Beyond a critical care registry in resource-limited settings
Can East meet West?
Outline

• Challenges
• Our model
• What next?
• Lessons learnt (learning…)
• How can you contribute?
Resolve differences?
Challenges?
Our model...
ICU registry - Sri Lanka
Results

ANNUAL HEALTH BULLETIN 2013

SRI LANKA

Medical Statistics Unit
Ministry of Health and Indigenous Medicine

ANNUAL HEALTH BULLETIN - 2013

National Intensive Care Surveillance is a critical care registry containing more than 80 Intensive Care Units (ICUs) in government hospitals of Sri Lanka. It is a collaboration of national and international organizations led by the Ministry of Health and maintains a critical care registry and operates a 24/7 ICU bed availability service for adult, children and neonates. The main objectives are:
1. To set up a national critical care registry in Sri Lanka
2. To design a critical care bed availability / distribution system
3. To provide feedback/reporting to the participating ICUs to improve quality of care
4. To contribute to the development of a network of multidisciplinary health care professionals working to improve Intensive Care Medicine (ICM) in Sri Lanka

ICUs system is involved in gathering, cleaning, analyzing and disseminating information from ICUs regarding patients, staffing, beds and other available resources. In addition, NICS captures information to enable benchmarking of ICUs relative to how 50 ICUs patients are (recovery) scoring using standard severity scoring algorithms such as Acute Physiology and Chronic Health Evaluation (APACHE) and IV and New Equivalents of Nursing Manager Score (NEMS). The system also makes it possible to answer 30 day and ICU outcomes and quality of life of critically ill patients.

NICS is also involved in training of doctors, nurses and paramedics in critical care skills, research and IT.

During the year 2012, in collaboration with the Deputy Minister (Health) (Sri Lanka Training & Research), it has conducted training sessions for more than 200 health care personnel.

The benefits from NICS include: having an ICU bed availability system (ICU2), enabling planning ICU services based on needs, capacity and resources; helps coordinate ICU resources management during any national/regional emergency or disaster; improve quality of patient care; improve cost effectiveness of critical care; capacity building of critical care personnel; promotes local and international audit/research. NICS collaborates with many organizations and initiatives to conduct research. NICS also supports research students of postgraduate programmes in progress under the guidance for internships from University of Colombo.

NICS is presently under the administration of Director, Tertiary Care Services, Office of Director General (Medical Services). Further details of NICS and its activities are available at www.pubsub.lk and www.slc-training.org and can be contacted at add: nics@slc.gov.lk or enquiries@nics.org.lk.

Table 3.6: APACHE II and IIIa Diagnoses of Patients Admitted to Adult ICUs in 2013

<table>
<thead>
<tr>
<th>APACHE II Diagnoses</th>
<th>Total</th>
<th>Bed Number</th>
<th>APACHE III Diagnoses</th>
<th>Total</th>
<th>Bed Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperkalemia</td>
<td>579 (4.6%)</td>
<td>59 (24.7%)</td>
<td>Respiratory arrest</td>
<td>269 (21.7%)</td>
<td>104 (40.0%)</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>386 (3.0%)</td>
<td>41 (19.8%)</td>
<td>Hypertensive crisis</td>
<td>217 (17.2%)</td>
<td>99 (39.9%)</td>
</tr>
<tr>
<td>Acute respiratory distress syndrome</td>
<td>219 (16.4%)</td>
<td>23 (14.1%)</td>
<td>Medical</td>
<td>104 (4.7%)</td>
<td>19 (18.9%)</td>
</tr>
<tr>
<td>Severe sepsis</td>
<td>200 (15.6%)</td>
<td>23 (19.3%)</td>
<td>Operative</td>
<td>104 (4.7%)</td>
<td>19 (18.9%)</td>
</tr>
<tr>
<td>Acute myocardial infarction</td>
<td>191 (15.2%)</td>
<td>22 (15.4%)</td>
<td>Neurological</td>
<td>104 (4.7%)</td>
<td>19 (18.9%)</td>
</tr>
<tr>
<td>Cardiac arrest</td>
<td>101 (7.9%)</td>
<td>11 (14.8%)</td>
<td>Cardiac arrest</td>
<td>104 (4.7%)</td>
<td>19 (18.9%)</td>
</tr>
<tr>
<td>Cardiogenic shock</td>
<td>101 (7.9%)</td>
<td>11 (14.8%)</td>
<td>N/A</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>101 (7.9%)</td>
<td>11 (14.8%)</td>
<td>N/A</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Fig 2.11: Distribution of In Admission Mechanical Ventilation Patients in Adult (ICUs) in 2013

Fig 2.12: Distribution of In Hospital Mechanical Ventilation Patients in Adult (ICUs) in 2013

The distribution of inpatient patient in adult ICUs in 2013 is shown in Figure 2.11. Figure 2.12 illustrates the 30 day post discharge Kaplan Meier curve in adult ICUs in 2013.
On 4 Dec 2013, at 16:45, Dilantha Dharmagunawardene <dilanthadharm@yahoo.co.uk> wrote:

Dear All,

I got the real feeling of usefulness of ICU surveillance just now. One of our Driver’s sister is in Kiribathgoda BH after MI and on ambu ventilation. They were searching for an ICU bed for almost an hour and called to various hospitals. But the efforts were in vain.

Driver called me and begged for help. Then I spoke to Chaturani and she immediately responded and gave the information in 5 minutes (Kuliyapitiya - 3, Ratnapura - 3). I just conveyed the message to Kiribathgoda.

It was really helpful and thank you all for formulating and implementing this ICU surveillance system. Many thanks.....

Dr. Dilantha Dharmagunawardene,
M.B.B.S., M.Sc.(Medical Administration), M.D. (Medical Administration),
Diploma in International Relations (BCIS),
Diploma in Photography (NPAS),
Transferability: ICU registry expansion to Pakistan

And now beyond....
Pakistan Registry of Intensive Care (PRICE): Expanding a lower middle-income, clinician-designed critical care registry in South Asia

M Hashmi, A Beane, A Taqi, M Memon, P Athapattu, Z Khan, AM Dondorp and R Haniffa

Abstract

Introduction: In resource-limited settings – with inequalities in access to and outcomes for trauma, surgical and critical care – intensive care registries are uncommon.
Early recognition and treatment of acute illness
## Early Warning System

### Sri Jayawardanapura General Hospital

**Ward 10**

**Early Warning System**

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**Add Admissions**

<table>
<thead>
<tr>
<th>Name</th>
<th>Please Enter Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHT</td>
<td>Please Enter BHT</td>
</tr>
<tr>
<td>Age</td>
<td>Please Enter Age</td>
</tr>
<tr>
<td>NIC</td>
<td>Please Enter NIC</td>
</tr>
</tbody>
</table>

**Patient Location**

- Male
- Female

**Contact Number**

- Please Enter Contact Number

**Comorbidity 1**

- Please Select Comorbidity

**Comorbidity 2**

- Please Select Comorbidity

**Comorbidity 3**

- Please Select Comorbidity

**Comorbidity 4**

- Please Select Comorbidity

---

**Total Patients = 25**

<table>
<thead>
<tr>
<th>Bod No</th>
<th>Name</th>
<th>Admission Date</th>
<th>BHT</th>
<th>2/23/2017</th>
<th>2/22/2017</th>
<th>2/21/2017</th>
<th>Bod No</th>
<th>Name</th>
<th>Admission Date</th>
<th>BHT</th>
<th>2/23/2017</th>
<th>2/22/2017</th>
<th>2/21/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/20/2017</td>
<td>1677736</td>
<td>2/12/2017</td>
<td>15</td>
<td>Red</td>
<td></td>
<td></td>
<td>2/17/2017</td>
<td>1704983</td>
<td>2/21/2017</td>
<td>18</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2/16/2017</td>
<td>1706303</td>
<td>2/21/2017</td>
<td>29</td>
<td>Green</td>
<td></td>
<td></td>
<td>2/15/2017</td>
<td>1705978</td>
<td>2/19/2017</td>
<td>38</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Profiling acutely unwell patients

Evaluation of the feasibility and performance of early warning scores to identify patients at risk of adverse outcomes in a low-middle income country setting

Abi Beane,1,2,3 Ambepeityawaduge Pubudu De Silva,1,4,5 Nirodha De Silva,6 Jayasingha A Sujewa,7 R M Dhanapala Rathnayake,6 P Chathurani Sigera,1,4 Priyantha Lakmini Athapattu,4,7 Palitha G Mahipala,8 Aasiyah Rashan,1 Sithum Bandara Munasinghe,1 Kosala Saroj Amarasiri Jayasinghe,9 Arjen M Dondorp,7 Rashan Haniffa1,2,4

Supplementary figure 1: Histogram of the time point of adverse event following admission.
Decision making in acute care: recognition of deterioration.

<table>
<thead>
<tr>
<th>Physiological variable</th>
<th>Admission (n=151)</th>
<th>24 hrs prior (n=95)</th>
<th>48 hrs prior (n=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory rate</td>
<td>45 (29.80%)</td>
<td>10 (10.5 %)</td>
<td>9 (9.38%)</td>
</tr>
<tr>
<td>Saturation</td>
<td>87 (57.62%)</td>
<td>19 (20.0%)</td>
<td>9 (9.38 %)</td>
</tr>
<tr>
<td>Supplemental oxygen</td>
<td>134 (88.74%)</td>
<td>35 (36.8 %)</td>
<td>28 (29.2 %)</td>
</tr>
<tr>
<td>Temperature</td>
<td>90 (59.60%)</td>
<td>32 (33.7 %)</td>
<td>28 (29.2 %)</td>
</tr>
<tr>
<td>Systolic (or diastolic BP)</td>
<td>106 (70.19%)</td>
<td>33 (34.7 %)</td>
<td>27 (28.1 %)</td>
</tr>
<tr>
<td>Heart rate</td>
<td>109 (72.19%)</td>
<td>33 (34.7 %)</td>
<td>27 (28.1 %)</td>
</tr>
<tr>
<td>Catheterised</td>
<td>52 (34.44%)</td>
<td>20 (21.05%)</td>
<td>16 (16.67%)</td>
</tr>
<tr>
<td>GCS/AVPU score</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Figure 1. Baseline availability of physiological variables for patients on admission, at 24, and 48 hrs prior to an adverse event.

Figure 2. Availability of reported physiological variables for patients and numbers of patients admitted.
Training the mental health team
Functionality of the system: [http://www.nics-training.com/iframe-mhc-dev/]
Our solution - PROTECT app
For a skilled workforce
Since 2013

- +300 short courses
- +5000 nurses & doctors
- +150 simulation courses
- +1500 pre-Foundation Year Drs & medical students

www.nicst.com
Building a skilled workforce


- Nursing intensive care skills training; a structured, practical, nurse led training programme, developed and tested in a resource limited setting. *Journal of Critical Care*. PMID: 25466312 DOI: [http://dx.doi.org/10.1016/j.jcrc.2014.10.024](http://dx.doi.org/10.1016/j.jcrc.2014.10.024) [http://www.jccjournal.org/article/S0883-9441(14)00431-6/abstract](http://www.jccjournal.org/article/S0883-9441(14)00431-6/abstract)

- Capacity building for critical care skills training provision in resource limited settings: the nursing intensive care skills training (NICST) project. *Intensive and Critical Care Nursing*. DOI: [http://dx.doi.org/10.1016/j.iccn.2016.08.008](http://dx.doi.org/10.1016/j.iccn.2016.08.008)


- Closing the theory to practice gap for newly qualified doctors; evaluation of a peer delivered practical skills training course for newly qualified doctors in preparation for clinical practice. *Postgraduate Medical Journal*. [http://dx.doi.org/10.1136/postgradmedj-2016-134718](http://dx.doi.org/10.1136/postgradmedj-2016-134718)


- Improving ICU services in resource-limited settings: Perceptions of ICU workers from low-middle-, and high-income countries. Anaesthesia. Under review.
Lessons learnt
Acknowledgements
How can you help?

- Do intensivists in high Income Countries have an obligation to care about critical care in LMICs?
Discussion items

• In what way could you as professionals make an impact on critical care in LMICs?
**KIRURG**
Kirurger och kirurgiska team behövs i utsatta situationer, som till exempel i vapnade konflikter, eller i isolerade områden där medicinsk personal saknas.

**LÄKARE**
Att arbeta som läkare i fält innebär till stor del planering, genomförande och utvärdering av medicinska program, samt handledning.

**NARKOSLÄKARE**
Narkosläkare behövs ofta med kort varsel och för kortare perioder. Arbetet innebär oftast mest allmänkirurgi, men även utbildning av lokal personal.

**NARKOSSJUKSKÖTERSKA**
Narkossjukskötterskor med fleråriga erfarenhet av anestesi behövs till våra kirurgiska team i utsatta områden.
Projects

Anesthesia Society in Malawi
Apply for grant for project
CRESPOS
Critical Care in Malawi
Intensive Care
Calendar
Mothers and Babies in Dar
Pediatrics
Trauma
VSDT
SATA
ESCWA Global Intensive Care Working Group
Sponsorship of Residents

Support us

Search this website...
How to participate?

1. Global Intensive Care Working Group of the ESICM

   Contact: Mervyn Mer (Mervyn.Mer@wits.ac.za) and Martin Dunser (Martin.Dunser@i-med.ac.at)

2. Life Support Foundation (http://www.lifesupportfoundation.org/)

   Contact: Tim Baker (Tim.Baker@ki.se) (carl.schell@ki.se)

3. NICST (www.nicst.com)