CRITICAL CARE IN THE AUSTERE ENVIRONMENT

AMOPS 2013

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NEED DEFINITIONS

• WHAT IS AUSTERE? - “RESOURCE POOR” IS NEW PC TERM

• WHAT IS CRITICAL CARE?

• WHAT ARE THE EXPECTATIONS?

• IS THERE A WAY TO MEET THEM??
AUSTERE ENVIRONMENTS

• THE DEVELOPING WORLD
• FAILING STATES
• DEVASTATED NATIONS…NATURAL OR ANTHROPOMORPHIC
• CHRONICALLY POOR…SUB SAHARAN AFRICA

* PLACES WITH “COMPLEX EMERGENCIES”

• SOME WOULD SAY WE ALSO HAVE AUSTERE ENVIRONMENTS LOCALLY-ACCESS TO CARE

* AS MILITARY…WHAT WE SEE
WHAT IS CRITICAL CARE IN THESE ENVIRONMENTS?

AFGHANISTAN

CERTAINLY DIFFERENT FROM WHAT YOU ARE SHOWN AND WHAT IS BEING USED.......NOTE HOW THERE IS NO PATIENTS HERE......
WHAT IS “CRITICAL CARE” IN “RESOURCE POOR” SETTINGS

- DEFINITELY **NOT** A LOCATION, LIKE WE THINK OF
- 1 PATIENT TO A BED- USUALLY
- AVAILABILITY OF “NURSING” CARE
- ABILITY TO GET OXYGEN …..INTERMITTANTLY
- AVAILABILITY OF ANTIBIOTICS..**WHO**?
- SOME TYPE OF MONITORING…NOT SOPHISTICATION HERE
WHAT **DO** THESE PLACES HAVE AS A BASELINE

• HARD TO FIND DATA- SO EXTRAPOLATED A LITTLE

• ON A GOOD DAY DO THEY HAVE WHAT IT TAKES TO HAVE CRITICAL CARE?
Difficult to assess

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of ICUs</th>
<th>Number of ICU beds per 100 hospital beds</th>
<th>Number of ICU beds per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada (excluding Quebec)*</td>
<td>319</td>
<td>3.4</td>
<td>13.5</td>
</tr>
<tr>
<td>USA*</td>
<td>5980</td>
<td>9.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Caribbean and South America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colombia†</td>
<td>89</td>
<td>3.5</td>
<td>-</td>
</tr>
<tr>
<td>Trinidad and Tobago‡</td>
<td>6</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium*</td>
<td>135</td>
<td>4.4</td>
<td>21.9</td>
</tr>
<tr>
<td>Croatia§</td>
<td>123</td>
<td>3.3</td>
<td>20.3</td>
</tr>
<tr>
<td>France*</td>
<td>550</td>
<td>2.5</td>
<td>9.3</td>
</tr>
<tr>
<td>Germany*</td>
<td></td>
<td>4.1</td>
<td>24.6</td>
</tr>
<tr>
<td>Netherlands*</td>
<td>115</td>
<td>2.8</td>
<td>8.4</td>
</tr>
<tr>
<td>Spain*</td>
<td>258</td>
<td>2.5</td>
<td>8.2</td>
</tr>
<tr>
<td>Sweden¶</td>
<td>89</td>
<td>2.5</td>
<td>8.7</td>
</tr>
<tr>
<td>UK*</td>
<td>268</td>
<td>1.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td></td>
<td></td>
<td>308</td>
</tr>
<tr>
<td>Public sector</td>
<td></td>
<td></td>
<td>3.8</td>
</tr>
<tr>
<td>Private sector</td>
<td></td>
<td></td>
<td>5.1</td>
</tr>
<tr>
<td>Zambia**</td>
<td>29</td>
<td>0.2</td>
<td>-</td>
</tr>
<tr>
<td>Australasia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia†</td>
<td>160</td>
<td>--</td>
<td>8.0</td>
</tr>
<tr>
<td>Public sector</td>
<td>104</td>
<td>--</td>
<td>5.6</td>
</tr>
<tr>
<td>Private sector</td>
<td>56</td>
<td>--</td>
<td>2.4</td>
</tr>
<tr>
<td>New Zealand‡</td>
<td>26</td>
<td>0.9</td>
<td>4.8</td>
</tr>
<tr>
<td>Public sector</td>
<td>24</td>
<td>1.5</td>
<td>4.6</td>
</tr>
<tr>
<td>Private sector</td>
<td>2</td>
<td>0.097</td>
<td>0.3</td>
</tr>
<tr>
<td>China‡ (median, IQR)</td>
<td></td>
<td>1.8, 1.3-2.1</td>
<td>3.9, 2.8-4.6</td>
</tr>
<tr>
<td>Sri Lanka§§ (public sector)</td>
<td>52</td>
<td>--</td>
<td>16</td>
</tr>
</tbody>
</table>

Data are estimates. Data were obtained at different times and are based on different definitions of intensive care unit (ICU) and hospital beds. IQR = interquartile range. *From reference 34; data include adult ICUs and acute care hospital beds. †From reference 35; the type of ICU is not reported. The estimate of ICU beds per 100 hospital beds is based on data from 63 ICUs. §From reference 36; data include adult and paediatric ICUs. The estimate of ICU beds per 100,000 population includes data from five of six ICUs; the sixth ICU was not fully developed. ¶From reference 37; data include adult, paediatric, and neonatal ICUs. Estimates of ICU beds per 100 hospital beds and per 100,000 population are based on 117 of 123 ICUs (including six paediatric ICUs). ††From reference 38; refers to staffed beds and the estimate of ICU beds per 100,000 population includes data from at least 80 of 89 ICUs. ‡From reference 39; data include adult, paediatric, and neonatal ICUs. Number of ICUs refers to number of hospitals with an ICU, and the denominator of number of ICU beds per 100 hospital beds includes all hospitals. If hospitals with ICUs are used to calculate ICU beds per 100 hospital beds, the figures are 3.9 (public sector) and 9.3 (private sector). **From reference 40; data from 69 of 87 hospitals in the country. †‡From reference 41; data on number of ICU beds include 93% and 96% of both adult and paediatric ICUs in Australia and New Zealand, respectively. ‡‡†From reference 42; which reviewed eight papers and a national professional society survey. §§From reference 43; data include adult, paediatric, and neonatal ICUs. The number of beds per 100,000 population is based on 49 ICUs and assumes that each has six beds (the number of beds per ICU varied from four to eight).
## OR’s as a Surrogate

<table>
<thead>
<tr>
<th>Countries</th>
<th>Countries</th>
<th>Population (millions)</th>
<th>Economic wealth (GNI per head [US$])</th>
<th>Estimated number of operating theatres (95% CI)</th>
<th>Estimated number of operating theatres per 100 000 population (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe (eastern)</td>
<td>7</td>
<td>210.4</td>
<td>High middle (6258)</td>
<td>52777 (43952–63373)</td>
<td>25.1 (20.9–30.1)</td>
</tr>
<tr>
<td>Asia-Pacific (high income)</td>
<td>4</td>
<td>180.8</td>
<td>High (32 834)</td>
<td>43958 (38 995–49 554)</td>
<td>24.3 (21.6–27.4)</td>
</tr>
<tr>
<td>Europe (central)</td>
<td>12</td>
<td>119.1</td>
<td>High middle (8830)</td>
<td>18747 (16 342–21 505)</td>
<td>15.7 (13.7–18.1)</td>
</tr>
<tr>
<td>Europe (western)</td>
<td>23</td>
<td>409.0</td>
<td>High (38 010)</td>
<td>60196 (53 478–67 757)</td>
<td>14.7 (13.1–16.6)</td>
</tr>
<tr>
<td>North America (high income)</td>
<td>2</td>
<td>335.4</td>
<td>High (45 419)</td>
<td>48 037 (41 024–56 250)</td>
<td>14.3 (12.2–16.8)</td>
</tr>
<tr>
<td>Australasia</td>
<td>2</td>
<td>24.7</td>
<td>High (34 303)</td>
<td>3532 (20 95–59 54)</td>
<td>14.3 (8.5–24.1)</td>
</tr>
<tr>
<td>Latin America (southern)</td>
<td>3</td>
<td>58.9</td>
<td>High middle (6660)</td>
<td>8058 (5980–10 859)</td>
<td>13.7 (10.1–18.4)</td>
</tr>
<tr>
<td>Asia (central)</td>
<td>9</td>
<td>77.5</td>
<td>Low middle (2006)</td>
<td>90936 (7938–10 286)</td>
<td>11.7 (10.2–13.3)</td>
</tr>
<tr>
<td>Caribbean</td>
<td>16</td>
<td>37.0</td>
<td>Low middle (2984)</td>
<td>3870 (3129–47 85)</td>
<td>10.4 (8.4–12.9)</td>
</tr>
<tr>
<td>Latin America (tropical)</td>
<td>2</td>
<td>195.3</td>
<td>High middle (5732)</td>
<td>19 675 (14 306–27 058)</td>
<td>10.1 (7.3–13.9)</td>
</tr>
<tr>
<td>Asia (east)</td>
<td>2</td>
<td>1352.2</td>
<td>Low middle (2370)</td>
<td>63339 (55 758–71 951)</td>
<td>4.7 (4.1–5.3)</td>
</tr>
<tr>
<td>Latin America (Andean)</td>
<td>3</td>
<td>50.1</td>
<td>Low middle (2930)</td>
<td>2263 (16 662–30 80)</td>
<td>4.5 (3.3–6.1)</td>
</tr>
<tr>
<td>Middle East, North Africa</td>
<td>18</td>
<td>413.6</td>
<td>High middle (4889)</td>
<td>17 592 (15 702–19 708)</td>
<td>4.3 (3.8–4.8)</td>
</tr>
<tr>
<td>Latin America (central)</td>
<td>9</td>
<td>218.1</td>
<td>High middle (6844)</td>
<td>8729 (7105–10 725)</td>
<td>4.0 (3.3–4.9)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (southern)</td>
<td>6</td>
<td>68.5</td>
<td>High middle (4436)</td>
<td>2104 (1566–2827)</td>
<td>3.1 (2.3–4.1)</td>
</tr>
<tr>
<td>Asia (southeast)</td>
<td>13</td>
<td>581.2</td>
<td>Low middle (1912)</td>
<td>15 122 (13 578–16 842)</td>
<td>2.6 (2.3–2.9)</td>
</tr>
<tr>
<td>Oceania</td>
<td>14</td>
<td>8.3</td>
<td>Low middle (1279)</td>
<td>162 (119–221)</td>
<td>1.9 (1.4–2.7)</td>
</tr>
<tr>
<td>Asia (south)</td>
<td>6</td>
<td>1523.1</td>
<td>Low (880)</td>
<td>20 540 (17 944–23 512)</td>
<td>1.3 (1.2–1.5)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (central)</td>
<td>6</td>
<td>87.0</td>
<td>Low (844)</td>
<td>10 08 (743–13 68)</td>
<td>1.2 (0.9–1.6)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (east)</td>
<td>14</td>
<td>314.0</td>
<td>Low (434)</td>
<td>3472 (2930–4115)</td>
<td>1.1 (0.9–1.3)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (west)</td>
<td>19</td>
<td>308.1</td>
<td>Low (755)</td>
<td>3172 (2662–3780)</td>
<td>1.0 (0.9–1.2)</td>
</tr>
<tr>
<td>Total</td>
<td>190</td>
<td>6572.3</td>
<td></td>
<td>405 389 (385 405–426 408)</td>
<td>6.2 (5.9–6.5)</td>
</tr>
</tbody>
</table>

GNI = gross national income. See webappendix p1 for details of countries in the subregions.

Table 3: Estimated number of operating theatres per head, ranked by estimated number per 100 000 population.
About 70% do not have a way to assess Oxygen in their Operating rooms

<table>
<thead>
<tr>
<th>Region</th>
<th>Number (95% CI)</th>
<th>Percentage (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australasia</td>
<td>&lt;25</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>North America (high income)</td>
<td>&lt;25</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Europe (western)</td>
<td>&lt;25</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Asia-Pacific (high income)</td>
<td>106 (16–688)</td>
<td>0.2% (0.04–1.6)</td>
</tr>
<tr>
<td>Latin America (southern)</td>
<td>198 (29–1356)</td>
<td>2.5% (0.4–15.4)</td>
</tr>
<tr>
<td>Latin America (tropical)</td>
<td>1511 (1163–1963)</td>
<td>7.7% (3.7–15.1)</td>
</tr>
<tr>
<td>Europe (central)</td>
<td>1763 (994–3125)</td>
<td>9.4% (5.3–16.2)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (southern)</td>
<td>333 (147–753)</td>
<td>15.8% (6.7–32.8)</td>
</tr>
<tr>
<td>Latin America (central)</td>
<td>1648 (1133–2399)</td>
<td>19.2% (13.1–27.1)</td>
</tr>
<tr>
<td>Middle East, North Africa</td>
<td>4174 (2954–5897)</td>
<td>23.7% (16.6–32.6)</td>
</tr>
<tr>
<td>Caribbean</td>
<td>1228 (949–1588)</td>
<td>31.6% (25.5–38.5)</td>
</tr>
<tr>
<td>Asia (east)</td>
<td>21445 (11727–39215)</td>
<td>33.8% (17.0–55.8)</td>
</tr>
<tr>
<td>Europe (eastern)</td>
<td>19223 (12015–30754)</td>
<td>36.7% (22.2–54.0)</td>
</tr>
<tr>
<td>Asia (southeast)</td>
<td>5703 (4629–7027)</td>
<td>37.7% (30.5–45.5)</td>
</tr>
<tr>
<td>Latin America (Andean)</td>
<td>936 (733–1196)</td>
<td>41.4% (36.8–46.2)</td>
</tr>
<tr>
<td>Asia (central)</td>
<td>4248 (3664–4925)</td>
<td>47.0% (40.6–53.5)</td>
</tr>
<tr>
<td>Asia (south)</td>
<td>10064 (8586–11795)</td>
<td>49.0% (42.4–55.6)</td>
</tr>
<tr>
<td>Oceania</td>
<td>92 (74–114)</td>
<td>56.9% (46.9–66.4)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (west)</td>
<td>1853 (1612–2130)</td>
<td>58.4% (52.9–63.8)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (central)</td>
<td>682 (538–865)</td>
<td>67.0% (59.3–73.9)</td>
</tr>
<tr>
<td>Sub-Saharan Africa (east)</td>
<td>2461 (2164–2799)</td>
<td>70.4% (63.8–74.7)</td>
</tr>
<tr>
<td>Total</td>
<td>77700 (63195–95533)</td>
<td>19.2% (15.2–23.90)</td>
</tr>
</tbody>
</table>

See web appendix p 1 for details of countries in the subregions.

Table 5: Estimated number of operating theatres without pulse oximetry, by subregion, ranked by percentage without pulse oximetry
BANGLADESH ICU

PULSE OX = 78%
NO O2

OB ICU

INSECTICIDE OD
HAND IN ARMPIT
WHAT IS IN THESE “ICU’S”

- POST-OPERATIVE PATIENTS
- ALL VARIETY OF INFECTIOUS DISEASES - MALARIA, DENGUE, TYPHOID
- TRAUMA
- PERINATAL, /MATERNAL/NEONATAL- OMG
SPECIAL NEED

Critical Care Obstetrics in a Developing Country

Ugochukwu Vincent OKAFOR1, Efenae Russ EFETIE2

1National Hospital, Department of Anaesthesia, Abuja, Nigeria
2National Hospital, Department of Obstetrics and Gynecology, Abuja, Nigeria

The fifty-four patients represent 28.1% of ICU admissions during the study period, while the fifteen deaths represented 5.9% of ICU deaths during the same period.

A report from Burkina Faso in West Africa also showed that eclampsia and septic shock were the two commonest admission diagnoses to the ICU (15).
<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of patients (%)</th>
<th>Average duration of stay in the ICU (days)</th>
<th>Min-max stay time (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eclampsia</td>
<td>44 (81.5%)</td>
<td>5</td>
<td>1-43</td>
</tr>
<tr>
<td>Pre-eclampsia</td>
<td>5 (9.2%)</td>
<td>2.4</td>
<td>1-4</td>
</tr>
<tr>
<td>Obstetric hemorrhage</td>
<td>2 (3.7%)</td>
<td>3</td>
<td>2-4</td>
</tr>
<tr>
<td>Severe postoperative respiratory distress</td>
<td>1 (1.8%)</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>Postpartum sepsis</td>
<td>1 (1.8%)</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>Postpartum cerebrovascular accident</td>
<td>1 (1.8%)</td>
<td>1</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA: not applicable.

Twenty of the patients (37%) received mechanical ventilation with the Newport ventilator while 32 patients (59%) received oxygen therapy through intranasal prongs or cannulae. Two patients (4%) were on air throughout their admission.
DOES VARY SOMEWHAT

- OVERDOSES - *RING OF FIRE*
- TRAUMA - VARIABLE
- NEED IS INCREASING (aging, co-morbidity, brain drain in the younger population)
- US influences..are we part of a problem?
Ok..ok..what about us on the pointy end

Military and Complex Emergencies
SO- AS MILITARY PHYSICIANS WHERE DO WE END UP?

• EVERY WHERE ANYMORE….NEXT TALK
• WAR ZONES- A LITTLE
• **COMPLEX EMERGENCIES**- A LOT
• WHAT THE HELL ARE THESE?
Complex Emergencies

- Infrastructure breakdown
- Insecurity
- Public Health Emergency

REALLY: A form of 
**Unconventional or Asymmetric Warfare!!**
COMPLEX EMERGENCIES

• WHERE ARE CE’s OCCURRING?

• WHAT DOES CRITICAL CARE IN THESE PLACES LOOK LIKE?

• CAN THERE EVER BE A ROBUST CC IN CE’s?

CE’S ARE NOT INDEPENDENT ENTITIES..
LOT’S OF OVERLAP- SO NOT REALLY INDEPENDENT ENTITIES

![Bar chart showing the percentage of different types of events.]

- Natural Disasters
- Complex Emergencies
- Epidemics
- Both
POPULATION EXPOSED TO CONFLICT

RM Garfield, J Polansky, FM Burkle, Jr

LESS DECLARED WARS...BUT MORE PEOPLE EXPOSED TO CONFLICT THAN EVER BEFORE
LOCATIONS OF ARMED CONFLICT SINCE 1950- WITH GREATER THAN 1000 CASUALTIES
THE BREEDING GROUNDS

NUMBER OF TERRORIST ATTACKS
Complex Emergencies Stats

- CE affects 500,000,000 people in the world
- [www.crisisweb.org](http://www.crisisweb.org) for current CE’s
- 72 countries with established CE’s - about 50% will either still be on-going or will recurr w/i 10 years
- Creates refugees and IDP’s - prolongs the risk

The Sudan, Somalia, DROC, Nigeria, and Palestine will make sure it increases
INTERNALLY DISPLACED MOVE TO URBAN AREAS IN LEAST DEVELOPED COUNTRIES

Spiegel, et al, LANCET, 2010

This will certainly increase the risk
HOW TO MODEL CE???

• 3 models for CE- depends on the pre-existing infrastructure, as well as the vulnerabilities of the country, region and population

• Divided into: Developing, Developed and Smoldering status

Regardless of the model; conflict centers on the vulnerable
Yugoslavia, Iraq

DEVELOPED COUNTRY

Occur in baseline populations who are relatively healthy

- Demographic and disease profiles similar to Western industrialized countries
- **Excess trauma deaths** from war-related advanced weaponry and small arms
- Excess age and gender-related deaths increase during times of ethnic cleaning
- **Few epidemics**
- Excess mortality from **untreated chronic diseases**
- Significant rates of **elderly** with under-nutrition
- Rape, abductions, and psychological traumatic exposures common
DIRECT AND INDIRECT DEATHS

TIME

DIRECT DEATHS

INDIRECT DEATHS

SHOOTING STOPS
Angola, Somalia, Liberia, Afghanistan, Congo

DEVELOPING COUNTRY

90% of deaths are preventable

• Outbreaks of communicable diseases
• Malnutrition and micronutrient diseases
• Absent protective public health infrastructure
• Major deficiencies in WHO childhood vaccine protection
• Mental health consequences are most often unmeasured and untreated
• Internally displaced and refugee populations
• Weaponry: Usually small arms and machetes. Account for 4-11% of deaths
• High crude mortality rates: range from 7-70 times normal baseline
• Higher mortality rates in orphaned and unaccompanied children
• High case fatality rates
DEVELOPING COUNTRY MODEL

- Mortality rates 7-70 times baseline
- Communicable diseases are endemic
- Account for 75% of world’s epidemics
- 90% deaths are preventable

Figure 1 Cholera cases in Monrovia, Parts of G.Bassa, Margibi & Bong Counties
Haiti, Sudan, Palestine, Afghanistan

SMOLDERING OR CHRONIC COUNTRY MODEL
Many years, even decades, of chronic violence
• Social and political unrest
• Poor maintenance of basic public health infrastructure
• Environmental degradation high
• Little or no access and availability of health and education
• Below-sustenance-level economy
• Chronic malnutrition and stunted growth
• Children grow up only knowing a culture of violence
• Few indigenous health care providers
• Lack of basic reproductive health services
• Organized mental health services generally nonexistent
• Incidents of violent surges result in peaks in death rates from direct violence and sudden-onset consequences of chronic conditions (i.e., acute malnutrition and dehydration in children with chronic malnutrition)
• Primarily small arms deaths and wounds, advanced weaponry increasing
• Violent surges increase internally displaced and refugee populations

Unfortunately – this type is increasing!!!!!!!!!!!!!!!!!!!!!
WHAT IS CRITICAL CARE CE’S?

• REALLY IS DIFFICULT TO IDENTIFY
• LIKE I SAID......NOT A PLACE!!!!!!
• SITUATION OF COMPLEXITY
• HAS SEVERITY AND RISK
• IN THE US IT HAS TECHNOLOGY AND INTERDISCIPLINARY ROOTS
• NOT SO IN THE OTHER PARTS OF THE WORLD
WHAT TYPE OF PATIENTS NEED CC IN THESE SITUATIONS

• TRAUMA…TRAUMA …TRAUMA….WHAT WE ARE TRAINED FOR

• PROBLEM IS- THE BAD GUYS NEED IT TOO

THE ISSUE IN IRAQ…. COULD NOT KEEP THEM OPEN
IRAQ - ICU EQUIPMENT WAS TAKEN AND THE NURSES FLED...SO NO CC HERE
AL YARMOOK

- A good ICU!!
- Still used
- Could not keep it functioning
MASS GRAVES EVERYWHERE

• AL YARMOOK HOSPITAL

• 600 BODIES IN SHALLOW GRAVES

• a real logistical problem to address early!!
ORGANIZED SABOTAGE
lack of security
Critical care in MOST CE

• A bed and a nurse = an ICU
• A bed, a nurse and oxygen = a good ICU
• A bed, a nurse, oxygen and a way to assess oxygen saturation = a great ICU
• HARD TO FIND IN CE SITUATIONS
WHAT ARE WE LEFT WITH AND WHAT CAN WE DO?

- **3 STRATEGIES** -
  - **GIVE FISH** - not working
  - **TEACH TO FISH** - we are trying this now
  - **FIND OUT WHAT THEY ARE EATING**

Need to understand it better
We **can** take the ICU to them I guess

- Haiti -- DR
- Battlefield (FEB)- for us
- Can we really do this?
- Will it work in the austere environment?
- Is it the right thing to do?
- Can it be sustained?
- Can we do other things instead?
THE ICU

15 NURSES
3 Respiratory Therapists
5 CORPSTAFF
4 PODS DEVELOPED
BAD FOR INFECTION CONTROL
DID NOT EXPECT ALL THE KIDS

NO PEDS INTENSIVIST OR NEONATOLOGIST
INNOVATION

Know what this is?

Non-invasive
Should we be doing this?
SO......THE ANSWER IS PROBABLY NO

HOST NATION INSENSITIVITY
WHO SETS STANDARDS
ETHICAL DILEMMAS
OUR WILL TO CONTINUE TO ENGAGE
WHO WILL DO IT WHEN WE LEAVE?
WHAT CAN WE DO???
STRATEGIES FOR CRITICAL CARE IN CE

• **PREVENT IT**!!!!!!! KNOW IT BETTER-
• CHANGE THE SOCIETAL EXPECTATIONS- (RIGHT NOW THEY HAVE NONE)
• **PROVE** THAT CC CAN HELP- RIGHT NOW THAT IS IN DOUBT
• TRAIN FOR THE COMMON/EXPECTED
• **ROLE OF NURSING NEEDS TO BE ENHANCED**-
• DON’T USE (EXPECT) TECHNOLOGY TO WORK AS A SURROGATE- WE ARE PART OF THIS PROBLEM
Can we continue to do it???

Will we have the long-term commitment???
AND YOUR BULLSHIT OPINION WOULD BE?