

Acute care: reality vs visions



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Acute care: reality vs visions

- Realities
 - A global summary of quality and safety
- *One* vision
 - Quality in acute paediatric hospital care
- *Positive* realities

Adverse event incidence studies

Country	Study	Incidence of adverse events	Deaths	Estimated cost
USA	Harvard Medical Practice Study N Eng J Med 1991;324:370-77	3.7%	13.6% of adverse events lead to death	Estimated 100,000 deaths per year
UK	Retrospective record review BMJ; 322: 517-9	10.8%	One third lead to moderate or greater impairment	1 billion pounds Sterling in additional bed days
Australia	Quality in Australian Health Care Study Med J Aust 1995;163:458-76	16.6%	50,000 Australians suffer permanent disability and 18,000 die at least in part as a result of their healthcare	4.17 billion dollars per year
New Zealand	Adverse events in New Zealand Public Hospitals	12.9%		
Canada	Canadian Adverse Events Study	7.5%		

Quality of hospital care for seriously ill children in less-developed countries

Terry Nolan, Patria Angos, Antonio J L A Cunha, Lulu Muhe, Shamim Qazi, Eric A F Simoes, Giorgio Tamburlini, Martin Weber, Nathaniel F Pierce

Assessment of 21 hospitals in 7 countries

- Adverse factors in case management of 76% of children

Adverse factor	%
Late triage	8
Assessment	41
Treatment	61
Monitoring	30

- The greatest potential for improvement is in rural district hospitals

Quality of hospital care for children in Kazakhstan, Republic of Moldova, and Russia: systematic observational assessment

Trevor Duke, Elena Keshishyan, Aigul Kuttumuratova, Mikael Ostergren, Irina Ryumina, Ekaterina Stasii, Martin W Weber, Giorgio Tamburini

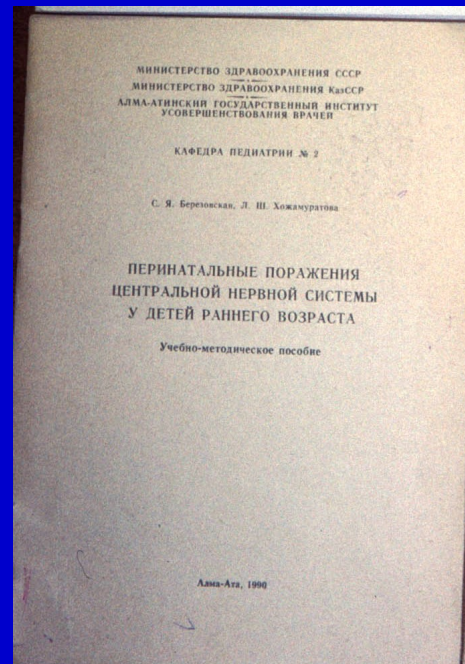
Summary

Background Major concerns about the quality of basic hospital care for children have been raised in developing countries, but no formal evaluation applying international standards has been done in the Commonwealth of Independent States.

- Unnecessary hospitalization
- Over-diagnoses
- Poly-pharmacy
- Drug safety
- Equipment safety
- Lack of guidelines



“Perinatal damage to the central nervous system”



Plasma concentrate
 Frusemide
 Acetazolamide
 “Dehydration” therapy
 Glutamic acid
 Vitamin B6, B12, B1
 Pirazitam
 Debazol
 Sidoxin
 Sodium Bromide
 MgSO_4
 “Herbal cocktail”
 Encephabol
 Theophyline
 Complamine
 Trindol
 Nootropil (vasodilator)
 Phenobarbitol
 Electrophoresis



Equipment safety

In some countries half all medical devices are unusable or unsafe

Oxygen: prevalence of hypoxaemia

Study	No. / No. hypoxaemic	Prevalence (%)	CFR
Usen et al, The Gambia	1072 / 63	5.9 (4.5-7.5)	3.4%
O'Dempsey et al, The Gambia	1033 / 105	10.2 (8.4-12.7)	
Junge et al, The Gambia	436 / 51	11.7 (8.3-14.2)	11.7%
Singhi et al, India	828 / 203	24.5 (21.6-27.6)	
Lodha et al, India	109 / 28	25.7 (17.8-34.9)	
Smyth et al, Zambia	158 / 55	35.0 (27.4-42.8)	14.6%
Basnet et al, Nepal	150 / 58	38.7 (30.8-47.0)	
Reuland et al, Peru	235 / 113	48.1 (41.5-54.7)	
Wandi et al, PNG	578 / 315	54.5 (50.3-58.6)	5.1%
Total	4599 / 991	21.5%	

More than 5 million children present to hospitals world-wide each year with hypoxaemia

Oxygen availability

- PNG
 - 22% of 1300 seriously ill children in 5 hospitals couldn't access oxygen at admission
- Kenya
 - Only 60% of children prescribed oxygen by a doctor in an ED actually received it
- South Africa
 - 61% of rural health clinics in South Africa had oxygen

Wandi F, et al. Ann Trop Paediatr 2006; 26(6):277-284

English M, et al. Lancet 2004; 363:1948-1953

Injection safety

- In 2000 contaminated syringes caused 21 million hepatitis B, 2 million hepatitis C and 260,000 HIV infections

PICU in Argentina

- Inadequate interdepartmental organization
- Lack of treatment protocols
- Too few paediatric intensivists
- Inferior equipment
- Lack of qualified technicians
- Lack of training and recognition of paediatric intensive care nurses

Garcia PC. Crit Care Med 1993;9 Suppl:S409-S410

Visions

An unrealized *minimal* vision

UN Convention of the Rights of the Child: *article 26*

- All children have the right to the highest attainable standard of health, and access to care and medicines when they are sick.
- States Parties shall take appropriate measures...
 - (a) To diminish infant and child mortality;
 - (b) To ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care;
 - (c) To combat disease and malnutrition
 - (f) To develop preventive health care, guidance for parents and family planning education and services.

Visions

A vision for quality & safety

Defining quality

Schneider A, Bull WHO 2006;84:259

- Effective
- Efficient
- Accessible
- Timely
- Acceptable
- Evidence-based
- Safe
- Client focused



Global Alliance for Patient Safety

WHO, Geneva October 2005

- “Clean Care is Safer Care”
 - Blood safety
 - Injection practices and immunization
 - Water, basic sanitation and waste management
 - Clinical procedures
 - Hand hygiene

Realities

Some *positive* realities from the field

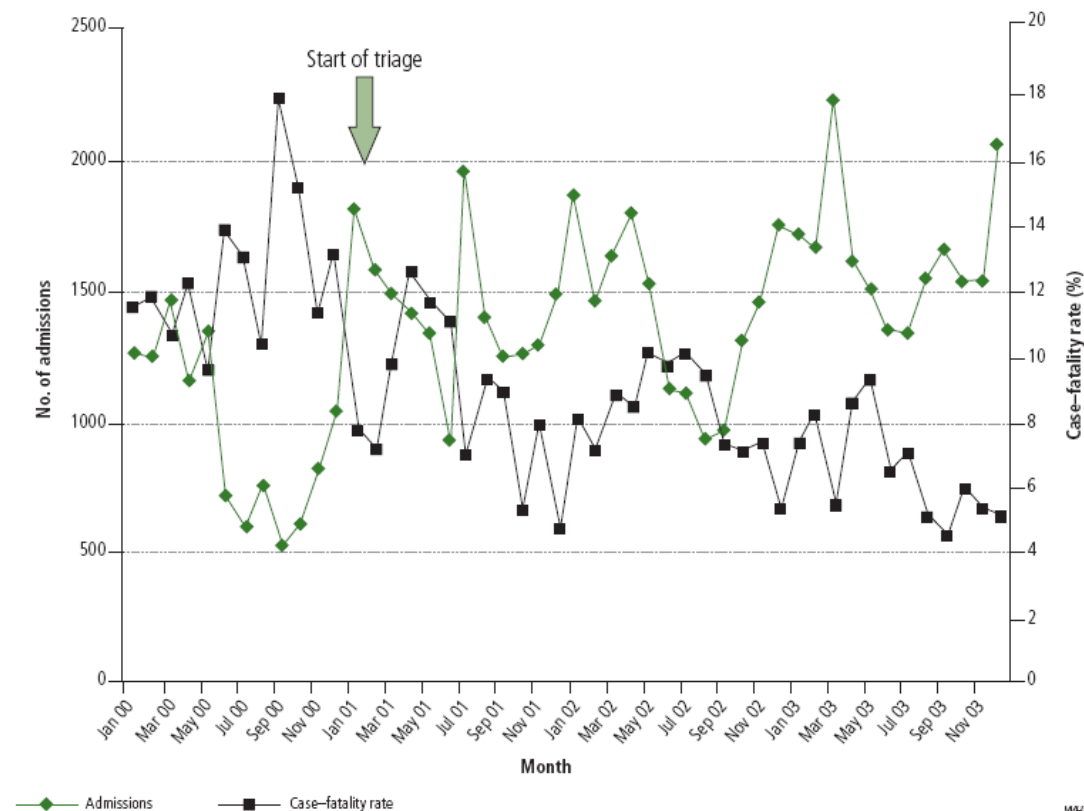
Acute care delivery

- Developing countries
 - ETAT: Emergency Triage, Assessment and Treatment
 - Oxygen systems
 - Standardized clinical guidelines
 - Respiratory support
- Transitional countries
 - Experience with PICU

Improved triage and emergency care for children reduces inpatient mortality in a resource-constrained setting

Elizabeth Molyneux,^a Shafique Ahmad,^b & Ann Robertson^c

Fig. 2. Monthly admissions and case-fatality rates for children aged less than 5 years, Queen Elizabeth Hospital, Blantyre, Malawi, 2000–03. Triage introduced in 2001



WHO 06.36

Oxygen systems

- Pulse oximetry
- Oxygen concentrators
- Back-up cylinder
- Continuous power supply
- Oxygen tubing and delivery mechanism
- Protocols for use of oxygen
- Training and supervision
- Maintenance and spare parts
- Follow-up



Impact of better provision of oxygen in pneumonia

- **Standard treatment**
 1. Oxygen if cyanosed or severe respiratory distress
 2. Discharge when antibiotics completed and no cyanosis
- **Intervention:** protocol for rationing O₂ based on pulse oximetry
 1. SpO₂ <85%
 2. Daily trial off oxygen
 3. No discharge until SpO₂ >90%

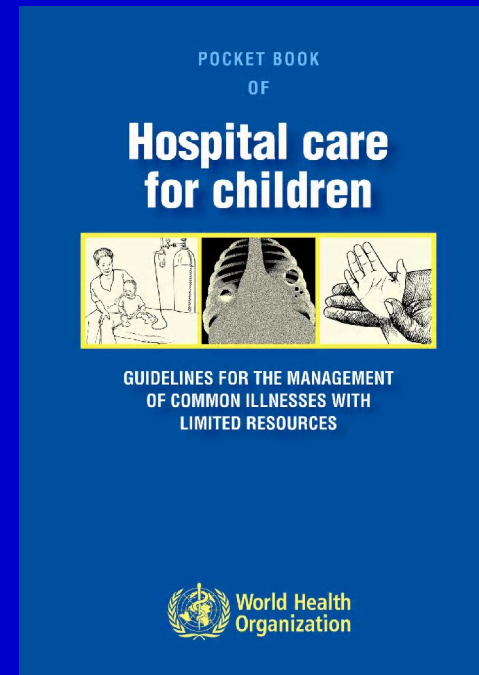
Time period	No patients	Deaths	Case fatality (%)
Pre oxygen protocol: 1997	258	26	10.0
Post oxygen protocol: 1998-2001	1116	65	5.8

Oxygen systems

- PNG
 - Concentrators less than half the cost of oxygen cylinders
 - More reliable source of oxygen
- Malawi
- Mongolia

Standardized clinical guidelines

- Severe malnutrition
 - *Lancet* 2001;**353**:1912-22
- Neonatal care
 - *PNG Med J* 2000;**43**:127-36



Respiratory support

An Evaluation of Bubble-CPAP in a Neonatal Unit
in a Developing Country: Effective Respiratory Support
That Can Be Applied By Nurses

by Lanieta Koyamaibole,^a Joseph Kado,^a Josaia D. Qovu,^a Samantha Colquhoun,^b and Trevor Duke^b

	Prior to bubble-CPAP (n=1106)	After introduction of bubble-CPAP (n=1382)	RR / P value
Need for mechanical ventilation	113 (10.2%)	70 (5.1%)	<0.001
Deaths	79 (7.1%)	74 (5.4%)	RR: 0.75 (0.55-1.02 p=0.065)

Bubble-CPAP <15% the cost of mechanical ventilators

J Trop Paeds 2006; 52:249-53.

Improving quality in PICU

- In Malaysia, introduction of 24-hour staffing by critical care physicians reduced the case-mix adjusted mortality.
 - *Goh A-T. Lancet 2006;357:445-6*
- Nosocomial sepsis
 - *Jeena P, et al. Ann Trop Paediatr 2001;21:245-51*
 - *Khuri-Bulos NA, et al. Am J Infect Control 1999;27:547-52*
 - *Merchant M, et al. J Hosp Infect 2006;39:143-8*
- Need more models of PICU in transitional economies

Improvements in acute care

- Prioritize
 - Basic to complex
 - Equity and Epidemiology
- Innovate
 - Appropriate technology
- Systems not hardware

A broader vision

Hospitals are not just mechanical structures to deliver technical interventions the way the post-office delivers a letter.

Hospitals are core social institutions; the way people are treated has the potential to worsen, or to mitigate, the effect of poverty and social disadvantage on health and development.

Freedman L. Achieving the MDGs. Development 2005; 48: 19-24

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