the status quo, these are far outweighed by challenges to safe and effective care and good clinical outcomes. The challenges have progressively increased to the point that Wales is no longer delivering an effective transport service and currently lags behind most other parts of the United Kingdom in this respect. There have been many occasions when the service has broken down due to lack of available staff and retrievals have been delayed by many hours

Benefits

1) Does not require any extra resource beyond that commissioned in each unit.

2) In theory the service can be available 24 hours a day.

3) The team transporting the infant is usually drawn either from the sending or receiving unit so communication and continuity of care is straightforward.

Challenges

1) Whilst the current situation theoretically allows for transfer to take place 24 hours a day, in practice changes in junior medical staff training, experience and limitations deriving from the European Working Time Directive make out of hours transfer nearly impossible. Emergency transfers of neonates take skilled medical staff away from their base unit, leaving these units understaffed, especially out of hours and at weekends. During the night when there is only one registrar or consultant on duty, transfer depletes the unit of

the services of one or other of these doctors, often for many hours, leaving other babies at risk and other members of the clinical team under-supported. That risk also extends to unanticipated clinical problems for newborn babies in the labour ward. Even where a transport can eventually be undertaken, there is frequently excessive delay as the workload in Neonatal Intensive Care units is managed to free up staff for transfer.

2) Operating Transfer in this way leads to clinical risk and potentially poor clinical outcomes in both sending and receiving units. These problems are increasing due to decreasing experience of middle grade staff and their limited ability to perform transfer safely. The increasing acuity and activity within Neonatal Intensive Care units is making staffing of the transport service in its current configuration unsupportable.

3) Neonatal transfer requires a skilled neonatal nurse. An emergency transfer or transfer takes a skilled nurse away from the base unit and may leave cots without adequate nursing cover. This leads to clinical risk and potentially poor clinical outcomes in both sending and receiving units.

4) Frequently, Neonatal High Dependency and Special Care Baby Units are staffed out of hours by consultant paediatricians whose usual work does not allow them to maintain adequate neonatal skills. The Neonatal Transfer team may need to undertake prolonged stabilisation of these sick babies to ensure optimal condition prior to transportation. It is important that this is undertaken by experienced and skilled neonatal staff. Most anaesthetists do not have the specific skills required for the stabilisation of these babies, who are often very small, unlike in cases where older children require paediatric intensive care. The lack of a dedicated Transfer team and Network has meant that no training has been provided to peripheral units on stabilisation beyond the immediate period of resuscitation. This leads to clinical risk and potentially poor clinical outcomes in both sending and receiving units.

5) This problem has progressively worsened due to the development of specialisation within paediatrics and the requirement to provide acceptable consultant on call rotas.

6) Because of the shortages of intensive care cots, doctors, midwives and nurses from Special Care and High Dependency units often have to ring around to try to find an available cot and then try to organise transport. This takes the clinician away from delivering patient care at a time when their time is needed to attend to the sick neonate. This also introduces delays, uncertainty and stress for the family.

7) Pressures within the Ambulance Service have been well publicised. Currently the ambulance service is unable to give adequate priority to calls for neonatal emergency transfers. There is a lack of understanding or acceptance outside the neonatal service that infants needing critical care are not in a ‘safe place’

in a Special Care or High Dependency unit even though they are already in hospital. Other '999' calls are usually given priority. There have been instances where teams have had to wait up to 12 hours for an ambulance before being able to set out to retrieve a sick baby from another unit.

This leads to:

- Increased clinical risk and poor clinical outcomes
- Enormous stress for families knowing that their critically in child is not in the best place for life-saving treatment
- Unreasonable pressure on staff in Special Care and High Dependency units having to work beyond their capacity, capability, training and experience
- Emergency neonatal transports which could be done in day time hours taking place out of hours when ambulances are available but fewer and less appropriate staff are on duty in the Neonatal units

This problem has escalated alarmingly over the last 5 years.

8) The expectation of more out of hours hands-on care by consultant neonatologists coupled with increasing recruitment difficulties for middle grade medical staff and consequent uncovered rota gaps mean that the transfer service in its current configuration is unsustainable. There are not the staff on duty to allow a team to leave the unit.

9) Ambulance availability for step down transfers to local units is also problematic and frequently leads to transfers delayed by days. This results in enormous increased stress and expense for families having to visit or stay with their babies long distances from their homes for longer than necessary. Highly inefficient use of very limited and expensive critical care capacity in Level 3 units, meaning that critical care beds are blocked to new referrals for long periods – wrong patient in the wrong place. This problem has worsened in the past five years.

10) The fragmented neonatal transport service currently in operation makes it difficult to ensure quality, provide consistency, introduce service improvements and provide excellent training and leadership.

This option presents unacceptable clinical risks and is unsustainable.

4.2 Full implementation of 24 hour model across Wales

The aim is to provide neonatal transport 24 hours per day, seven days per week.

Benefits

1) Delays in accessing the service will be minimal, with a team available to be dispatched at any time of day or night to stabilise and retrieve sick babies to the most appropriate place of care.

2) Increased numbers of staff within the service would facilitate training of staff in the local units to deliver better resuscitation prior to the arrival of the Transfer team, raising the clinical quality across the service and working towards achievement of clinical standards.

A 24 hour service is highly desirable to enable reconfiguration to occur which may ultimately result in reducing costs and a better quality service

Challenges

1) Significant numbers of staff will need to be recruited, a process that is likely to take time to achieve the desired number of appropriately trained staff.

2) There are insufficient funds available to deliver the 24-hour model at present. The clinical community is certain that this standard needs to be achieved in the near future. In order to implement a sustainable 24 hour service, an additional £1.5m would be required in addition to the £2m already allocated.

Due to funding constrains and availability of staff it is likely that a 24 hour service will need to be introduced in a phased manner over time while recruitment and training take place, once additional funding can be made available for investment in the service.

4.3 Implementation of 12 hour model across Wales

As has been the case in other transport services in the UK, there is a possibility to establish the service with 12 hour operation in the first instance with a view to the service increasing to 24 hour operation once further funding is available and / or staff can be recruited to fill all available vacancies.

Benefits

1) The implementation of a 12 hour model will allow for phased development of the service, ensuring that the service model is acceptable and there is time for staff to be trained appropriately to work within the service.

2) A service of acceptable quality can be delivered within the funding allocated for Neonatal development.

Constraints

1) Some babies will still have to wait for expert stabilisation and transfer as transfer is unlikely to be possible outside the usual hours of service.

2) There is still likely to be some challenge in appointing all the clinical staff required to ensure the sustainable establishment of the service. However, it is expected that the commencement of a Transfer service will make Wales more attractive for staff in training to come to Wales.

4.4 Suggested option

Given the likely availability of suitably qualified staff and the constraints of available funding, it is recommended that the service be established on a 12 hour basis in the first instance as set out in 5.3.

5 Conclusion

The establishment of a Neonatal Managed Clinical Network for Wales will facilitate the improvement in quality of care across all units in Wales offering any type of neonatal care. The appointments of clinical and managerial staff to this Network will co-ordinate the achievement of standards and drive the implementation of a Neonatal Transfer Service for Wales.

The Neonatal Transfer service proposal has the following benefits for all Wales

- There would be one neonatal transport service for the whole of Wales aspiring to similar standards;
- It would use the strengths within the system by enabling the consultants and nurses interested and skilled in transport to continue to participate;
- It would be sustainable and would not destabilise in the event of natural staff turnover;
- It would offer high quality clinical services, supporting resuscitation and stabilisation in local units as well as transport of babies between units;
- The preferred model would be attractive to staff and support recruitment and retention;
- The model would enable new investment to support the achievement of staffing standards in units across Wales;
- The preferred model would make efficient use of resources by putting the right baby in the right place at the right time and by utilizing the skills and time of the transport staff to support ward based care when transport services are not immediately required.

- The network and neonatal service will benefit from investment in the Badgernet neonatal database as a clinical tool and for audit, and benchmarking.

6 Recommendations

The All-Wales Neonatal Group recommends that the development of a 12 hour Neonatal Transfer service would be an achievable and sustainable start to improving care for very sick babies in Wales.

The Group is keen to establish the Neonatal Managed Clinical Network at the earliest opportunity to facilitate the development of the Transfer service, ensure that audit data is collected and use that data to evaluate services against the published Neonatal Intensive Care Specialist Services Standards.

Early discussions with BadgerNet, the provider of the audit platform for the Neonatal Database, suggest that they would be content for NHS Wales to purchase in advance sufficient capacity for 18 months of admissions to enable the funding set aside on a recurring basis to be used for additional training in the first two years. £120,000 over two years would enable staff to attend training to become Advanced Neonatal Nurse Practitioners [ANNPs] and allow hospitals to back-fill their vacant posts ensuring continuity of the service. This will help to make the Neonatal service more sustainable in the future.

Further recommendations have been made for expenditure of slippage in 2009/10, including:

- Procurement of training equipment for the Network [£25,000]
- Criticool cooling systems for each unit to allow cooling of babies with hypoxic ischemic encephalopathy [£72,000 in total]
- Cerebral function monitors [£80,000 in total]

Whilst desirable, these items are not essential for the establishment of the Network or the delivery of the Transfer Service.

References

1) Improved Outcomes of extremely premature outborn infants: Effects of strategic changes in perinatal and transfer services. K Lui et al. Pediatrics 2006;118;2076-20832) Improved outcome of preterm infants when delivered in tertiary care centres LY Chien et al Obstet Gynecol 2001;98;247-252

3) An analysis of neonatal morbidity and mortality in maternal (in utero) and neonatal transports at 24-34 weeks gestation PA Shlossman et al Am J Perinatol 1997;14:449-456

4) Survival and place of treatment after preterm delivery. D Field. Arch Dis Child 1991;66:408-11

5) Recent changes in delivery site of low birth weight infants in Washington: impact on birth weight specific mortality. SL Powell Am J Obstet Gynecol 1995;173:1585-1592

6) The effect of birth hospital type on the outcome of very low birth weight infants Warner B et al. Pediatrics 2004;113:35-41

7) Selective head cooling with mild selective hypothermia after neonatal encephalopathy a multicentre randomised trial. Gluckman PD Lancet 2005;365:663-70

8) Moderate hypothermia in neonatal encephalopathy Efficacy outcomes and safety outcomes Eicher D et al Pediatr Neurol 2005;32:11-24

9) Cooling for newborns with hypoxic ischaemic encephalopathy Cochrane Database of systematic reviews 2009 (ISSN 1464-780X)

10) Effect of a centralised transfer service on characteristics of inter hospital neonatal transfers. Kempley et al: Archives of Diseases of Childhood 2007; 92: F185 – 188

11) All Wales Neonatal Standards for Children and Young People Specialised Health Care Services Welsh Assembly Government published December 2008

12) All Wales Universal Standards for Children and Young People Specialised Health Care Services Welsh Assembly Government published December 2008

13) Towards safer neonatal transfer: the importance of critical incident review Moss SJ et al Arch Dis Child 2005;90:729-732

14) The S.T.A.B.L.E Program post resuscitation / per transport stabilization Care of sick infants Guidelines for healthcare providers Kristine Karlsen

15) Guidelines for Air and Ground Transport of neonatal and Pediatric p[atients American academy of Pediatrics – Third edition

16) Pediatric and Neonatal Safe Transfer and transfer - The practical approach Advanced Life Support Group

17) Inhaled nitric oxide in neonatal and paediatric transport D Lutman, A Petros Early Human Development 2008:84;725-729

18) Who should staff neonatal transport teams? A C Fenton, A Leslie Early Human development 2009:85;487- 490

19) Vehicles and equipment for land based neonatal transport ST Kempley, N Ratnavel, T Fellows
Early human development 2009:85;491-495

20) NHS Neonatal task force Draft standards. Standard 4 –Transfers

1. Costed Implementation Plan

		Unit Cost	Short term £	Recurring £	Part year £
Funding no longer required in Cwm Taf			**-75,360**		
Capacity investment - Swansea, Newport			**427,640**		
Subtotal Capacity Investment			**503,000**		
Neonatal Managed Clinical Network					
Clinical Director [0.3 WTE South, 0.2 WTE North]	Consultant	125,000		62,500	15,625
Lead nurse [0.7 WTE South, 0.3 WTE North]	Band 8a	55,000	55,000		
Network Manager [1 WTE across Wales]	Band 8a	55,000		55,000	13,750
Administrative assistant [0.75 WTE]	Band 3	22,000		16,500	4,125
Subtotal Network costs			**55,000**	**134,000**	**33,500**
BadgerNet Audit Database					
Cost per neonatal admission [expecting 4,000]		12		48,000	12,000
Annual licence		2,000		26,000	6,500
PAS interface		4,900	63,700		
Optional interface helpdesk support				6,370	1,593
Lump sum payment for 18 months of revenue costs		120,555	120,555		
Subtotal database costs			**184,255**	**80,370**	**20,093**
12 hour All-Wales Neonatal Retrieval Service Model					
Consultant Neonatologists [3 WTE South, 2 WTE North]	Consultant	111,000		555,000	138,750
Specialty/Middle Grade doctors [3 WTE South, 2 WTE North]		65,000		325,000	81,250
Advanced Neonatal Nurse Practitioners [3 WTE South]	Band 8a	56,500		169,500	42,375
Senior Nurse Manager [1 WTE South]	Band 8a	50,000		50,000	12,500
Neonatal nurses [6 WTE South, 2.75 WTE North]	Band 6	38,440		336,350	84,088
Administrative assistants [1.5 WTE South, 0.5 WTE North]	Band 3	22,000		44,000	11,000
Ambulance Transport				250,000	62,500
Intensive Care Transport Trolleys [3 South]		90,000	270,000		
Establishment of Network Website			10,000		
BadgerNet Training			1,800		
Equipment for restraint of babies during transport		2,000	8,000		
Transport study day			7,500		
Network Launch			3,000		
Training to use new transport incubator equipment			5,000		
Additional transport equipment, e.g. transport bags			10,000		
Advertising new posts in national press			10,000		
Subtotal 12 hour Retrieval Service			**325,300**	**1,729,850**	**432,463**
Total recommended priority investment			**1,067,555**	**2,371,860**	**1,500,018**

Additional non-recurrent investment suggested					
Training equipment			25,000		
Criticool cooling system		18,000	72,000		
Cerebral function monitor		20,000	80,000		
Additional 6 months revenue costs for BadgerNet			40,195		
Total non-recurrent investment			**217,195**		

Additional costs for 24 hour Service Model					
Consultant Neonatologists [3 WTE South, 2 WTE North]		125,000		625,000	
Specialty/Middle Grade doctors [3 WTE South, 2 WTE North]		85,500		427,500	
Neonatal nurses [3 WTE South, 2.5 WTE North]		40,200		221,100	
Administrative assistants [1.5 WTE South, 0.5 WTE North]		22,000		44,000	
Ambulance Transport				250,000	
Personal Liability Insurance				30,000	
Subtotal 24 hour Retrieval Service				**1,567,600**	

Total 24 hour Transfer Service				**3,939,460**	

2. A Neonatal Managed Clinical Network for Wales

1. Introduction

The Minister for Health and Social Services has announced support for the establishment of a Neonatal Managed Clinical Network in Wales.

This document suggests a structure for a Neonatal Network across Wales. It describes the key roles and responsibilities of the network, its board, its stakeholders and that of the host Health board.

2. What is a Network?

A Managed Clinical Network is a linked group of health professionals from primary, secondary and tertiary care working in a coordinated manner to ensure equitable provision of high quality clinically effective services unconstrained by existing professional and health board boundaries. A Neonatal Network will be an important force in improving care for pre-term and other babies who are very sick.

In its 2005 review of Neonatal Services in Wales, Health Commission Wales proposed separate Neonatal Networks for North and South Wales. There are strong arguments for having only one neonatal network in the whole of Wales. These include:

- Ensuring similarly high quality standards across the whole of Wales with similar (but not necessarily identical) guidelines and pathways.
- Collation of information across Wales for the purposes of audit, bench-marking and improvement of outcomes.
- Sharing lessons learned widely across Welsh Neonatal services.
- Enabling North Wales and South Wales Neonatologists and neonatal nurses to interact more freely, learning from each other and supporting each other.

Technology is now becoming more widely available to enable freer communication through means such as videoconferencing without the need for travel.

In other parts of the U.K. where Networks have already been established these have become larger and merged. Most networks now cover areas with birth rates of 25,000 to 50,000 per annum.

3. What are the benefits of Clinical Networks?

The following benefits have been attributed to Clinical Networks:

- Integrated and standardised care – promotion of excellence through protocols / guidelines, **Error! Hyperlink reference not valid.** and audit.
- Cost effective use of specialised staff and equipment
- Working together to manage risk
- Education and training and shared knowledge management
- Improve clinical outcomes and quality of patient care
- They provide better support for implementation of standards.

4. Who does the Network represent?

The Welsh Neonatal Network will bring together the following organisations to deliver improvements in Neonatal standards of care:

- Betsi Cadwalladr Local Health Board
- Aneurin Bevan Local Health Board
- Cardiff and Vale Local Health Board
- Cwm Taf Local Health Board
- Abertawe Bro Morgannwg Local Health Board
- Hywel Dda Local Health Board
- Powys Local Health Board
- Ambulance service provider
- Welsh Health Specialist Services Team
- Parent group representatives.

5. Membership of the Neonatal Network Board

The Board will be accountable to the Welsh Health Specialist Services Committee and will consist of:

- Clinical leads in Neonatology from North and South Wales
- Nurse leads in Neonatology from North and South Wales
- A specialist planning manager representing the Welsh Health Specialist Services Team
- A manager at Director level from a nominated LHB in North and South Wales
- Network Manager
- Chair [LHB Director or Chief Executive]
- Ambulance Service representative
- Obstetrician representative
- Parent representatives from North and South Wales
- A Public Health Lead

The Board should meet bimonthly and is quorate when 50 per cent of members excluding the core team [Network Manager, Clinical and Nursing Leads] are present. The roles of the Network are set out below in section 6. The Board will receive reports on local progress and provide strategic direction for Neonatal services in Wales.

6. Proposed roles of the neonatal network:

The neonatal network should be responsible for:

- Neonatal intensive care, high dependency care, special care and transitional care
- Neonatal transport
- Links with other services – eg obstetrics, midwifery, paediatric surgery, paediatric cardiology, other paediatric specialities
- Delivering the contract with the pregnant woman
  -- Coordination of care within known group of hospitals

  - -- Information collection and collation
  - -- Maintenance of local services
  - -- Ensuring equality of access
  - -- Delivering the appropriate services in the right place, as close to home as feasible

- Clinical governance
  - -- Guidelines
  - -- Audit
  - -- Education
  - -- Training
  - -- Interacting with parents, carers and parent groups
  - -- Risk management
  - -- Research and development

- Improving outcomes
  - -- Maintaining and improving quality standards
  - -- Providing advice on service redesign
  - -- Developing care pathways
  - -- Data collection and collation, including overseeing the implementation and ongoing function of the neonatal database
  - -- Benchmarking
  - -- Production of an annual report

- Strategic planning roles
  - -- Setting standards
  - -- Monitoring outcomes
  - -- Agreeing strategy
  - -- Supporting investment
  - -- Designation of units
  - -- Advising service planners

It is important that the Network has a strong strategic planning basis to its construction facilitate discussion on best use of resources and communicate the need for development, strategy, quality and outcomes.

7. Network Infrastructure

The following infrastructure of employed staff will be required in order for the Network to operate:

- Lead clinician North Wales – 2 sessions
- Lead clinician South Wales – 3 sessions
- Network Manager – full time, covering both North and South.
- Lead Nurse – North.
- Lead Nurse – South
- Administrative assistant.

3. Neonatal Transfer Service Specification

General

1. The service will conform to the Welsh Assembly Government standards of neonatal care (ref 11,12)

2. The service will be of high quality

3. The service will be seamless

4. The service will be sustainable

5. The views of parents will be sought regarding quality of the service

6. The service will provide value for money

Specific

7. The service will provide transfer of newborn babies between hospitals and in particular between neonatal units. This will include step up care for babies who require intensive care or high dependency care transferred to Neonatal Intensive Care or High Dependency care. It will include babies transferred for cardiac, surgical or other specialised services such as metabolic or liver problems. It also will include back transfers (step down care) to the home hospital for ongoing care once the baby's condition has improved.

8. The service will not provide transport for Extra Corporeal Membrane Oxygenation [ECMO] as this specialised transport is provided by ECMO centres as an integrated part of their service.

9. The service will not normally cover babies admitted from home to the children's wards who subsequently require intensive care. These fall under the remit of paediatricians/paediatric intensive care clinicians and the PICU transfer system.

10. The service will not routinely provide resuscitation at birth. It is a Welsh standard that the referring hospital is required to provide resuscitation and initial stabilisation (standard 2.1). Referrals for transport would normally only be accepted after the birth of the baby. However the transport team could be notified before birth in anticipation of a likely need for transfer enabling plans to be made, advice to be provided, a cot to be located and other services to be notified e.g. surgical or cardiac if necessary. The transport team would not normally set out to retrieve until after the birth and following a further telephone conversation regarding the condition of the baby.

11. The service will ultimately be 365 days a year and 24 hours a day. However recruitment, training and affordability issues make a phased introduction inevitable. The introduction of a less than 24-hour model will still provide timely access in the great majority of cases. The training component of the service will improve local stabilisation at all hours of the day and the arrangements that pertain at present will continue to apply outside the hours of the dedicated transport service.

12. All critical care transfers will be performed by a team with the minimum of a neonatal transport trained nurse and neonatal transport trained doctor or ANNP. Other clinicians, medical or nursing, may also join the team for purposes of training, experience or assessment. The service will establish a mechanism for training and accreditation of all staff responsible for critical care transfer.

13. At all times that the service is in operation there will be a consultant neonatologist whose sole duties are to the transport service and who is immediately available to assess the clinical situation, provide telephone advice, take part in the transfer him/herself or direct a sub-consultant grade doctor or ANNP to perform the transfer. The decision whether to deploy the consultant or another staff member will depend on the clinical condition of the infant and the competencies and experience of other members of the available transport team.

14. The service will be lead by a designated Consultant Neonatologist appointed to be Director of the service. He/she will receive administrative support for that role from the host Trust/LHB. He/she will be supported by a lead transport nurse and a small management team drawn from senior clinical staff delivering transport in each of the three Level 3 units.

15. The service will be responsible for training and accrediting transport personnel.

16. The service will be responsible for supporting local units in developing and maintaining local neonatal resuscitation and stabilisation skills to agreed standards.

17. The service will develop appropriate documentation to support the communication and information needs of local units, the transport service itself, the Level 3 units and families.

18. The service will maintain records and in conjunction with all units undertake prospective audit of transfers as a mechanism of maintaining and developing quality in local resuscitation and stabilisation, the administrative process including communication and the process of transport itself. Critical incident reporting for neonatal transport related issues will be collated in conjunction with Trusts/LHB's. The service will also monitor the impact of in utero

referrals.

19. The service will contribute data to the benchmarking database co-ordinated by the UK Neonatal Transport Group and regularly report comparative benchmarking statistics.

20. The service will establish an arrangement with a local ambulance service that allows immediate access to an emergency ambulance suitably equipped for neonatal transport and staffed with a trained emergency driver.

21. Separate ambulance availability for step down transfer in a timely fashion will be formalised with a local ambulance service.

22. Suitable back up arrangements will be put in place to deal with occasions when there is a demand for more than one transfer at a time, and for back up ambulance availability. It may be possible to develop reciprocal arrangements with the PICU transport service to help with back up arrangements.

23. A Welsh neonatal transport website will be set up. All units will have access. It will contain the information regarding telephone numbers of units, whom to call, printable forms to be filled in by referring hospital requesting all pertinent details relating to the infant to be filled in and information for parents regarding each centre.

Criteria for prioritisation

When more than one request for transfer is received simultaneously:

24. The Transport Consultant on duty will have the final authority and responsibility for prioritisation of a transfer request. The following should only be regarded as a basic framework of practice and decision making and is not binding.

25. Acute surgical condition with potential for deterioration in a nonsurgical unit i.e. unstable NEC, Gastroschisis, Diaphragmatic hernia will get priority over babies needing transfer for routine ongoing care for prematurity.

26. Undiagnosed but suspected cardiac condition that is thought to be duct dependant or diagnosed cardiac condition that will need an urgent septostomy will get priority over routine prematurity related transfers. Stable cardiac babies with a confirmed echocardiographic diagnosis and well established on prostin do not conform to this category. Transfers that require initiation of specialised treatment within a definite time frame such as therapeutic hypothermia in a term asphyxiated baby will take priority over routine prematurity related transfers.

27. ‘Step up’ transfers will get priority over same level or back transfers. i.e. babies requiring transfer from a level 1 unit will get priority over a similar baby in a level 2 or level 3 unit in that order.

28. Transfer requests for capacity reasons (even if ventilated) should only be undertaken during working hours in the absence of other emergency transfer requests unless such transfer will free up space for a concurrent emergency to occupy the same cot.

29. Transfer requests for routine PDA ligation and specialist assessments (likely from a level 3 unit) will be accommodated but emergency transfer requests will have priority

Ambulance service

30. The SLA between the service and the ambulance service provider will specify response times for critical transfers and repatriation

.

31. Vehicles specified to apply emergency priority during outward transit and transfer if required. Drivers should be appropriately qualified in advanced driving in order to perform emergency priority transfers.

32. Communication between the clinical team and the ambulance crew, and the clinical team and their base unit, should be unhindered by ambulance layout or availability of communication equipment.

33. Clear protocols must be agreed to provide for circumstances of vehicle failure. Ideally, facilities should be available to permit progress of the vehicle and clinical team to be tracked remotely by the base unit

34. The Transport provider should operate to the standards laid down by the NHS for ambulance services.

35. The ambulance vehicle should be equipped to the following specification:

Essential	Desirable
Ability to load and secure 1 incubator with ancillary equipment mounted on stretcher platform complaint with standard ambulance fittings.	Ability to mount 2 incubators to the same standard. Ability to accommodate non-standard platforms to the same level of security.
	Transverse bulkhead mounting
Mains inverter based power supply able to support incubator and all ancillary equipment: (or adequate 12V DC regulated power supply to support external mains inverter supplying incubator and ancillary equipment) for the duration of the transport. All standard connections to be available.	Back up in case of primary power source failure
Provision of Schraeder valve connection gas supply – Air & Oxygen sufficient for duration of trip and reserve (typically same again) Illustrative capacity - 2 F sized oxygen, 1 F size air.	Potential for Nitric Oxide cylinder storage.
Adequate lighting for any nursing/medical care to be carried out	Controlled from rear cabin
Adequate heating & ventilation to maintain cabin temperature	Controlled from rear cabin
Seating provision for 2 attendants and 1 trainee in suitable position to permit observation of incubator and access to compartment	Further seating for extra trainee/attendant/parent
Adequate safe stowage space for all ancillary equipment/bags etc.	
Available means of hands free communication (eg mobile phone) with ambulance crew, or remote teams	Video based options.
All fixation and construction secure to appropriate BSI/CEN standards.	

36. The ambulance vehicle should be equipped to the following specification: Ambulance providers must be compliant with the following standards

- BS EN 13976-2:2003 Rescue systems. Transportation of incubators. System requirements
- BSI BS EN 1865:2000 – Specifications for stretchers & other patient handling equipment used in road ambulances (CEN10)
- BSI EN 1789:2007 – Medical vehicles and their equipment – road ambulances
- MDD 92/43 (Medical Devices Directive) relating to construction standard
- IEC 60101:1 – Electrical standard for medical devices

4. Welsh Neonatal Transport Stakeholder Group

Dr Jean Matthes	Consultant Neonatologist, Singleton Hospital, Swansea [**Chair**]
Dr Sujoy Banerjee	Consultant Neonatologist, Singleton Hospital, Swansea
Mr Chris Roseblade	Consultant Obstetrician, Wrexham Maelor Hospital
Mr Andrew Dawson	Consultant Obstetrician, Nevill Hall Hospital
Mr Philip Banfield	Consultant Obstetrician, North Wales Trust
Mr David Pugh	Consultant Obstetrician, Royal Glamorgan Hospital
Dr James Moorcraft	Consultant Neonatologist, Royal Glamorgan Hospital
Dr Jennifer Calvert	Consultant Neonatologist, Cardiff and Vale Trust
Dr Mark Drayton	Consultant neonatologist Cardiff and Vale Trust
Dr Siddhartha Sen	Consultant Neonatologist, Royal Gwent Hospital
Dr Ian Barnard	Consultant Paediatrician, North Wales Trust
Dr Premkumar Pitchaikani	Consultant Paediatrician, Bronllys Hospital, Hywel Dda Trust
Dr Vinay Saxena	Consultant Paediatrician, Prince Philip Hospital, Hywel Dda NHS Trust
Kate Richards	Advanced Neonatal Nurse Practitioner Swansea
Mary Glover	Senior Nurse for Neonatology, Cardiff and Vale Trust
Jackie Baker	Midwife, North Wales Trust
Fiona Giraud	North Wales Trust
Paul Hollard	Deputy Chief Executive, Cwm Taf Trust
Carol Shillabeer	Gwent Healthcare NHS Trust
Malcolm Thomas	ABM NHS Trust
Bob Phillipson	BLISS
Prof. Sailesh Kotecha	Cardiff University
Dr Huw Jenkins	Welsh Assembly Government
Ann Noyes	Policy Lead, NHSD Policy Division, Welsh Assembly Government
Zoe Goodacre	Specialist Commissioner, Health Commission Wales