A National Paediatric Quality Improvement program

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Background

- Accurate data on outcomes from most hospitals since 2008
- Beginning to see reductions in mortality from pneumonia, severe malnutrition, overall
- Changing epidemiology, increased complexity, and new morbidity
- Single interventions not very effective – a new antibiotic, a new micronutrient
- What is needed is a National Paediatric Quality Improvement Program to improve overall standards and drive change in health care

WHO

Africa Europe

Australia

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE | NSQHS STANDARDS

Effectiveness of strategies to improve health-care provider practices in low-income and middle-income countries: a systematic review

Alexander K Rowe, Samantha Y Rowe, David H Peters, Kathleen A Holloway, John Chalker, Dennis Ross-Degnan*

670 reports of 337 studies of 118 interventions

X Single technology based single solutions – minimal effects

X Printed material for health workers – minimal effects

✓ Training and supervision –moderate effects

✓ Group problem solving – strong positive effects

What could a National Paediatric QI program look like?

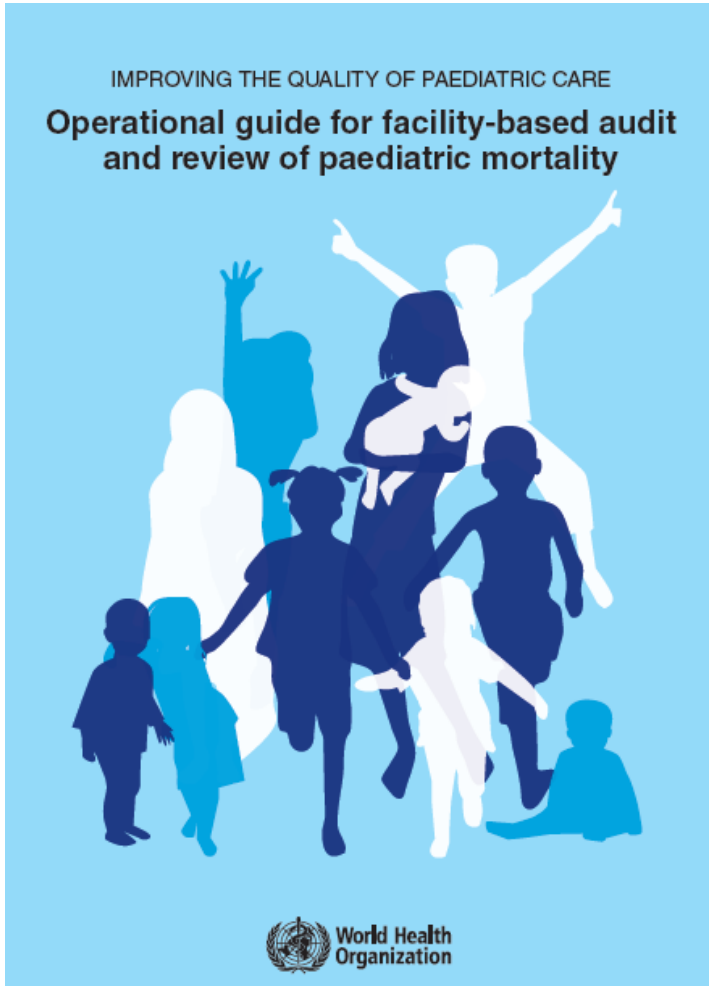
1. A quality improvement team that makes improvements based on group problem solving
2. Regular mortality and morbidity audits
3. Training on WHO Hospital Care for Children, EENC
4. Intensive care areas in the paediatric wards for the care of the sickest children
5. Paediatric monitoring and response charts with early warning indicators and escalation
6. Infection control and antibiotic stewardship
7. Improved systems for managing children with chronic conditions (neurodevelopment, epilepsy, chronic cardiac, respiratory, cancer, HIV, tuberculosis)
8. Improved diagnostics, especially diagnostics to guide antibiotic use, and HIV diagnostics
9. Continuing professional development for paediatricians and paediatric nurses

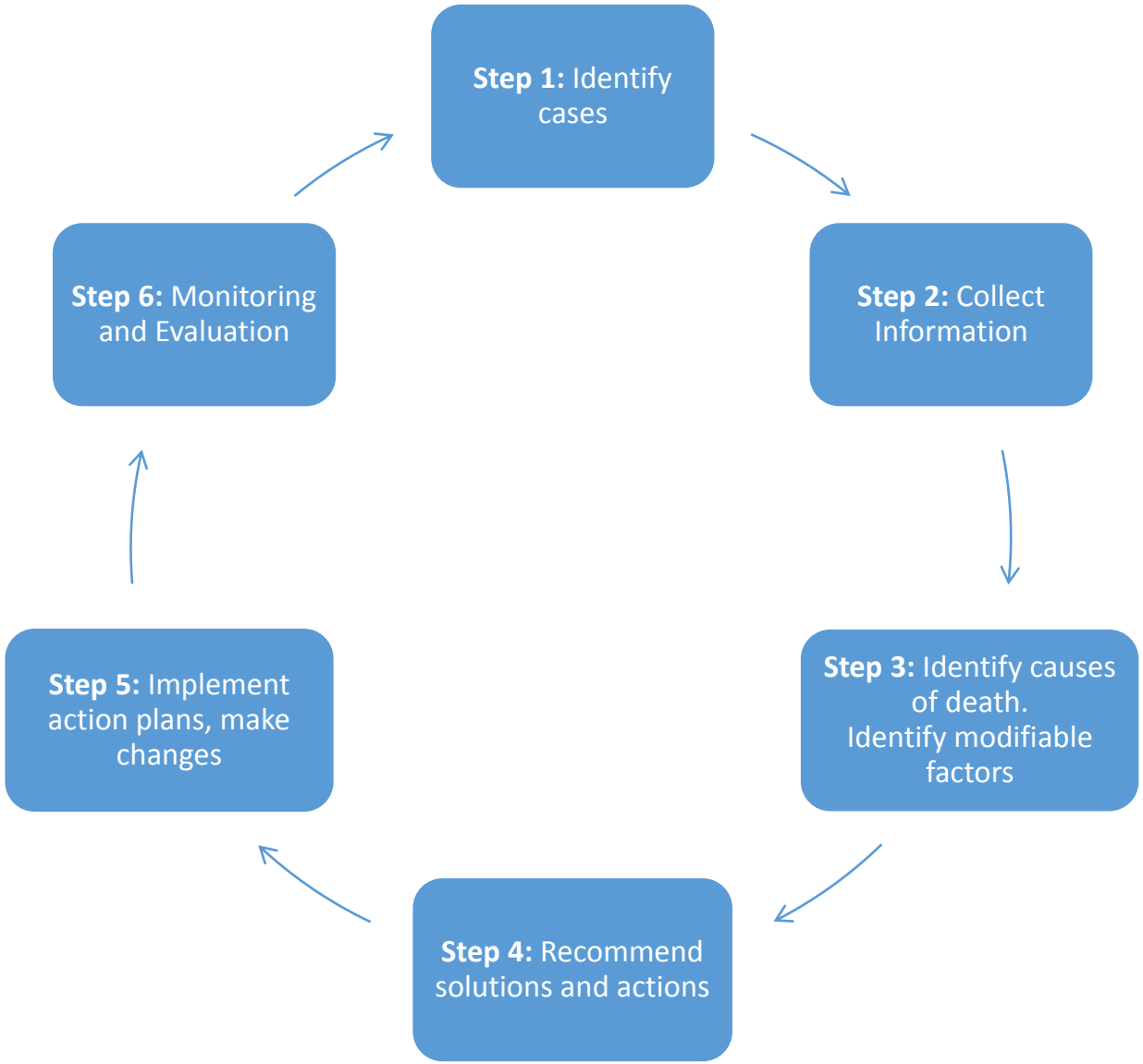
Why a quality improvement team?

- Implementing recommendations too much for one individual
- Team may be small in smaller hospitals (doctor and senior nurse), or larger to include other disciplines

- Sometimes the actions require multi-sector approaches, where actions will be at a public or community level, and require involvement of officials who are responsible for roads, education, social welfare, water and sanitation, health facility infrastructure

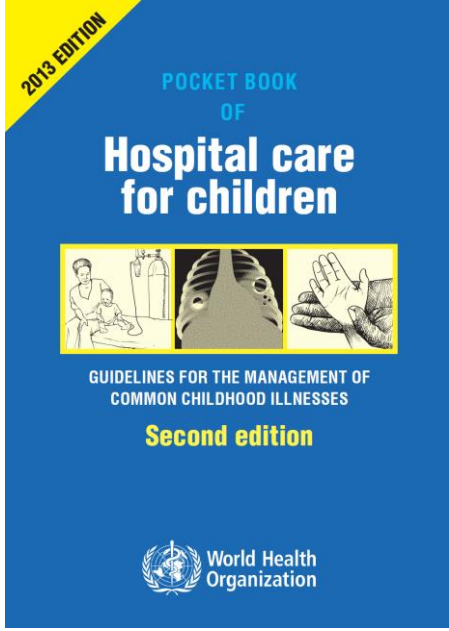
Mortality auditing





10 courses conducted
350 paediatric and
general nurses, CHWs,
HEOs and doctors trained

Updated Hospital Care for Children



- Oxygen concentrator and pulse oximetry
- Early Essential Newborn Care
- New diagnostics for tuberculosis and multi-drug resistant (MDR) tuberculosis.
- HIV care and new antiretroviral therapy
- Chronic illnesses in children, including epilepsy, rheumatic heart disease, chronic lung diseases, especially the long-term management issues at home and in the community.
- Important quality of care interventions including mortality auditing, infection prevention and control.

Paediatric monitoring and response chart

Name

UR Number | Age: | Weight: | Length / height

Diagnoses: | Frequency of observations:

Date																									
Time																									
	Temp °C	≥ 39																							>39
		38-38.9																							38-38.9
		36-37.9																							36-37.9
		<36																							<36
AIRWAY / BREATHING	Respiratory Rate (bpm)	≥ 80																							≥ 80
		70																							70
		60																							60
		50																							50
		40																							40
		30																							30
		20																							20
		10																							10
		0																							0
	SpO_2 (%)	95-100																							95-100
		90-95																							90-95
		80-90																							80-90
		70-80																							70-80
		<70																							<70
	Oxygen	L/min																							L/min
	Respirat distress	Severe																							Severe
		Mod.																							Mod.
		Mild																							Mild
		Normal																							Normal
CIRCULATION	Heart rate (bpm)	≥ 200																							≥ 200
		190																							190
		180																							180
		170																							170
		160																							160
		150																							150
		140																							140
		130																							130
		120																							120
		100																							100
		90																							90
		80																							80
		70																							70
		60																							60
		<60																							<60
	Cap refill	≥ 3 secs																							≥ 3 secs
		< 3 secs																							< 3 secs
	BP	Systolic																							Systolic
		Diastolic																							Diastolic
		Mean																							Mean
DISABILITY	AVPU response to stimuli	Alert																							Alert
		Verbal																							Verbal
		Pain																							Pain
		None																							None
	Pain score (/10)																								Pain
Blood sugar level																									
Treatments given Actions taken																									

- Too many cardiac arrests
- Identify the deteriorating patient earlier
- Escalation process
- Numerous studies showing reduction in cardiac arrests, deaths in children and adults after the introduction of MET

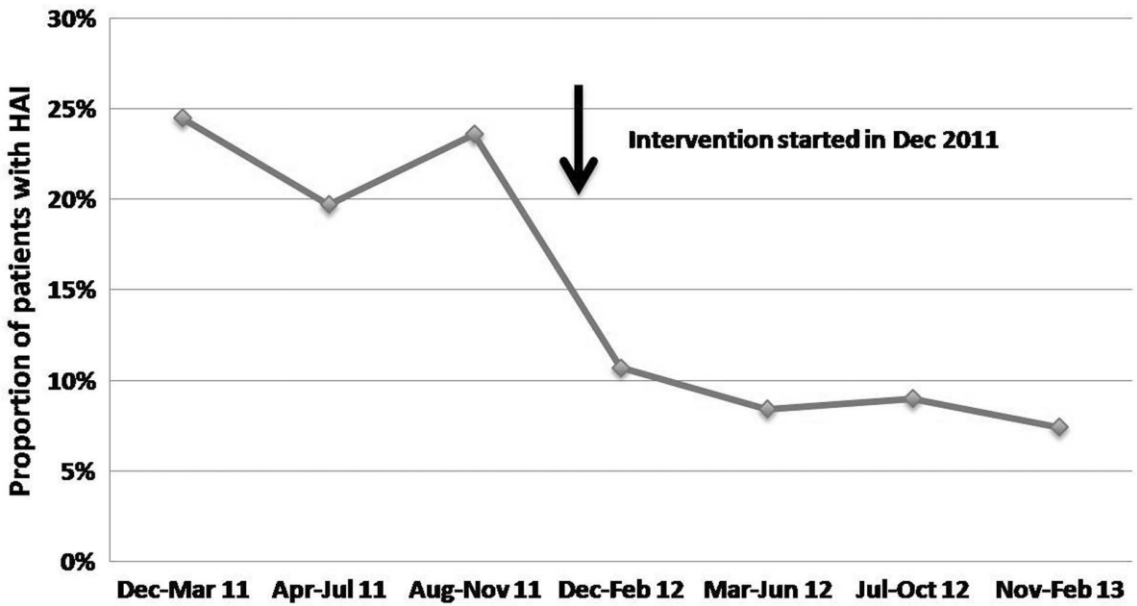
Reducing hospital-acquired infections and improving the rational use of antibiotics in a developing country: an effectiveness study

Indah K Murni,[1,2,3] Trevor Duke,[2,3] Sharon Kinney,[4] Andrew J Daley,[5,6] Yati Soenarto[1]

Table 2 Effect of the multifaceted intervention on the incidence of HAIs according to the ward of origin

	Incidence of HAIs		
	Preintervention (%)	Postintervention (%)	Relative risk (95% CI)
PICU	103/228 (45.1)	48/281 (17)	0.37 (0.28 to 0.51)
General infectious ward	93/466 (19.9)	44/450 (9.7)	0.49 (0.35 to 0.68)
General non-infectious ward	81/533 (15.2)	31/688 (4.5)	0.29 (0.19 to 0.44)
Overall	277/1227 (22.6)	123/1419 (8.6)	0.38 (0.31 to 0.46)

HAI, hospital-acquired infection; PICU, paediatric intensive care unit.



Quality improvement for all?

It’s not *for all* unless it’s in district hospitals

Outcomes

1. Overall paediatric mortality rate to less than 5%
2. Pneumonia case fatality rate to less than 3%
3. Severe pneumonia case fatality rate to less than 7%
4. Severe malnutrition mortality to less than 10%
5. Mortality of very low birthweight babies to less than 25%
6. 90% TB treatment completion rate
7. Extra-pulmonary TB case fatality rate to less than 10%
8. HIV PCR positivity rate among infants who are HIV-exposed <10%
9. 90% of children who are HIV PCR positive on effective ART
10. Meningitis / encephalitis case fatality rate to less than 10%
11. Systems in place for the care and follow-up of children with chronic illnesses

Challenges

1. Resources – Yes, always, but better quality of care *saves money*
2. How to embed quality into the health culture without creating an administrative burden for hospitals
3. Training in quality improvement in under-graduate and post-grad medicine