PCCS Paediatric Critical Care Society

PCCS 'PEER REVIEW' REPORT FOR THE PAEDIATRIC INTENSIVE CARE UNIT AND THE NORTHERN IRELAND SPECIALIST TRANSPORT AND RETRIEVAL SERVICE (NISTAR) AT THE ROYAL BELFAST HOSPITAL FOR SICK CHILDREN

INTRODUCTION

PCCS peer review programs deploy a multi-disciplinary team of PCCS members to review compliance with its national Standards and to identify related issues. Peer review is a powerful tool for driving local service improvement and for sharing good practice between services. Over 80% of our members who act as reviewers report making improvements to their own services after taking part in a peer review visit.

The Paediatric Intensive Care Unit (PICU) at the Royal Belfast Hospital for Children is a 12-bedded PICU located in a children's hospital, embedded within a larger hospital (Royal Victoria Hospital), which itself is part of a larger Trust (Belfast Health and Social Care Trust). The PICU provides Paediatric Critical Care (PCC) for the whole of Northern Ireland (NI) although some speciality work is managed outside Northern Ireland (e.g. interventional cardiology and surgery at Dublin).

NISTAR is an integrated transport service providing critical care transport for all Northern Ireland (NI) for neonates, paediatrics, and adults. There is a common management team, with individual clinical teams for each of the three subgroups of patients, supported by call handlers and an administration team. The paediatric team are located within the PICU but are supernumerary to the day-to-day running of the PICU. The base facilities are spread across separate offices, the PICU, and an ambulance bay. The team is funded to provide level 3 PCC transport into Belfast and Dublin (for cardiac patients). There is also a nurse led team, primarily funded to assist with the flow of level 0, 1 and 2 cardiac patients between Dublin and Belfast.

HOW THE REVIEW WAS CONDUCTED

PCCS was approached by [redacted], Clinical Director for Anaesthesia and Surgery in February 2021 to conduct a peer review of the paediatric intensive care unit at the Royal Belfast Hospital for Sick Children and the Northern Ireland specialist transport and retrieval service (NISTAR).

PCCS Paediatric Critical Care Society

Other inpatient and level 1 and 2 paediatric services were concluded to be out of scope. The Review was delayed by the Covid-19 pandemic but was carried out at the earliest opportunity in June 2022.

The peer review visit was conducted in two phases:

Phase 1: self-assessment. The NI PCC team assessed the service against the newly published 6th PCCS standards (2021), and this was shared with the review team ahead of the visit. The peer review team also gained intelligence from review of the Annual PICANet report and the Paediatric Critical Care GRIFT report.

Paediatric Intensive Care Audit Network Annual report 2021
https://www.picanet.org.uk/wpcontent/uploads/sites/25/2022/04/PICANet-2021-Annual-Report_v1.1-22Apr2022.pdf

Paediatric critical care GIRFT report
https://future.nhs.uk/connect.ti/GIRFTNational/view?objectId=130559333

Phase 2: Peer review visit. The peer review team comprised 3 members of the PCCS council: [redacted] (President-elect) / [redacted] (Honorary Secretary) / [redacted] (Chair, Acute Transport Group). The visit took place over 3 days: June 6-8th 2022 and comprised meetings with the following members of staff:

- Members of the PICU medical (consultant and trainee) and nursing workforce
- AHPs working in PICU
- Interim Co-Director of Child Health and NISTAR, Divisional Nurse of Child Services and NISTAR and Medical Director of Trust
- Commissioning team
- Consultants outside PICU - referrers to PICU from the wider children's hospital
- Parents and families on PICU
- Trainees / junior doctors on service in the PICU
- Members of NISTAR workforce and wider team

PCCS Paediatric Critical Care Society

KEY FINDINGS

This section includes a summary of the most important findings from the review. The subsequent section includes a more detailed review of specific standards along with recommendations.

It is clear to the peer review team that the PICU and NISTAR is staffed by a dedicated, hardworking, and passionate team of highly specialised health care professionals and support staff who deliver excellent clinical care.

Key finding 1: There is an unsustainable shortfall in the medical workforce

There is a significant shortfall in the medical workforce (both middle-grade and consultant level); this is most severe in the consultant group. The depletion of the consultant workforce situation was recently made tragically worse by the sudden death of a consultant colleague.

There is no clinical lead consultant. This post should be incentivised and appropriately remunerated and provided with dedicated Supporting Professional Activity (SPA) time within his / her job plan for management duties.

The availability of consultant level medical staff to provide oversight and deliver the transport is the biggest risk for the NISTAR service. Significant expansion in the Consultant workforce is needed to make this service sustainable and safe.

Key finding 2: The PICU team is held in high esteem throughout the children's hospital

Feedback collected during the review indicated that the PICU consultant workforce is held in very high esteem by the various members of the wider clinical team (trainees, AHPs, nurses, consultant colleagues from outside PICU), as well as by the patients and families. This feedback included reference to a positive, supportive workplace culture.

However, within the feedback there was also a worrying theme of concern for the health of the PICU consultants, given the workload they are facing.

Key finding 3: There are shortfalls in the middle-grade and AHP workforce

The middle-grade rota is understaffed. This compounds the strain on the consultant workforce.

Almost all the AHP roles with responsibility to PICU are under-resourced as compared with PCCS standards. The only exception was paediatric pharmacy.

Key finding 4: The unit performs well clinically despite workforce shortfalls

Despite staffing deficiencies, the PICU performs well as indicated by standard objective outcome measures (SMR, HCAI rates and a low rate of patient / family complaints).

However, the PICU is a negative outlier in its timeliness to submit national audit data to PICANet. There is a need to provide additional support for data administration and to appoint an informatics leadership role in the department.

Key finding 5: There is a problem with patient flow out of the PICU

There is a very high prevalence of "delayed discharge" from PICU. Nationally, it is very unusual for a patient to be discharged home from PICU, but this has become relatively common practice in this unit. This indicates an obstruction to the discharge of patients from PICU to the ward, which impairs the efficiency of the PICU in general.

Key finding 6: Communication and governance oversight between Commissioning teams, Trust management, and the PICU clinical team could be enhanced

The review team noted a lack of regular contact between the PICU clinical team and both the divisional / Trust leadership team and commissioners. A detailed analysis of this situation was not within the scope of the review, although contributory factors included:

- Frequent turnover of management leadership roles within the Trust resulting in loss of organisational memory

- Infrequent contact between clinicians on the "shop floor" and the Trust leadership (with the exception of the business manager (Ciaran Bradley) from the divisional leadership team).

During the peer review visit, it was encouraging to witness some honest conversations between clinical staff and colleagues in Trust leadership roles. It is hoped that this resulted in a shared understanding of the pressures on the PICU.

Previous commissioning arrangements to employ consultant staff across PICU and anaesthesia resulted in the appointment of anaesthesia consultants. This has resulted in a deficit within the PICU consultant workforce. The reasons for this were not clear to the review team; a more transparent, collegiate approach to commissioning arrangements is required for future appointments.

A needs analysis assessing the current consultant staffing requirements should be completed that encompasses projections for expansion into the new children's hospital.

Key finding 7: The provision of level 2 / HDU need in Northern Ireland is not well described

The need for "level 2" / HDU provision in the region is not clear. The best estimate is informed by a single, snapshot audit taken during the first COVID wave. An up to date / continuous audit of L2 provision in Northern Ireland is indicated. The review team met with consultant colleagues who are keen to develop this service.

Key finding 8: There is no Operational Delivery Network (ODN) in Northern Ireland

The lack of a paediatric critical care /operational delivery network poses a challenge for both the PICU and NISTAR services. This inhibits their ability to engage with service users and to drive improvement in patient care. The development of an ODN is an important consideration for commissioners.

Key Finding 9: District General Hospitals performing transfers

The reliance of local district general hospitals to deliver level 3 PCC transport due to lack of an available NISTAR paediatric team is a major patient safety risk and against the PCC transport standards and recommendations. Improvement in the medical staffing of NISTAR is a priority.

Key finding 10: Neonatal Transport

The lack of neonatal transport services out of hours poses a risk since the current model of delivery demands that the paediatric transport team absorb this work. This therefore limits the availability of the paediatric transport team to undertake transfers of critically ill children. It also stretches an already understaffed workforce and leaves the paediatric team in a vulnerable position when dealing with extreme preterm infants for whom they are not trained to transport. It is the view of the peer review team that this work should ideally be provided by neonatology services.

REVIEW OF SPECIFIC STANDARDS AND RECOMMENDATIONS

Whilst the majority of PCCS standards are met there are significant areas of concern requiring urgent action.

This section details the Reviews findings against PCC standards Quality Standards for the care of the Critically Ill and Injured Child for level 3 PCC, ODN/ commissioning, and transport. The figures in parentheses relate to the equivalent PCC standards. Other areas of PCC provision such as Level 1 and 2 PCC and inpatient services were out of scope for this review.

Recommendations are provided as

1) Urgent action required, or

2) Areas for consideration

1. Level 3 PCCU

1.1 Information & Support for Children and their Families (L3-101, L3-102, L3-103, L3-104, L3-105, L3-196, L3-197, L3-199)

This standard is partially or fully met with plans in place with the new hospital to address family facility issues. Introduction of the Family liaison nurse has positively and directly impacted families and enhanced their relationship with the team. The feedback from families to the Peer Review team was positive.

Areas for consideration:

- Location and expansion of facilities for families until new building is completed.

1.2 General Staffing (L3-201, L3-202, L3-203, L3-204, L3-205, L3-206, L3-207, L3-208, L3-209, L3220, L3-297, L3-298, L3-299, L3-301, L3-302)

Medical: There are significant shortfalls in the medical (consultant and middle-grade) workforce impacting the sustainability of the entire service.

Urgent action required:

- The most urgent threat to the wider PCC service relates to consultant staffing. See PCCS Standards L3-202 for detailed Recommendations.

Nursing: Belfast PCC has a robust recruitment plan for the nursing team with a band 7 structure that is supportive of the junior members of the team. All staff on PCC are appropriately trained and mentored. The utilisation of senior nurses for transport and 'float' can place pressure on junior members of the team and may benefit from being supernumerary to establishment. An area of concern raised was the issue surrounding retention of nursing staff that may be attributed to the lack of career opportunities and progression offered within PICU. The current lead nurse for PCC has a multitude of responsibility within the wider paediatric services and appointment of a dedicated PICU Lead nurse may be able to address the aforementioned issues.

AHPs: During the review, there was good representation from all AHPs. As a team of professionals, the AHPs that integrate and work with PCC feel valued, well respected, and 'part of the family'. However, pharmacy was the only fully established service for PCC that meets PCCS standards.

There are essential deficits in dietetics, physio, OT, Play, SLT, psychology and Technician (Critical Care Scientist) support.

Area for consideration:

- Expansion of the AHP workforce with specific attention to anticipated requirements in new hospital. See PCCS Standards L3-209 for detailed Recommendations

1.3 Lead Consultant and Lead Nurse (L3-201)

Currently there is no lead consultant or lead nurse for PCCU.

Urgent action needed:

- The consultant role needs to be incentivised and remunerated. There should be an appointment of specific PICU Lead Nurse

1.4 Consultant Staffing (L3-202)

The consultant workforce is short-staffed (currently 4 WTE) and reliant on internal locums to cover rota gaps as external locums are sparse due to the geography of Northern Ireland. There has been a high turnover of consultant staff in recent years. There is a discrepancy between the clinical team and the Trust leadership and commissioners in relation to the perceived number of staff required for the PCC consultant workforce.

Urgent action needed:

- The current situation is not sustainable and maintaining the 'status quo' jeopardises the wider PCC and NISTAR service. Reconciliation between Commissioners/ Trust management and the PCC team should prioritise increasing Consultant staffing levels as per PCC standards
- Recruitment in the medium term and longer term should also consider planned expansion to the new hospital which will require more WTE positions. Several trainees have

expressed interest in applying for consultant posts in this centre, so there is an opportunity to recruit rapidly 'en masse'.

1.5 Middle Grade' clinician staffing (L3-203):

The 'middle-grade' medical staffing is inadequate; both in terms of the number of available clinicians (only 1 at night for a 12-bedded PICU; PCC standards recommend 1 for every 8 beds out of hours), as well as the level of training (sometimes at ST4 level or below; PCC standards recommend ST6 and above). Middle-grade staff should be on a stand-alone rota within PICU. This situation compounds the strain on the consultant body as they are required to cover trainees at night who do not have the necessary competencies to cover the unit unsupervised. The review team noted that there is ongoing work aiming to address this issue.

Urgent action needed:

- The business planning and recruitment of middle-grade staff should be expedited to staff the unit appropriately

Areas for consideration:

- There should be investment in the ANP programme to mitigate against shortages in the middle grade rota. This approach has been used in other centres with good effect.

1.6 Consultants with lead responsibilities: (L3-204)

The PCCS standards recommend that consultants with lead responsibility should be present for: Clinical governance; Organ donation; Research; Medical education and training; Medical Staff Rotas; ECMO/ECLS (not appropriate for Belfast); Child death review; Staff wellbeing. Apart from Organ donation, no job-planned, remunerated lead roles are present within the consultant body, despite the fact that the current consultants do have interests in some of these areas and manage to deliver much supporting professional activity (SPA) in their own time (e.g. research participation in multicentre PCCS-SG trials, presentations at national meetings, and development of education resources). It is noted that leadership for the governance role currently sits outside PICU which is a relatively unusual model for a tertiary PICU.

Urgent action needed:

- Allocate job-planned SPA time to each of the leadership roles within the PICU consultant workforce

1.7 Clinician Competence Framework and Training Plan (L3-206):

The PCCS standards require a nominated education lead consultant and lead nurse (with appropriate administration support) with responsibility for organisation and delivery of training for PCC staff. Allocated time for the delivery and development of team education should be provided. One of the PICU consultants has a deanery role as deputy head of school for paediatrics. There is no PICU education lead and no administrative support for education. Timetabled clinical teaching, including simulation training, occurs in the unit, is delivered by the consultant workforce.

Nurses within PICU currently undertake a Care of the Critically Ill Child course. This course is specifically designed with the focus on recognition and early stabilisation for children in the district general hospitals that provide level 1 and 2 care. PICU nurses would benefit from completing a level 3 specific critical care course. This could be a PCCS accredited course provided by an internally resourced education team.

Urgent action needed:

- Create an MDT PICU education team with appropriate administrative support o Development and delivery of Internal Level 3 PICU Nursing Course **Areas for consideration:**

- Expansion of nursing education team to support the retention of the junior nursing workforce.
- Allocate time for all PCC team members to have regular education and training as outlined in relevant PCC standards

1.8 Administrative and clerical support (L3-299)

Paediatric Critical Care Society .
21, Portland Place, London W1B 1PY. Tel: 0207 631 8819. Email: pccs@anaesthetsist.org
PCCS is registered as a Charitable Incorporated Organisation in England & Wales No. 1165535.

The department has no data administration / informatics support and limited secretarial support. Belfast PICU is one of the worst performers in the UK in relation to timeliness of PICANet mandatory data submission. This could be improved by provision of a data entry clerk and informatics manager to remove the burden of this work from the secretary and clinical staff. The ward clerk workforce is limited and there are no PICU reception staff.

Urgent action needed:

- Enhance administrative workforce to address issues with data submission, reception, and ward clerk gaps

1.9 Support Services (L3-301, L3-302)

This standard is partially or fully met with provision of support services which fundamentally meet the needs of the PCCU.

Areas for Consideration:

- Audit of and subsequent implementation of operational policy to improve timeliness of formal reporting of imaging.

1.10 Facilities & Equipment (L3-401, L3-402, L3-404, L3-405, L3-406)

The plans to improve the overall infrastructure of the Children's Hospital and its PCC facilities in a new building are essential. Currently the PCCU does have full clinical equipment facilities to meet PCCS standards. The exception is very limited parent accommodation. There is a reliance of the PICU technical team provide support for the wider services. Imminent retirement within this service is of concern to this service.

Urgent action needed:

- Providing further specific PCC technician support for the paediatric critical care team to provide training and troubleshooting of equipment would be beneficial.

Areas for consideration:

- Parental accommodation requires addressing in the new hospital build.

1.11 Guidelines & Protocols (L3-501, L3-503, L3-505, L3-506, L3-507, L3-508, L3-509, L3-598)

There are several clinical guidelines and Standard Operating Policies in place for PCC activity which are based on national and local requirements. However, the bureaucratic process required to ratify clinical guidelines is unnecessarily long. In some cases the ratification process has taken two years. There is a need to make all guidelines available to service users on the PCC website.

Urgent actions needed:

- Simplification of the ratification process for PCC guidelines/ SOPS which will help engage the team in producing documents.
- Development of a MDT (medical / nursing / AHPs / trainee) Clinical Practice Meeting (CPM) to oversee guideline production and implementation of evidence-based medicine to the bedside (ideally within job-planned SPA time).
- Development of all outstanding clinical guidelines for use by service users are required to meet PCCS standard (L3-505).

1.12 Service organisation and Liaison with other Services (L3-601)

There is a clear policy for admission and discharge of patients requiring care on PCC.

The evidence provided by non-PIC professionals attending the Peer Review articulated the importance and significance of functional PCC relationships between the PCC team with other teams within the Children's hospital.
There is a significant problem of delayed discharges from PICU, often due to a lack of available paediatric beds, necessitating frequent discharge directly from PICU to home.

Areas for consideration:

- Audit of and subsequent implementation of operational policy to address issues causing delayed discharge of patients from PCC as per PCCS standards.

1.13 Governance (L3-702, L3-703, L3-704, L3-705, L3-706, L3-798, L3-799)

The PCCU at the Royal Belfast Hospital for Sick Children submits data to PICANET but the timeliness of data submission is below average compared with all participating units. There is clear documentation of audits, critical incidents, and shared learning. There is a desire to participate in national research and evidence of recent participation in a multicentre PCC trial.

Urgent action needed:

- Appointment of a data clerk to support team with completion of PICANET submission (see L3-299 above).
- Enable job-planned time for lead consultant for governance / patient safety (see L3-204 above.

Areas for consideration:

- Development of a MDT Clinical Practice Meeting. o Production of an annual report (standard T-798). o Development of an ODN would strengthen the existing governance processes.

1.14 Education (L3-801)

Belfast PCC are not part of an Operational Delivery Network (ODN). This makes participation in regional education and outreach difficult. However, the Belfast PCC team does encourage learning with DGH's and the transport service.

Areas for consideration:

- Time needs to be allocated for all PCC team members to have regular PCC and transport training as outlined in the PCCS standards.
- The development of an ODN and PCC nurse education team would expedite the meeting of this standard.

PCCS Paediatric Critical Care Society

1.14 L3-901: Informatics lead (L3-901):

A nominated lead clinician to "lead the deployment and governance of informatics systems within PCC" does not currently exist. Belfast PICU data submission to PICANet is below average in terms of timeliness. Typically (within PCC units), this role is filled by a PCC consultant and requires appropriate job-planning to allow adequate supervision and governance.

Urgent action needed:

- Provide support through job-planning / SPA allocation for development of role of Informatics lead. Appointment of a data clerk for submission of accurate and timely data (see L3-299 above)

2.0 PCC Operational Delivery Network (ODN)

The lack of a paediatric critical care network/operational delivery network poses a challenge for the PCCU and NISTAR when engaging with service users and limits Northern Ireland's ability to drive improvement in care across the patient pathway.

Area for consideration:

- Commissioners should consider the development of a paediatric critical care network/ ODN.

3.0 Commissioning

During their visit the review team noted the interaction between the PICU clinical team, divisional leadership, and Commissioners. It was encouraging to witness some sincere conversations between clinical staff and commissioners around the operational pressures on the PICU.

Previous commissioning arrangements to employ consultant staff across PICU and anaesthesia have resulted in the appointment of anaesthesia consultants. There is now a deficit in the PICU staffing workforce. The reasons for this were not clear to the review team; a more transparent, collegiate approach to commissioning arrangements is required for future appointments.

Urgent action needed:

- A contemporary needs analysis assessing the current staffing requirements with the future projections for expansion into the new children's hospital should be completed to inform commissioning decisions.

4.0 Transport (NISTAR)

4.1 Information & Support for Children and their Families (T-101, T-199)

This standard is fully met. NISTAR have agreed to adopt the DEPICT study family feedback questions at our recent PCCS-ATG national meeting.

Areas for consideration:

- It would be easier to collect and deliver feedback from all service users if NISTAR were part of an ODN.

4.2 Staffing (T-201, T-202, T-203, T-204, T-205, T-206, T-220, T-299)

NISTAR have appropriate medical and nursing leads. All staff on the transport service are appropriately trained and mentored. The integration within PICU allows clinical skills for all the team to be maintained. The nursing staff and ambulance staff numbers appear adequate and can staff a team 24/7. However, at times, there are insufficient medical staff available to lead emergency transfers without having to providing cover for the level 3 PICU at the same time.

Urgent action needed:

- A significant expansion in consultant numbers is required to meet the key standard T-204: *'Consultant for advice and to join the emergency transfer team if necessary 24/7'*

Areas for consideration:

- Time needs to be allocated for all the transport team members to have regular transport training as outlined in standard T-206

4.3 Facilities & Equipment (T-401, T-402, T-403)

NISTAR has excellent integration with the ambulance service. They have full clinical equipment and ambulance facilities to meet the standards.

Urgent Action needed: o Call recording facilities are required to meet the standard T-401

Areas for consideration:

- Providing a more bespoke area for the paediatric critical care transport team for equipment storage, training and meeting facilities would be beneficial.

4.4 Guidelines and protocols (T-501, T-502, T-503)

Full guidelines and standard operating policies (SOP) are in place for NISTAR activity. However, there is a lack of clinical guidelines available on their website for the common paediatric emergencies. A drug calculator is provided.

Area for consideration:

- Development of website for use by the service users to meet standard T-503. Additional consultant staffing/time allocated will help facilitate this.

4.5 Service Organisation & Liaison with Other Services (T-601)

There is a clear SOP describing commissioning and referral pathways for NISTAR. Referral pathways for work not provided in Belfast (cardiac/ECMO) is also well described. However, there are too many occasions when the medical team from the local district general hospital are expected to transfer a critically ill child.

Urgent action needed:

- Reduced reliance on the need for local teams to transport children, other than in time critical situations, is urgently required. This appears to only occur at times when there are insufficient medical staff to cover the paediatric NISTAR team. A significant expansion of Consultant numbers is required to address this

PCCS Paediatric Critical Care Society

4.6 Governance (T-701, T-702, T-703, T-704, T-798, T-799)

NISTAR submit all data to PICANET in a timely and accurate fashion. They have clear documentation of each referral through to the transfer to the PICU. They review cases with DGH's on a 3 monthly basis.

Areas for consideration:

- More regular in-house review of each referral to inform learning (standard T-798)
- Development of electronic referral and transport documentation
- Working as part of an ODN would strengthen the governance processes already in place

4.7 Education (T-801)

NISTAR are not part of an ODN. This makes the delivery of regional education challenging. Despite this, the NISTAR team have been able to deliver outreach support although there is no apparent funding or time allocated for this. NISTAR deliver excellent in-house staff education and training, although there are limited facilities and time allocated for this.

Areas for consideration:

- Time needs to be allocated for all the transport team members to have regular transport training as outlined in the standards.
- The development of an ODN would assist meeting this standard as well as the provision of educational opportunities to service users.

4.8 Aeromedical

NISTAR do not provide aeromedical transfers and use an external provider for this. This agency was not part of the peer review.

Areas for consideration:

- NISTAR team to review the aeromedical transport standards against what is provided by their current aeromedical services.
- The NISTAR team, with improved staffing, might consider integrating with the aeromedical providers for those transfers requiring flight support.

4.9 Transport of Paediatric Patients Supported by ECMO

These standards are not applicable to NISTAR.

Paediatric Critical Care Society
21, Portland Place, London W1B 1PY. Tel: 0207 631 8819. Email: pccs@anaesthetsist.org
PCCS is registered as a Charitable Incorporated Organisation in England & Wales No. 1165535.

PCCS Paediatric Critical Care Society

CONCLUSION

Throughout our review the PICU team at the Royal Belfast Hospital for Sick Children have demonstrated that they are a passionate group of professionals striving to deliver high quality care to the children and young people of Northern Ireland. The team received excellent feedback from a small poll of parents and families during our visit and this theme was supported in wider discussions with children's hospital colleagues throughout our review. Clearly the PICU team are held in high esteem throughout the children's hospital.

It is also clear to the review team that the NISTAR team of trained specialist transport nurses and ambulance drivers are a dedicated group of professionals who deliver excellent clinical care. The use of a nurse led repatriation team is recognised as an excellent practice to improve patient flow across the region. The Integration of staff within the PICU has many advantages. It is clear there is a drive to develop and improve the service.

The review team recognise that there are political and geographical circumstances unique to Northern Ireland which differentiate the PCC situation there from the rest of the UK. Comparison with other British PICUs therefore needs to be considered in light of these differences. For example, while we make clear recommendations for the development of a paediatric critical care/ operational delivery network and for clarity around Level 1 and 2 services, we acknowledge that the commissioning framework for these may differ from those that exist in England.

The PICU service in Northern Ireland performs well compared to its UK peers in terms of objective measures such as standardised mortality rates, healthcare associated infections and complaints. However, a PICU is the beating heart of a children's hospitals and the quality of its 'service' should be measured in ways other than numerical metrics. Quality of care is enabled through staff having allocated time to plan, teach, undertake research, and review incidents in a culture that promotes learning. The pressures on the medical and nursing PICU workforce at the Royal Belfast Hospital for Sick Children do not enable this.

Specifically, the extremely stretched consultant workforce is unsustainable. There are numerous occasions where there is suboptimal consultant cover on the unit. Should the service continue in its present form, it risks causing burnout, poor health, early retirement, colleagues moving away from clinical work, or re-locating for more attractive jobs. The risk to patients is stark. The collapse of the service would impact upon wider children's services in Northern Ireland. While self-evidently the urgent care of critically ill children would be affected, elective surgical care would also be compromised, and alternative arrangements would need to be made for relocation of treatment to England or Dublin. There might follow a reduction in related surgical and medical programs and a loss of related specialist expertise.

The Review team have made many recommendations for action. We believe many of these are urgent and will improve the quality of the PCC and NISTAR service. However, we regard the Consultant workforce as a key priority that requires urgently action.

We would like to thank the PICU team, and all other staff who participated in the review, for their honesty, candour, and willingness to strive for improvement of healthcare delivery to children and young people and their families of Northern Ireland.