



Pediatric Intensive Care Nursing

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Editorial

Emancipatory Nursing

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In 1978, Barbara Carper published her doctoral research which highlighted the principal patterns of knowing in nursing (1). This has been one of the most respected contributions to the nursing literature, and is still highly cited even to this day. At a time when nursing was trying to establish itself as a scientific discipline, Carper pointed out that the nursing knowledge is complex and multidimensional. Nursing involves four patterns of knowing: *empirical knowing* (i.e., the science of nursing); *esthetic knowing* (i.e., the art of nursing, tacit, manual, technical, creative, empathic knowing); *personal knowing* (i.e., the use of self); and *ethical knowing* (i.e., moral knowledge). Subsequent to Carper's renowned paper, some authors have attempted to update her work by rethinking her four patterns and proposing additional patterns, such as White who argued for the addition of *socio-political knowing* (2).

A fairly recent addition to this body of work is Chinn and Kramer's view that nursing's fifth pattern of knowing is *emancipatory knowing*, defined as: "the human capacity to critically examine the social, cultural, and political status quo, and to figure out and why it came to be that way. From this pattern of knowing, people come to identify inequities embedded in social and political institutions, and to clarify the cultural values and beliefs that need to change to create fair and equitable conditions for all" (3). This builds on prior ideas put forth, regarding nurses as promoters of advocacy, partnership, collaboration or empowerment.

Emancipatory knowing recognizes that actual or potential persons cared for by nurses are in disadvantaged positions, because of their state of health or their social conditions – and we know very well that social conditions have a powerful impact on health. Therefore, nurses are seen to be important agents in facilitating

the resolution of inequities, given our rich knowledge and our position of power within health and social services delivery. Although many nurses may frequently feel powerless within their working conditions, we still hold significant power relative to those that we care for. It is important to point out that this pattern of knowing is not exclusive to nursing – many other professionals are also committed to emancipation to a greater or lesser degree.

It appears to me that so many of the papers that have appeared in this Journal, such as the Australian paper on the humanitarian project Operation Open Heart in this issue, clearly demonstrate the many contributions that nurses are making toward helping the disadvantaged – in fact Operation Open Heart is a wonderful interdisciplinary example.

It is important to also emphasize, however, that emancipatory nursing can also be practiced in our regular everyday nursing at the bedside, in meetings, in our teaching, in administration and in our writing. With every act, we express our position and influence those that we care for. Let us keep in mind our extraordinary power and influence and continually seek to improve the wellbeing of critically ill children in the many ways that we can.

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Operation Open Heart – The challenges and rewards of facilitating pediatric cardiac surgery in Rwanda

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NB: Photographic essay at end of paper.

Abstract

More than one million people were killed during 100 days of genocide in Rwanda in 1994 in one of the bloodiest chapters in Africa's history. This has had untold ramifications on this small nation, and health care is just one area that has suffered in the aftermath.

However, in the words of former Secretary-General of the United Nations, Mr Kofi Annan, "Today Rwanda has much to show the world about confronting the legacy of the past and tackling the challenge of recovery; it is demonstrating that it is possible to reach beyond tragedy and rekindle hope [1]."

One group responding to the challenge to play a small role in Rwanda's recovery is Australian-based volunteer organisation Operation Open Heart (OOH). OOH is a specialist cardiac surgery team that initiated paediatric heart surgery at King Faisal Hospital in 2006, and continues to facilitate cardiac surgery services, infrastructure, education and training.

The following paper outlines the role of OOH, the progress made in three years due to collaboration with excellent Rwandan hospital staff, and the positive outcomes to date. The paper also outlines some of the challenges facing heart surgery services in Rwanda, and despite these, the gradual steps towards sustainable, high quality cardiac surgery services into the future.

What is Operation Open Heart?

Operation Open Heart (OOH) is a program where Australian-based volunteer medical teams visit developing countries to perform surgery which would otherwise not be available in those areas. A significant component of OOH is to assist with equipment, infrastructure, education and skills-transfer to the stage where local medical teams can maintain specialty surgical programs in their own countries.

The OOH program began in 1985 when a

Sydney-based intensive care nurse, Mr Russell Lee, visited the Pacific Islands of Tonga and saw the prevalence of rheumatic heart disease and the absence of in-country cardiac surgery. Mr Lee, along with a number of Australian colleagues, organised a volunteer mobile cardiac surgical team to visit Tonga. That initial visit began a 24-year tradition, with the assistance of the Sydney Adventist Hospital, the Adventist Development Relief Agency, donors and medical supply companies.

OOH now operates in a dozen countries including Fiji, Vanuatu, the Solomon Islands, Papua New Guinea, China, Mongolia, Nepal, Vietnam, Myanmar (Burma), Cambodia and Rwanda.

Cardiac surgery feasibility in Rwanda

Rwanda has a population of just over eight million people. King Faisal Hospital is located in the capital city Kigali, and was built using a 'soft loan' of US\$16 million from the Saudi Fund for Development. The hospital opened in 1991. It initially functioned as a first-aid post, and no surgery was performed for a few years.

During the genocide in 1994, the hospital grounds were a refugee camp and a United Nations' safe haven. It re-opened as a public hospital later that same year and functioned as a district hospital until 1998, when the Netcare Hospital Group (South Africa) came to help it transition to a specialist hospital. That period was short-lived as it wasn't a profitable venture at that time. Since then, the hospital has received some Government funding but is striving to be self-sufficient [2].

In 2006, Mr Lee was asked to assess the feasibility of establishing paediatric heart surgery services in Rwanda and conducted a reconnaissance visit to check the infrastructure at King Faisal Hospital. There are enormous logistical, political, monetary, ideological and practical considerations that can either make or break a project like this.

Part of Mr Lee's task was to ascertain the quantum of cardiac surgical patients; the diagnostic capabilities and resources at the hospital; the level of local community support for a cardiac surgical program; and also assess options for accommodation, meals, and transport for a large visiting surgical team.

The cardiac problems immediately evident were congenital heart defects and the after-effects of rheumatic heart disease. With some additions and modifications, King Faisal Hospital's intensive-care and surgical wards were suitable for children having cardiac surgery.

The hospital has three operating theatres, two of which were offered to OOH for use during each surgical visit. The sterilising department was well-coordinated and functional, and pathology and radiology services were capable of meeting the increased demands of cardiac surgery with some assistance from OOH pathology staff and extra equipment. The hospital pharmacy could supply some basics, however the OOH team would need to bring all the specialist cardiac and anaesthetic drugs and intravenous fluids.

Advance Screening team

Following the positive feasibility assessment, plans were put in place to prepare for the OOH team's first surgery visit. A screening program was devised, where local physicians would assess potential patients prior to the OOH team arriving. King Faisal Hospital's Medical Director and Paediatric Cardiologist, Dr Joseph Mutcumbitsi, does the initial patient screening, using assessment criteria developed in conjunction with OOH cardiologists and surgeons.

The local hospital staff do an incredible job of refining the patient list. Some of the referred patients have risks associated with surgery that make them unsuitable to be done in Rwanda, and they will be sent to India or Israel for surgery. This is very expensive and an option for only a fortunate few. Sadly, some won't get surgery at all, because their cardiac disease is too advanced for any intervention.

Depending on the number of operating days the OOH team has in Rwanda, Dr Mutcumbitsi narrows down the potential patients to about 50. These 50 patients will be assessed again by OOH's Advance Screening team – comprised of a paediatric cardiologist and a paediatric cardiac liaison nurse.

The Advanced Screening team travels to Rwanda a week ahead of the rest of the OOH team and, with the assistance of two Rwandan nurses, examines each of the short-listed

patients, obtains patient histories and performs pre-op testing (including an echocardiogram). The purpose of a careful screening process is to get an accurate diagnosis of the cardiac disease and its severity; to judge the risks and benefits of surgery for each individual; and to prioritise the ones urgently needing surgery.

Operation Open Heart underway in Rwanda

The first OOH surgical visit to Rwanda took place in 2006, the second in 2007 and the most recent in November 2008. Each visit lasts for one week to ten days, including travel time. Each OOH team consists of 40-50 people, including a team coordinator, two cardiac surgeons, two anaesthetists, a paediatric cardiologist, an intensivist, a perfusionist, a biomedical engineer, a pathologist, a pharmacist, and enough registered nurses to staff operating theatres, intensive care and post-op surgical wards.

The patients are predominantly paediatric cases, and most need repairs of congenital heart defects, such as atrial septal defects (ASD), ventricular septal defects (VSD), tetralogy of fallot (TOF), or valve repairs/replacements for rheumatic heart disease [3]. There are generally five to six operating days per visit, and 75 patients have been operated on during the first three visits to Rwanda. Of those, only one died.

Due to the compressed timeframe the team has during these surgical visits, it is not unusual for operating theatres to do five or six cases in one day – a mix of open-heart cases and closed cases. This is a gruelling schedule that even the most established cardiac theatres in Australia would struggle to match.

Challenges

Finding enough staff with the desired cardiac skills can be a challenge. It is also a challenge to assemble a cohesive team when staff come from many different hospitals and have different levels of training and qualifications. Each nurse is used to following different protocols and procedures, but it is important to present a united front so it is less confusing when teaching or demonstrating new procedures to Rwandan staff. To assist with the teaching of Rwandan nurses, the OOH team uses local nursing documentation charts, so they have something familiar with which to

document things they are not so familiar.

Every member of the team is a volunteer and pays their own airfares. In the case of Rwanda, this cost is around A\$4,000 in 2008. King Faisal Hospital covers the cost of team accommodation and some meals.

The logistics of sourcing, packing, labelling, and transporting many tonnes of medical equipment can be a daunting [4]. All the equipment is sent weeks/months in advance, so that, ideally, it can be in place and ready to unpack once the team arrives. Despite the best plans, freight delays are common and sometimes surgery is delayed as a result.

Jetlag, culture shock, and having to function at a high level in a different work environment tests the team, as do the challenges of skills transfer and education in a foreign language. Rwandans speak a mixture of French, Rwandese and English, and language differences can be an issue. Interpreters are sometimes available but the OOH team has found that even in the space of three years, communication has improved. On most shifts there is someone who speaks some English, and their interpretive skills are invaluable – especially for the patients and their families.

The medical equipment OOH takes on each trip – such as heart/lung machines, monitors and pumps – get shipped around the world dozens of times each year. Despite especially designed shipping cases, equipment is often damaged, and spare parts are hard to source in developing countries.

Invasive monitoring is rarely used in Rwanda so there are limited resources to support the OOH team's need for invasive monitoring of cardiac patients. Careful planning and packing is needed, to ensure the correct cables are taken to match the transducers and the monitors [5].

Electricity supplies can fluctuate and black-outs occur. This plays havoc with sensitive medical equipment, and keeps the biomedical engineers busy. Machines in-situ in the hospital, such as suction pumps and ventilators, are often older models and can need repairs. This can test the capabilities of the engineers as well as the nurses using them. It is not uncommon for a six-bed ICU to

have five different ventilators, so it is useful to have inservice to familiarise staff with equipment before patients return from theatre. The one backup ventilator (with all its parameters written in French) hasn't been needed so far, thankfully, as few OOH team members speak French.

The patients in Rwanda are a lot sicker, preoperatively, than typical patients in Australia and have more advanced disease processes [6]. They are often malnourished pre-op, and have chronic cyanosis, pulmonary hypertension and cardiac dysfunction. Post-operative infection is also a risk, as some patients live in mud huts with farm animals wandering about.

The team takes most medications with them. It is hard to predict in advance what will be needed, and sometimes Customs officials confiscate medications. During OOH trips, generic drugs names are used, to avoid confusion for both OOH and Rwandan staff.

Due to the limited number of operating days, and a limited number of ICU beds, patients exit ICU faster and transition to the step-down ward sooner. In Australia, patients would usually spend two nights in ICU post-cardiac surgery, before being transferred to the ward. In Rwanda, only one patient spent more than one night in ICU. This faster transition to the step-down ward means there is a greater nursing workload on the ward, and patients have a higher dependency. Nurses have to be highly vigilant, very experienced and, ideally, cardiac-trained.

Rewards/Benefits

The most rewarding aspect is seeing the vast improvements in patients' conditions post-operatively, and the relief and joy on their families' faces. Rwandan children are enormously resilient and impatient to get out of bed post-operatively. One young boy, Dieudonne, is a great example of this. Pre-operatively he was bed-bound and oxygen-dependent and had been in hospital for three months waiting for surgery to have a shunt inserted as an interim measure to treat his TOF.

He was the first to be operated on during the 2008 trip. Three hours after returning to ICU post-op, he was sitting up in bed, shooting a

mini-basketball into a hoop for physiotherapy. Day one post-op he had all his lines and drains removed and was transferred to the step-down ward, where he spent time playing games and doing fun diversional activities [7]. A week later, he was so well that he walked one kilometre home – accompanied by his family, his little mates from his village, and some of his new friends from the OOH team [8].

Over the past three years, the improvements in infrastructure, facilities and cardiac-related nursing skills at King Faisal Hospital are evident. Hospital staff work side-by-side with OOH staff, and at-the-bedside skills transfer is invaluable [9]. OOH doctors and senior nursing staff also run in-service lectures. The hospital has worked hard to upgrade facilities and develop protocols to further facilitate cardiac surgery services.

Without exception, team members say the rewards from working on an OOH trip far outweigh any costs. OOH provides a unique opportunity to experience different cultures, work in a challenging environment, and expand their own skill-sets and confidence. Many take the opportunity to extend their stay after the work is done, and have a bit of a holiday exploring the country [10]. There are many fun moments amongst the hard work and the strong team camaraderie is palpable [11].

Future

King Faisal Hospital is the most advanced facility in Rwanda as far as paediatric services go, and its patients are drawn from across the country. The hospital has committed to growing the paediatric cardiac surgical program, and also plans to initiate a Rwanda-wide screening program for heart failure.

The hospital is six months into a two-year journey towards accreditation, and is being assisted with upgrades and equipment across all specialties. This assistance is coming from the Rwandan government, Saudi funding, and continuing collaboration with teams from Australia (OOH), Belgium (Chain of Hope) and Boston (Team Heart). One of the major priorities is human resources: people – paid or voluntary – at the bedside to transfer skills.

Another priority is for the hospital to have all

its own equipment so that when teams like OOH come from overseas, they don't have to freight everything over with them each time. The hospital is planning for this.

Rwanda's ultimate aim for self-sufficient paediatric heart surgery may still be some years down the track. Meanwhile the OOH team is already planning for its next surgical trip to Rwanda in 2009. One of the positive impacts of repeated OOH visits to developing countries is helping in-country cardiac programs mature. Papua New Guinea is one example where, despite myriad challenges, high-quality cardiac surgery programs are possible. OOH has been visiting PNG for many years, and not only do PNG surgeons and nursing staff run their own cardiac surgery now, they also travel to other countries such as the Solomon Islands and Rwanda, to assist fledgling cardiac programs in those countries.

One of the favourite moments in Rwanda is seeing little patients from previous years return, in full health, to hug the team and say thank you. There are usually hundreds of photos taken and quite a few happy tears [12]. That's what makes it all worthwhile. You can't control freight delays, you can't control equipment failure. You could always do more, come more often, provide more training, try to get more funding and more equipment but, until then, the team does what it can, with what it has, and the results and the returns are enormous [13].

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Photographic Essay



King Faisal Hospital



Operating theatre



Packing supplies



ICU bed and monitors



ICU: child post-op



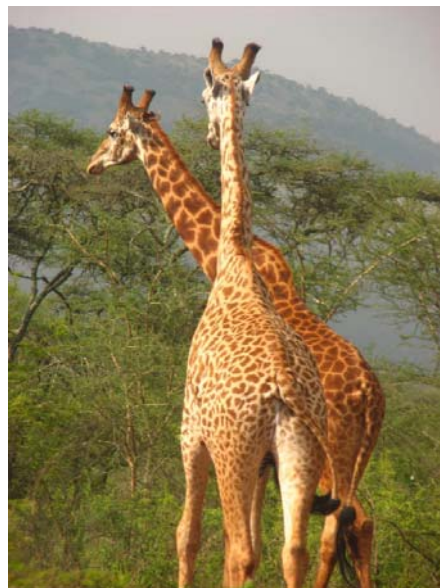
Dieudonne day 1 post-op



Dieudonne (in yellow shirt) arrives home



Information exchange



Giraffes



Team camaraderie



Group photo (present and past patients)



Big Smiles



Spotlight on PICU

This regular column will provide readers with an opportunity to learn about fellow PICUs in various parts of the world.

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The PICU of the University Hospital of Brussels (UZB) is a small unit with 6 high care beds embedded in the general Critical Care department. Immediate neighbors are the 5 other Intensive Care Units treating and caring for adult patients. This distinct separation from the pediatric department sheds a light on the daily management of this PICU: it is run by intensivists with combined pediatric and adult patient training, anesthesiologists and pediatricians. The nurse to patient ratio is very low compared to other Western countries. The UZB PICU employs 15 nurses and 1 chief nurse. In general there are 3 nurses for 6 patients during morning and evening shifts. During the night shifts (that last for 11 hours) and during week-end evening shifts only 2 nurses are scheduled to provide the necessary care. This ratio is further jeopardized when nurses become ill or when critical care interhospital transports are organized. It is not rare then that only 1 nurse is left for the entire ward.

Nurses from other Western countries seriously doubt that patient safety and nursing quality can be assured in such low-staffing conditions and they certainly do not understand how it can be done. However, we are used to a nationwide system that has never invested in differentiation among nurses. Undergraduate and Master nursing training in Belgium is of a fairly high level, but later differentiation in the field is very limited compared to other Western countries. Advanced practice nursing remains unidentified

in Belgium and it is certainly not associated with typical nurse practitioner, nurse anesthetist or physician assistant nursing roles. Currently in Belgium it is not clear to hospital administrators and the government what the exact role of a graduate nurse should be. So basically, all kind of differently trained nurses continue to do the same work in the PICU – in a (probably obsolete) nursing model described as ‘integrated nursing’. Therefore Belgian PICU nurses know a lot about a lot of things without being truly specialized – at least not in the way that nurses from other Western countries are. This kind of generic nursing performed by pediatric, intensive care undergraduate and graduate nurses probably makes it possible that a unit can be run ‘sufficiently’ by 3 to 1 nurse(s), even when all 6 patients are mechanically ventilated.

This may read as the memories of an old and frustrated chief nurse, but frustration can be translated into a positive driving force to create solutions. Nursing under typical Belgian conditions leads to pragmatism, a problem solving approach and creativity. Of the 350 annual PICU admissions in our hospital, 120 are transported by our own team. Half of these ‘scrambles’ occur at night, when the staffing is at its lowest. As the senior nurse needs to stay in the unit (by law), a pragmatic transport system that maximally assists the junior and less-experienced nurses has been designed. The system has been called the MOUNSTER (MOUNTable Unit STretcher Extension Rack) and

was presented at the American Academy of Pediatrics Transport Conference (San Francisco, 2005) and the European FFCNA congress (Amsterdam, 2005) (1). Several copies of this bi-level stretcher have been made and the system has been shown to be an asset especially for junior teams during pediatric critical care transportation.

The UZB PICU has no real or outstanding profile, such as 'cardiac surgery' or another highly-technical specialization. In fact this unit deals mainly with emergency admissions, so most of the patients have acute respiratory problems requiring PICU admission or are seriously injured (traffic or fall from a window). The hospital supports the west part of the capital city of Belgium and is situated near two congested and notorious highways. As most of the admitted patients suffer from severe bronchiolitis and RDS, mechanical ventilation has always been a major topic of interest here. The unit has more respirators than beds: 3 machines are Maquet respirators with on-board open-lung tool and second generation NAVA (Neurally Adjusted Ventilatory Assist). As NAVA is used for nearly all ventilated patients, the local database expands on a daily base. Soon, two case reports will be presented for publication: one case of runaway ventilation and one case of persistent Edi asynchrony.

The nursing staff has also a particular interest in vein thrombosis and iatrogenesis due to multi-infusion intravenous therapy. Different study protocols have been started to investigate for 'intelligent design' intravenous circuitry, connectivity and inline pressure mastering.

Four of the 16 UZB PICU nurses are European Resuscitation Council registered pediatric advanced life support instructors. This is a very high concentration for such a small unit and also quite demanding as each instructor needs to participate in 3 (exhausting) trainings per 2 years.

Three of the UZB PICU nurses are trained members of the Belgian First Aid & Support Team (B-FAST). Two of them actually participated in humanitarian disaster relief missions, more specifically at Banda Aceh (Great Asian Tsunami, 2004) and at Kashmir (Pakistan Earthquake, 2005) (2). They are true volunteers as their leave is not considered as working time.

A final frustration of this small unit in a small country is the concern that smallness may be synonymous with anonymity. But then, who doesn't know Françoise Martens? This former ESPNIC-secretary and nurse ambassador works with us in the UZB PICU and is continually pestering us for news topics for the WFPICCS Newsletter. So, to all the trumpeting and mighty PICU elephants: beware of the UZB PICU mouse, because here we come!

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or contact Franco Carnevale (moderator) at
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Questions & Answers from PICU-Nurse-International

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This column features particular dialogues that unfolded on the PICU-Nurse-International egroup that were particularly pertinent, stimulating, generated significant interest, and provided particularly informative replies.

Laryngeal Tracheal Reconstruction

Question:

We are developing Clinical Practice Guidelines for patients with Laryngeal Tracheal Reconstruction (LTR) and are trying to find out how other institutions care for this patient.

United States

Answers:

Generally our children remain moderately to heavily sedated and ventilated for 2 days and with at least 2 days of Dexamethosone. We have very few post extubation complications. I have worked in other institutions that keep their children muscle relaxed for 2 days and ventilated for a week. This always seemed a little extreme to me, and suspect it had more to do with the inadequate sedation policy.

United States

The technique used determines how long the patient is chemically paralyzed and sedated. If the cartilage graft is posterior, the trachea has been manipulated more extensively, and there is more risk of graft failure, so the patient needs to be still for a long period of time. It isn't a matter of not moving the patient, so much as not turning the head. Just like a spinal cord injury, the chin must remain midline of the clavicles, so as not to put tension on the healing graft.

Usually a T-tube is placed to allow suctioning, and nurses may be trained in this procedure. The precise depth of suctioning allowed is usually in the post-op orders, and we mark the length on the tape on the bedrails.

Boston, United States

Fall Risk Assessment Tool

Question:

I noticed that this was asked awhile back but there was no response so I will ask again. Does anyone have a fall risk assessment tool for the pediatric population?

Springfield, United States

Answers:

We are currently doing a research project to evaluate 5 pediatric falls risk assessment tools; GRAF-PIF, Humpty-Dumpty, Cummings, CHAMPS, and Children's National Medical Centre Pediatric Falls Scale. We are looking for the tool that best predicts falls in our patient population. Should have the study completed by the end of the year.

Portland, Maine

Wasting of Narcotics

Question:

I am looking for a procedure that outlines the steps of witnessing and waste of narcotics. We do capture our waste/witness in a medication supply stations (Pyxis). What do you do about large volume narcotics/sedatives that are in syringes or bags when is time to change or they are discontinued. Who witnesses this waste and where is it recorded?

St. Peterburg, Finland

Answer:

For large volume narcotic, we have a "narcotic use" sheet that stays with the patient's chart. The nurse who hangs up or discards the drip would document times/dates/signs on the sheet. If there is drug remaining, a second nurse witnesses the volume. The drip is then walked to the pharmacy where a pharmacist also witnesses the volume.

Macon, Georgia

Flush Solutions for Arterial Lines

Question:

In UK, a Risk ALERT instructs on the use of only 0.9% saline in arterial line flush solutions on all patients. Our unit currently still uses a low dose heparin/saline solution for these flush solutions for these lines. Does anyone else use just 0.9% saline even for neonates with small gauge catheters in situ?

Liverpool, United Kingdom

Answers:

In arterial line we use flush solution of 1 unit per ml of 0.9% saline, administered with syringe pump at 2 ml/hr for neonates and 3 ml/hr for pediatric patients.

Italy

We use 2 units per ml in our flush solutions. What was the rationale oo the alert?

Sydney, Australia

We currently use 250 units of Heparin in 50 mls of 0.9% saline. We use an infusion pump and generally run it at 2 ml/hr and except in neonates; we run at 1ml/hr and would be interested in hearing more about the evidence for the risk alert.

Perth, Australia

Worldwide 3 traditions seem to be respected. Those administrating 0 unit/ml heparin, those 1-2 unit/ml heparin and those 4-5 unit/ml heparin. The 'Risk Alert' you mentioned does not explain why no heparin should be added to the NaCl infusion. Can you inform us on that?

We too based our Heparin "protocol" on consensus instead of on solid evidence and 2 unit/ml is somewhere the middle between 0 and 5. On the other hand we have tested during a 1 year period of 100% NaCl flush and had the impression (unmeasured) that 0 unit heparin led to more occluded arterial lines than with homeopathic dose. We are not tempted to change our Arterial-Heparin policy unless the catheter or flush line undergoes an anticoagulant "treatment".

Belgium

Re: On 'Alert' Attachment

I have read the attached alert and interpreted it a bit differently. The word "Heparin" is not anywhere in the document. I don't see where it is specifically prohibited. In fact, there is a mention that "additives" must be prescribed, which I assume could include heparin. My reading of the document is that the base solution must be 0.9% sodium chloride, and not a glucose solution or potassium solution. The 'Evidence of Harm' section mentions some patient errors when a glucose solution was running and also when a potassium solution was hung by error.

Ohio, United States

Peritoneal Dialysis Fluid Warmers

Question:

How are people warming dialysis solutions for small infants receiving peritoneal dialysis? I'd like to know the types of warmers being used. Anyone have any creative ideas of what to use that doesn't involve having to put different types of tubing together to make it work?

Vancouver, Canada

Answers:

We use a warming plate, on which we put the peritoneal dialysis bag.

Padua, Italy

We use a Hotline mainly, although it seems we're having trouble getting tubing now. We also have the Ranger, but never got any education on how to use it, so there have been some adventures when setting it up.

Alberta, Canada

We have just changed in the last year using Astoflow. We have a company that custom makes the PD set to go with them. I can give details for any UK centre that is interested. The warmers are great, very simple to use and can also be used for warming I/V fluids, blood products if required and we also use them on the return limb of CVVH circuits for small babies who sometimes cool off quite a bit despite the facility for warming replacement fluid on the Acquaries.

Liverpool, United Kingdom

We use an incubator for warming our infant peritoneal dialysis fluid. We just set up an additional incubator next to our infants' crib or warmer and it warms it to the proper temperature.

Dartmouth, Lebanon

We use Home Choice Cycler to warm the peritoneal dialysis fluid when we are doing manual peritoneal dialysis.

Ontario, Canada

Left Atrial Line

Question:

We are currently reviewing our left atrial (LA) line guideline and I was wondering how other units are currently practicing in relation to:

1. When and where are the line removed and who removes the lines?
2. Where are children nursed who still having line in situ but that are not in used i.e. ITU, HDU/floor?
3. Do you have any special procedures i.e. blood available, drain in situ, ECHO post procedure?

Royal Brampton Hospital

Answers:

Nurses or Surgeons removed the LA line in 72 hours or when an unstable child recovered. The lines are closed and wait 48 to 72 hours and are removed when the child's coagulation profile is stable. We perform some 'knot' in the line to prevent air embolism due to plugs disconnection. The lines are removed in ICU or in the procedure room on the floor, the child must have cardiac monitoring during the procedure and emergency equipments must be available. We prefer that the drain be in situ but sometimes it does not occur. Blood must be available for children at risk of bleeding and coagulation profile must be assessed.

San Paulo, Brazil

Nursing staff removed the lines in PICU with surgeon on-site or within close proximity when need for monitoring has passed and is patient condition driven. Mediastinal drain +/- pleural drains ideally should be in situ with normal coagulation profile and blood and blood products available.

Perth, Australia

At times, the lines are removed immediately when they become unnecessary, which could be the day after surgery. Most of the time, the lines are capped as they become unnecessary and when the child's condition improves etc. There is the odd time that the 'common atrial line' will be used as an infusion line which has led to a range of management protocols being set in place. Nursing staff remove the line. If the line is removed within 24 hours of insertion and if the drains are still in situ then we remove the line 30 to 45

minutes before removing the drains, but mostly the lines are capped prior to transfer to the ward based HDU environment. If we have a 'common atrial line' that is being infused on, this is still managed in the ward HDU setting and we require that the lines be visible.

We usually take the capped direct LA line out with the pacing wires, and will do an Echo after removal. We try not to do either of these procedures in the afternoon or on the weekends as we wish to have the surgeon or surgical registrar easily accessible. We also ensure that the coagulation profile is normal, that any heparin infusions have been stopped for over 2 hours and that the APPT is not deranged, and a current cross match has been done.

Auckland, New Zealand.

LA lines are removed when the surgeon determines they are no longer needed. The surgeon removes them at the bedsides. The children do not leave the PICU with LA lines and generally still have their chest tubes in until after LA lines are removed. No special procedures post removal are done and we don't generally have problems with bleeding.

Portland, Maine

New Tracheostomy

Question:

1. Is a patient required to remain in the PICU until after the first trachy tube change?
2. What types of trachy tubes are most commonly used in your facility – Bivona, Shiley, others?
3. Are the parents or patients allowed to begin tracheostomy care prior to the first trachy change i.e. learning to suction, change ties, clean stoma?

Memphis, United States

Answers:

1. Yes, patient remains in PICU
2. Both
3. They can but usually take a week to get used to their child with a trachy tube. We have a training and competency program for them to complete which we can start in the first week.

Sydney, Australia

1. Yes
2. Bivona, Shiley and Portex
3. No

Portland, Maine

1. If they have an alternate airway and are not at risk to pull it out they may go to the ward. They will stay in PICU if they don't have an alternate airway and are at risk of knocking it out. This is largely medical driven.
2. Shiley
3. We have a reasonably relaxed approach. If they are happy to learn assist and perform stoma care and suction then we'll run with that. It mostly takes longer than a week for them to get their head around a trachy, we also have a learning package and 'competency' document for them.

Australia

Tracheostomy Emergencies

Question:

We are currently revising our guidelines on the emergency response/procedure to:

- Blocked trachy tube
- Accidental decannulation of trachy tube
- Unable to reinsert trachy tube
- Checking cuffed pressure in pediatric patients
- There is limited literature on pediatric patients with trachy emergencies. Does anybody have specific pediatric guidelines that may be able to help us?

Cairns, Australia

Answer:

We do have some guidelines and also on care of cuffed endotracheal tubes which apply to trachy tubes. I can send you hard copies at the present time.
Birmingham, United Kingdom

Dopamine Infusion Outside of the PICU**Question:**

1. Are there patients at your institution who are outside of the PICU who are receiving Dopamine infusion?
2. If so are they in an intermediate care unit and/or a general care unit?
3. Is there a maximum dosage that they can receive outside of the PICU?
4. What kind of monitoring is required?
5. What is the nurse-patient ratio?

Baltimore, United States

Answers:

1. Yes.
2. Oncology ward.
3. 5 ug/kg/min.
4. Blood pressure every 15 minutes until stable for 2 hours.
5. 1:1 when on Dopamine.

Vancouver, Canada

Currently the only service that receives Dopamine/Dobutamine/Milrinone outside of PICU is the pediatric congenital cardiac service. We have a specific guideline. The children are nursed in the high dependency area that is embedded in the cardiac ward. We do not 'start' inotropes, they must be on a stable rate and weaning. The inotrope rate must be no greater than 5mcg/kg/hr for Dopamine/Dobutamine.

The high dependency area is not staffed by PICU/HDU nurses, rather ward based nurses with experience in managing the pre/post operative cardiac child. We do monitor saturations, heart rate and respiratory rate with associated assessment of fluid balance and electrolytes. We do not do invasive monitoring; this is considered an intensive therapy.

Our nurse: patient ratio is 1:2 with the care management being provided by the cardiology consultants through two Nurse Practitioners, Medical Registrars and House Officers.

New Zealand

We do not infuse Dopamine outside our PICU.

Portland, Maine

No inotropes at all outside of the PICU.

Padua, Italy

When to Treat with ACLS vs PALS**Question:**

What is your protocol/practice for when to treat with ACLS instead of PALS for pediatrics? If you have that in writing, can you share?

Answers:

According to the 2005 American Heart Association (AHA) updates for CPR, ACLS and PALS (Circulation, 2005; 112: IV-156-IV-166), the definition of a child is age 1 to 8 years. An 8-year old child weighs an average of 50 lbs; we use the AHA Guidelines and switch to ACLS at around 8 years of age or so.

Portland, Maine

The European Resuscitation Council is very clear about switching between adult/pediatric resuscitation protocols. When secondary gender signs can be observed (small breast, some hair on chin) the child is resuscitated following the adult (ALS) guideline – if not: EPLS. Brussel, Belgium

The AHA stated the same regarding signs of puberty. PALS can be used until signs of puberty.

Memphis, United States

Pediatric Deep Vein Thrombosis (DVT) Prophylaxis

Question:

Are any of you routinely assessing hospitalized children for need for DVT prophylaxis? We are attempting to implement a guideline, but with the negligible data in existence are meeting much resistance.
Chicago, United States

Answers:

We have looked at it for a guideline, but had the same problem with evidence. We currently use TED stockings in the adolescent group but it seems to be when people remember, so is a little random.
Perth, Australia

We do not have DVT prophylaxis as part of routine care. The only patients who routinely are on DVT prophylaxis are our adolescent trauma patients.
Rockford, Illinois, United States.

I have developed a VTE assessment tool and am beginning the research process to validate the tool. The literature is so scarce but I feel we need to include the pediatric world.
Miami, Florida, United States

Biopatch Dressing Use in Small Infants

Question:

Wanted to learn if anybody has had any problems with the Biopatch dressing in small infants or other pediatric patients, e.g. bad skin irritations or ulcers
Loma Linda, Canada

Answers:

We have been using the Biopatch for at least 2 years now. We follow manufacturer guidelines for age and have no other limits to use. Once the line is placed:

- The CVL team is notified.
- An occlusive dressing is placed using aseptic technique.
- A Biopatch is placed in an area not at the CVL site and covered with transparent dressing.
- After 24 hours, the Biopatch is removed to determine if there is any reaction at the placement site.
- If there is a reaction, it is noted in the patient chart and an order is made to not to use the Biopatch for this patient.
- If there is no reaction, the dressing site on the CVL is replaced using a Biopatch following the normal aseptic technique.

There have been several patients who have had redness and some slight oedema, and those had been many sized patients, from neonates to large adult size.
Memphis, United States

We started using Biopatch on femoral lines a couple years ago. From what I can remember there were no increased problems with skin breakdown as long as the site was allowed to dry sufficiently before placing the Biopatch and the transparent dressing. Skin breakdown happened when either the chlorhexidine used to clean the skin or the clavilon used to protect the skin was not allowed to dry before dressing.
Canada

Biopatch and Chlorhexidine only on infants above 2 months of age; make sure the site is dry before dressing.
Portland, Maine, United States

We have been using them for years and have not noticed any problems with the Biopatch - smaller children have not seen a problem.
Macon, GA, United States

We have been using the Biopatch for several years, even in smaller infants when the physicians forget the age rule and put them on. We have not had any ulcerations or irritations and I would venture to say we've less irritation with the Biopatch as it acts to hold the catheter a little more stable as it doesn't swivel as easily. I actually just charged our epidemiology department to try to investigate if we can start using them on all patients routinely regardless of age. Our CVL infection rate has been zero for two years.

Rockland, Illinois, United States

Another consideration for use of Biopatch is your infection rate. The dressings are not inexpensive so if your rate is already very low you may not be getting your money's worth if you implement the Biopatch on all patients. It might be more cost effective to use on populations that have greater risk.

Canada

Standardized Concentrations for All Vasoactive Drugs

Question:

Our PICU is considering a switch to standardized concentrations but would like to find out more information before taking the plunge. We presently use the Rule of 6s to mix our infusions. I would like to find out if Standardized Concentrations are recommended by those who use them and what advice they would give to someone who is just initiating it. I'm also wondering who is using the Smart Pump technology and if there is a particular pump being recommended.

Halifax, Nova Scotia, Canada

Answers:

The Institute for Healthcare Improvement recommended and the Joint Commission required elimination of the Rule of 6s several years ago. We use standard concentrations of all our infusions plus Smart Pump technology. We have used IVAC multichannel pumps, Plum pumps and Medfusion pumps. You really need to trial different pumps to see what works best in your own environment. Moving to standardized concentrations was really a relief as there was a lot of anxiety around correct calculation of infusions with the Rule of 6s.

Maine, United States

We use standard concentrations for all vasoactive drugs. We have very few errors in the calculation or administration of these drugs and we use the Fresenius syringe pumps for the administration of inotropes. I noticed that standardized concentrations greatly reduce errors in comparison with those drugs that do not.

Padua, Italy

We have used standard concentrations for at least the last 10 years for all vasoactive drugs, morphine, midazolam, furosemide, ketamine and neuromuscular blocking agents. We have very few errors in the calculation or administration of these drugs and we use the Alaris Asena pumps.

Ontario, Canada

Sedation Scales

Question:

I am wondering what types of sedation scales/pain scales are being used in your PICUs for patients who are intubated. If your patient is being paralyzed with neuromuscular blocking agents, do you use a different scale? We currently use COMFORT scale for our intubated patients, but do not have a way to assess our patients being paralyzed.

Cleveland, Ohio, United States

Answers:

We use the Multidimensional Assessment of Pain Scale (MAPS) and the Modified Motor Activity Assessment Scale for all our intubated children

Ontario, Canada

We use the FLACC scale for pain assessment. We were not using a valid and reliable pediatric sedation scale; we are currently doing psychometric testing on the Pediatric Sedation-Agitation Scale, an adaptation of the Riker Sedation-Agitation Scale (ASA).

Portland, Maine, United States

We use the COMFORT scale for our intubated patients since a year, no assessment tool for paralyzed patients.

Padua Italy

UPCOMING CONFERENCES

1st European Congress on Pediatric and Neonatal Intensive Care

May 20-23, 2009
Montreux, Switzerland

info@epncic.com

20th European Society of Paediatric and Neonatal Intensive Care Annual Congress

June 14-17, 2009
Verona, Italy

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6th World Congress on Pediatric Critical Care

March 13-17, 2011
Sydney, Australia

www.pcc2011.com



Instructions for Authors

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Format

Manuscripts must be written in English; either American or British spelling may be used but must be consistent throughout. Manuscripts should be typed double-spaced, using Arial or Times New Roman font in at least 11-point, with margins of at least 2 cm or 1 inch. Number pages consecutively beginning with the title page. The preferred length for research, clinical and review papers is 1000-2500 words, excluding references. Submissions to Spotlight on PICU should not exceed 1500 words. The sections of the manuscript should be in the following order.

Title page

- Title should be concise and informative, and typed in bold capitals.
- Names (first name, initial(s) and family names) of authors in the order in which they are to appear. Include a maximum of 4 qualifications for each author
- Institutional affiliation(s) of each author
- Address, telephone and fax numbers and email address of corresponding author

Abstract

An abstract not exceeding 250 words is required for all submissions except those for Spotlight on PICU. For research studies, the abstract should be structured under the following headings: Background, Methodology, Results (or Findings), Conclusions.

Body of text

Use headings to structure the paper. The type of paper will determine the headings, eg for research papers the main headings will be Introduction, Background, Methodology/Methods, Results/Findings, Discussion, Conclusion. Up to 2 levels of headings may be used. Papers reporting research conducted in humans or animals should include a statement that the study was approved by the relevant body or bodies.

References

The list of references should only include works that are cited in the text and that have been published or accepted for publication. References such as "personal communications" or "unpublished data" cannot be included in the reference list, but can be mentioned in the text in parentheses.

References should start on a separate page following the text. They must be numbered in the order in which they appear in the text and listed in numerical order. In the text, designate reference numbers on the line (i.e., in normal text, not superscript) in parentheses. If using Endnote or Reference Manager,

references should be formatted using the style *Intensive Care Medicine*.

Examples

Journal article: Tan AM, Gomez JM, Mathews J, Williams M, Paratz J, Rajadurai VS (2005) Closed versus partially ventilated endotracheal suction in extremely preterm neonates: physiologic consequences. *Intensive and Critical Care Nursing* 21:234-242

Journal article published on-line ahead of print: Duff JP, Rosychuk RJ, Joffe AR (2007) The safety and efficacy of sustained inflations as a lung recruitment maneuver in pediatric intensive care unit patients. *Intensive Care Medicine* 10.1007/s00134-007-0764-2

Book: McHaffie H (2001) *Crucial decisions at the beginning of life: parents' experiences of treatment withdrawal from infants* Radcliffe Medical Press, Abingdon

Book chapter: Cordery C (1995) Doing more with less: nursing and the politics of economic rationalism in the 1990s. In: Gray G, Pratt, R. (ed) *Issues in Australian Nursing* 4. Churchill Livingstone, Melbourne, p 355-374

Conference paper: Copnell B, Tingay DG, Kiraly NJ, Sourial M, Gordon MJ, Mills JF, Morley CJ, Dargaville PA Comparison of the effectiveness of open and closed endotracheal suction. Proceedings of the Pediatric Academic Societies' Annual Meeting, San Francisco, May 2006. E-PAS2006:2059:5560.2342.

Electronic source: National Institutes of Health (2004) Program announcement: Improving care for dying children and their families. <http://grants1.nih.gov/grants/guide/pa-files/PA-04-057.html> Accessed: July 20, 2004

Figures and Tables

All figures (graphs, photographs, diagrams) and tables should be numbered consecutively and cited in the text. Each figure and table should be on a separate page at the end of the manuscript. Tables should have a title above and, if needed, a legend at the bottom explaining any abbreviations used.

Figure legends should be typed on a separate page. They should be concise but self-sufficient explanations of the illustrations.

Illustrations should be supplied in electronic format.

Written permission must be obtained to reproduce illustrations and tables that have appeared elsewhere, even if the work of the author(s). Borrowed material should be acknowledged in the legends. Identifiable clinical photographs must be accompanied by written permission from the persons in the photograph, or parent or guardian for children.

Manuscript submission

Electronic submission is required. Manuscripts should be saved as a Word document and emailed to the editor Franco Carnevale (franco.carnevale@mcgill.ca).

Submissions to Spotlight on PICU can be emailed directly to the column editor, Dr Bev Copnell, at Beverly.Copnell@med.monash.edu.au