Delivery of critical care outside the ICU

Kevin Morris
Birmingham, UK
Thanks for the memories.....
I learned so much ..... clinical

- The educational value of a ward round attended by all ICU consultants
- Exposure to so many interesting patients
  - Cardiac physiology and the value of a good Cardiac Conference
  - Respiratory physiology and mechanical ventilation
That looking after and caring about trainees is central to their happiness (and allows you to work them >70 hours /week!)
I learned so much ..... training

• That looking after and caring about trainees is central to their happiness (and allows you to work them >70 hours /week!)

• That feeding them croissants at rounds and doughnuts every weekend also helps!
I learned so much ..... management/ ‘politics’

• That strong leadership of the ICU team(s) is essential
• The importance of leaders with strategic vision
I learned so much ..... research

- That important research can evolve out of everyday clinical questions
- That clinical research is enjoyable! And made easier if surrounded by those who can help you
1997 to present
A framework for the future 1997

• Intensive care for children happens in lots of different places – PICUs, adult ICUs, wards

• No clear idea of numbers

• Staffing skill levels are not adequate

• No clear idea about outcomes

Proposed:
  - collect national data
  - undertake a review of all PICUs
  - establish clear standards
  - establish lead centres

Paediatric Intensive Care
“A Framework for the Future”

Report from the National Coordinating Group on Paediatric Intensive Care to the Chief Executive of the NHS Executive

NHS Executive
Making a start with data
Paediatric Intensive Care Audit Network

PICANet is an international audit of paediatric intensive care which collects data on all children admitted to paediatric intensive care units (PICUs) in the UK and Ireland. It is coordinated by the Universities of Leeds and Leicester.

News

PICANet Annual Report 2014

The next PICANet Annual Report will be published on the 29th September 2014.

read more
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News

PICANet Annual Report 2014
The next PICANet Annual Report will be published on the 29th September 2014.
read more
PICANet – increasing admissions year on year
Number of children in each PICU (max per day) (n=33)

excludes outside values
Distribution of Mortality Risk (PIM2) by unit (2013 data)
Variation between units – invasive ventilation
Research
Randomised Controlled Trials in the UK – the early studies were thanks to Canada!
Randomised Controlled Trials in the UK
Randomised Controlled Trials in the UK

**The New England Journal of Medicine**

A Randomized Trial of Hyperglycemic Control in Pediatric Intensive Care

Duncan Macrae, F.R.C.A., Richard Grieve, Ph.D., Elizabeth Allen, Ph.D., Zia Sadique, Ph.D., Kevin Morris, M.D., John Pappachan, F.R.C.A., Roger Parslow, Ph.D., Robert C. Tasker, M.D., and Diana Elbourne, Ph.D., for the CHIP Investigators

**BMJ Research**

Effect of “collaborative requesting” on consent rate for organ donation: randomised controlled trial (ACRE trial)

The ACRE Trial Collaborators

**Impregnated central venous catheters for prevention of bloodstream infection in children (the CATCH trial): a randomised controlled trial**

Ruth E Gilbert, Quen Mok, Kerry Duxon, Katie Hamer, Tracy Moitt, Mike Miller, Padmanabhan Ramnarayan, Shane M Tidby, Dyfrig Hughes, Carol Gamble, for the CATCH trial investigators
Randomised Controlled Trials in the UK

**UK only studies**

*The New England Journal of Medicine*

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Use PICANet data in study design and to minimise trial data capture
The ‘politics’ - influencing the local and national agenda
The ‘politics’ - influencing the local and national agenda

I discovered it was much easier to influence change at a national level than within my own hospital!
Defining which paediatric services need to be co-located in the same hospital
Standards which would underpin a reconfiguration of cardiac surgical services
Management of Children with Major Trauma
NHS Clinical Advisory Group Report

February 2011

Improving the pathway for patients with major trauma
Developing more joined up neurology and neurosurgery services for children
19% improvement in risk adjusted mortality...
and some failure ...

... 4 years later and millions of pounds spent ...

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**Child heart surgery reform suspended**

By James Gallagher  
Health and science reporter, BBC News

Controversial plans to reform children’s heart surgery in England have been suspended as the decision was based on a “flawed analysis”, Health Secretary Jeremy Hunt has announced.

The NHS had planned to concentrate care in fewer, bigger centres.

There was opposition to ending surgery at Leeds General Infirmary, Glenfield Hospital in Leicester and the Royal Brompton in London.

Mr Hunt ordered an independent review of the decision.

Repairing the hearts of children born with congenital defects is one of the most complex procedures in the NHS. About 3,700 such operations take place each year.

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The image on the left shows a protest with signs and posters, and the image on the right is a screenshot of the BBC News article titled "Child heart surgery reform suspended".
Not enough PICU beds
Winter surge and pressure on PIC capacity

.. need 55 more PICU beds in winter than in summer ....
In 2012 news reaches 10 Downing St.....

BBC NEWS HEALTH

17 December 2012 Last updated at 14:10

Shortage of critical care paediatric beds, doctors warn

The NHS is facing a shortage of beds to treat critically-ill children, doctors warn.

The Paediatric Intensive Care Society and three other medical organisations say all 29 units in the UK are running close to capacity due to a surge in seasonal respiratory illness.

The Department of Health is expected to release additional money to help hospitals with winter pressures.

On Monday there were 10-20 unoccupied beds available.

During the previous week, there were days when virtually all of the beds were full- although doctors stress no child came to any harm as a result.

Services stretched

Related Stories

Vaccine hope over lung infection
Heart ops decision 'makes sense'

Sir Bruce Keogh
NHS Medical Director

The very young are particularly susceptible to severe chest infections
Shift of focus to care outside the ICU
Variation in patient complexity
(% of bed days at each Healthcare Resource Group (HRG) level)
High Dependency Care 2012
similar to where we were for PICU in 1997

- High Dependency Care for children happens in lots of different places – PICUs, adult ICUs, wards (+)

- Same patient may be looked after in ICU in one hospital and on the ward in another (and receive different amounts of funding)

- No clear idea of national numbers

- Staffing skill levels are not consistent

- No clear idea about outcomes
... an attempt to move things forward ....

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‘Time to move on’ - headlines

Alter terminology away from High Dependency and PICU to ‘Paediatric Critical Care’
Describes the entire critical care pathway (in and out of PICU)

Three levels of critical care (1,2 and 3)
Level 1 and 2 care describe ‘HDU’ elements, Level 3 describes PIC
Step up and step down between levels
Develop patient pathways for common problems

Set higher standards and requirements to deliver Level 2 critical care
Establish Level 2 centres
Establish competency requirements for nursing and medical staff to meet higher expectations to deliver Level 2 critical care

Audit all critical care activity and outcomes, share good practice
Through establishment of paediatric critical care networks
Paediatric Critical Care and Specialised Surgery in Children Review

NHS England launched a national review into paediatric critical care and specialised surgery in children in October 2016. The review is considering paediatric critical care, specialised surgery in children, paediatric critical care transport and extracorporeal membrane oxygenation (ECMO). Though there are distinct

4 years on .... work in progress
4 years on .... work in progress
Demand for PICU is growing year on year in the UK
Thresholds for ICU admission vary
Significant amounts of HDU level care is being delivered in ICUs
Ability to discharge long stay complex patients also varies
Provision of improved step-up and step-down critical care facilities should reduce demands on PICU and deliver care closer to home
Paediatric Critical Care Networks will be key
Thanks so much.
Complex referral patterns in South East

Each line represents a simplified provider referral “pathway”