



## **National Steering Group for Specialist Children's Services**

### **Critical Care**

### **Discussion Paper**

## **Children's Critical Care**

It was identified in The Kerr Report that the provision of paediatric intensive care (PIC) and high dependency care (HDC) was an immediate issue for NHS Scotland. The rising number of children requiring critical care and the increasing complexity of case mix demonstrated that within the current provision of children's critical care, this increased demand could not be sustained.

A critical illness or injury is a relatively rare event, however it is imperative that the hospital admitting the child must be able to resuscitate, stabilise and manage the child until transferred to a more specialised facility (if required). The ability of hospitals to deliver high dependency care on an unscheduled basis is a fundamental keystone to sustain critical care services.

The Kerr Report identified children's critical care, as an area where integral planning was essential. In order to improve the care being provided, a framework involving a National Managed Clinical Network for paediatric critical care was proposed. At the heart of this network would be the integrated planning of local, regional and national critical care services. The paediatric intensive care units (PICUs) in Edinburgh and Glasgow, along with the dedicated high dependency units in Aberdeen, Dundee, Edinburgh and Glasgow, will form the national and regional lead centres, supporting other hospitals within the Network.

## **Paediatric Intensive Care**

Due to the highly specialised nature of PIC, the number of paediatric intensive care units (PICUs) in Scotland was re-configured to two sites in 2001. The PICUs are based in the Royal Hospital for Sick Children in Edinburgh and Glasgow; both sites provide highly specialised and technology-reliant care. Since 2001, this service has shown a significant increase in demand, along with improved outcomes as a consequence of the critical mass achieved by caring for children in 2 centres.

In order to support the development of a single PIC service, The Kerr Report recommended that the two PICUs in Edinburgh and Glasgow should be nationally commissioned for a period of five years by National Services Division (NSD).

A population-based statistical review conducted by NSD in 2006, indicated the need to increase the number of intensive care beds, to meet current and

future demands. This review estimated that the number of beds required for the population of Scotland should increase from 20 to 27 beds; this was supported by activity statistics demonstrating that the 3 year (2003-06) average occupancy (after adjustment for dependency levels) was 96%.

NSD conducted a needs assessment exercise to identify the number of PIC beds and staff required for a single service to meet the current and future needs. The funding proposal submitted to the Board Chief Executives recognised the substantial increase in complexity of care that is currently being provided. This was addressed by increasing nursing levels from 6.4 wte to 7.6 wte, in line with the Paediatric Intensive Care Society's (PICS) recommendations. This is a very significant increase in nurses; recognising this, it was agreed to initially increase the beds from 20 to 24, an increase of 2 beds in each unit.

A further review will be conducted in 2009-10 to assess whether 24 beds (with the increased staffing) is sufficient, or if further investment is required for the 27 beds, based on the population-based review.

NSD worked closely with the providers and stakeholders, over a series of meetings prior to April 2007. This began the process of developing a working model of a single PIC service delivered on two sites. The main areas identified to develop a single service were recruitment and appointment, medical and nursing education, workforce planning, audit and communication methods to manage the elective and emergency workload.

All this work is ongoing; in particular with the nurse recruitment. Unfortunately the nurses with the skills and experience to work in this highly specialised area are thin on the ground. It will therefore take a number of years to develop the workforce required to support the expansion of this service. A single nursing induction and mentorship programme has been adopted in both sites and joint work has been commenced to develop a short and long-term workforce plan. The aim of this multi-disciplinary workforce plan is to address the future sustainability of the service and develop career pathways, to retain experienced staff.

Closer working links will be achieved by introducing joint medical education sessions, single service appointments and through clinical auditing and benchmarking.

Activity in the first six months, is demonstrated in the table below of discharges from PICU:

	No. of Children	April – Sept '07	%	Oct – Mar '08
SEAT	<b>Borders</b>	<b>16</b>	<b>2.3</b>	
	<b>Fife</b>	<b>35</b>	<b>5.1</b>	
	<b>Forth Valley</b>	<b>32</b>	<b>4.7</b>	
	<b>Lothian</b>	<b>111</b>	<b>16.1</b>	
	<b>Tayside</b>	<b>50</b>	<b>7.3</b>	
			35.5	
WEST	<b>Ayrshire &amp; Arran</b>	<b>44</b>	<b>6.4</b>	
	<b>Dumfries &amp; Galloway</b>	<b>20</b>	<b>2.9</b>	
	<b>Glasgow &amp; Clyde</b>	<b>234</b>	<b>34.0</b>	
	<b>Lanarkshire</b>	<b>74</b>	<b>10.8</b>	
				54.1
NORTH	<b>Highland</b>	<b>26</b>	<b>3.8</b>	
	<b>Grampian</b>	<b>29</b>	<b>4.2</b>	
	<b>Orkney</b>	<b>3</b>	<b>0.4</b>	
	<b>Shetland</b>	<b>2</b>	<b>0.3</b>	
	<b>Western Isles</b>	<b>4</b>	<b>0.6</b>	
				9.3
OTHER	<b>English Authorities</b>	<b>2</b>	<b>0.3</b>	
	<b>Northern Ireland</b>			
	<b>Southern Ireland</b>			
	<b>Overseas Visitor</b>	<b>1</b>	<b>0.1</b>	
	<b>Not Recorded</b>	<b>5</b>	<b>0.7</b>	
			1.2	
	<b>TOTAL</b>	<b>688</b>		

The Kerr Report also identified that one of the key interfaces to support paediatric critical care in Scotland is the provision of rapid and reliable transport. This incorporates the regional organisation of ambulance services and the PICU led intensive care retrieval service.

NSD are currently undertaking an options appraisal of the Transport of Critically Ill and Injured Children service, a nationally commissioned service since 2001.

The requirements and demands on this service have changed considerably since its launch. Referrals have been steadily increasing, and range from referrals from GP-run Community Hospitals to Teaching Hospitals. The increased demand to support children with high dependency needs was acknowledged in The Kerr Report. This reflects the varied skill level of clinicians across hospitals and the impact on resources that a critically ill child can have on an individual site.

The aim of the options appraisal is to ensure that the retrieval service is being provided in a cost-effect manner that will enable service sustainability. The recommendations of this review will be reported to the Board Chief Executives by the end of March 2008.

## High Dependency Care

“The foundation for the management of critical illness in children in Scotland is high dependency care.” (The Kerr Report, page 184). The Kerr Report recognised that information about the provision and outcomes of high dependency care was not available. It recommended that NSD project-manage a national audit of high dependency care to provide information to enable the planning of local, regional and national critical care services.

This audit has collected information on children requiring high dependency care in Scotland over a 12 month period. Data collection will be completed at the end of November 2007. It is estimated that information will be collected on over 4,500 children. All hospitals in Scotland were included in this audit, reflecting the levels of care provided in the range of hospital facilities.

There is a clear indication that high dependency care is regularly delivered out with the designated 4 children’s hospitals. One of the areas for debate is whether the Community and District General Hospitals have appropriate physical facilities, equipment and appropriately trained staff to deal with children with high dependency care needs.

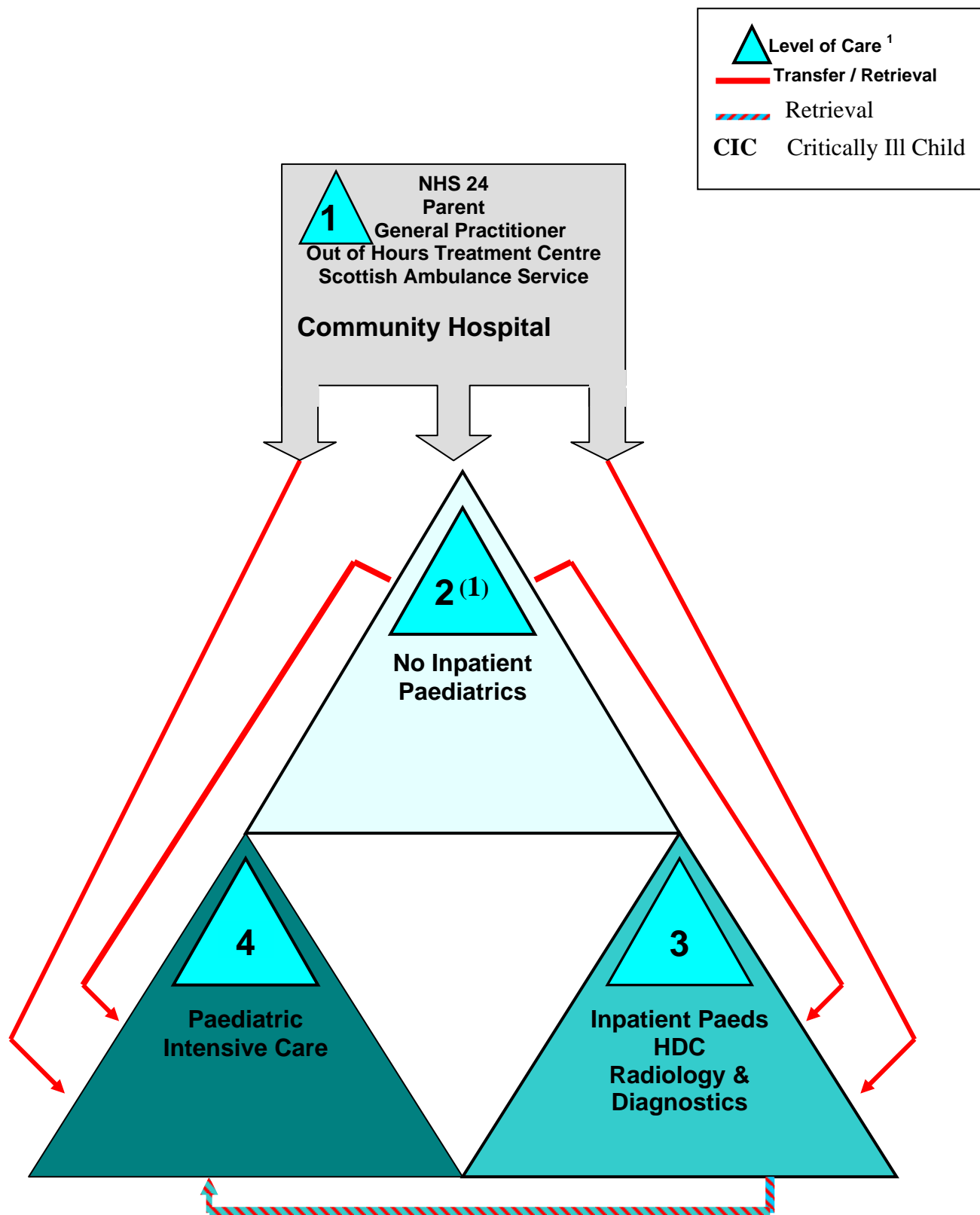
There is a wide variation in the severity of care that has been required by the children during the 2006-07 period. Caring for a critically ill child often requires 1-1 care, this impacts directly on the number of nurses required on a ward and their professional development and educational needs.

High dependency care admissions are predominantly unscheduled; the emergency admission of a critically ill child can have a huge impact on a hospital (particularly one without an in-patient paediatric ward). This is a considerable implication for medical and nurse education and in ensuring equity of care and access.

The other aspect of this audit is to assess sites providing critical care for children and identify any service gaps. The Critical Care Guidelines for Children and Young People is a set of standards incorporating the recommendations of Emergency Care Framework and the West Midland Guidelines. The aim of these self-assessment standards is to highlight any deficiencies in a site’s ability to deal with a critically ill or injured child. The findings from this exercise will form part of the audit’s recommendations, due to be published in Spring/Summer 2008.

The audit information and recommendations will be used by NSD, NHS Boards and the Regional Planning Groups to identify gaps in the provision of critical care for children and assist in the planning of children’s services across Scotland. It will also inform the need and the remit of a Managed Clinical Network for paediatric critical care.

# Proposed Paediatric Critical Care Network



<sup>1</sup> Emergency Care Framework for Children and Young People in Scotland, Scottish Executive, October 2006