

ECMO in the CVICU: The Challenges

- Cohorting
- Environmental
- Physical
- Mental/psychological/emotional
- Bonding or bondage: the answer

Cohorting Challenges

- Need for pooling of resources and expertise
- Lack of ideal space (for modified droplet isolation)
 - Inadequate isolation rooms
 - Optimally: neg pressure room (CVICU: None)
 - Next, private room (CVICU: 1)
 - Created an enclosed 4 bed ward on 10th floor
 - Next best: eventually built walls in CVICU "Hoarding"
 - Staffing (RNs/RTs/Perfusionists/Intensivists) concerns
 - In a post cardiac surgical ICU
- Planning for the unknown

- "During a crisis in the ICU setting, it has been shown that staff distress is more likely to occur when there are **unexpectedly high demands placed on them which are unmatched by appropriate resources**"

*The experiences of health care workers employed in a Australian intensive care unit during the H1N1 Influenza pandemic of 2009: a phenomenological study. Corely et al. International Journal of Nursing Studies 47 (2010) 577-585

Environmental Challenges

- The "HINI" Room:
 - "Relatively" small
 - Cramped, not enough room
 - Unfamiliarity
 - Not usual bedside carts or supply carts
 - Different floor than main CVICU
 - Required "runner" to:
 - get meds from main unit
 - bring pharmacy print outs, get supplies

Environmental Challenges con't

- The "HINI" Room:
 - ❑ Poor ventilation
 - Hot, stifling atmosphere + PPE
 - ❑ House keeping issues
 - Delays in floor cleaning
 - Garbage piling up
 - ❑ Noise level
 - Hard to communicate & concentrate
 - ❑ Room Temperature
 - Heat from equipment and wearing of PPE

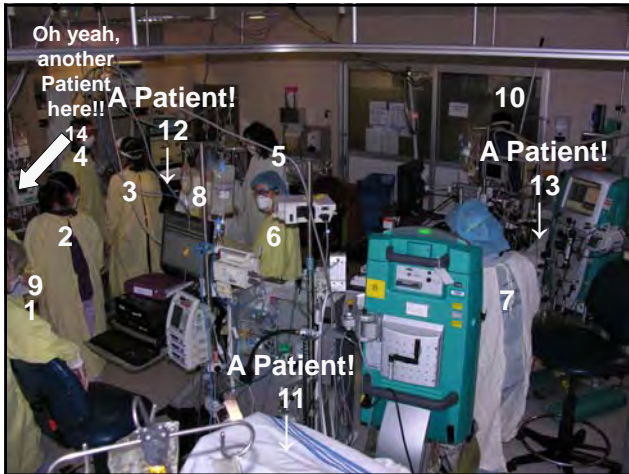
Equipment & supplies

- Tremendous amount of technology created not only a lack of space but a less efficient working environment.
 - ECMO & ECMO lines
 - Ventilator
 - Nitric Oxide
 - CRRT
 - CRRT mixing cart
 - Multiple, multiple pumps
 - Medication, feeding
 - Bedside computer
 - Monitor
 - Sequential Compression Devices
 - Bair Hugger
 - Suction/oxygen
 - Chest tube drainage systems
 - Chairs
 - Electrical cables
 - Sinks
 - Supply carts/random supply areas
 - Garbages



Crowd Control!

- At times +++ staff in room:
 - Minimal: 7
 - 5 RN's
 - 1 RT
 - 1 perfusionist
 - Maximal: during MD rounds: 15 add:
 - Other MDs including surgeons and or Fellows Consults,
 - extra RT, Charge Nurse, curious bystanders, family members
- Add frequent "visitors" for portable tests:
 - X-ray, ECG, lab
- Tremendous difficulty in transporting to CT!!



Physical Challenges

- Constant wearing of Personal Protective equipment:
 - Gowns
 - Gloves
 - N95 masks
 - Face shield/goggles
 - Hats

} hot, claustrophobic, "can't get enough air", difficulty in communicating, took time to "Don" & "Doff", "The H1N1 Nose", raw hands, headaches, dehydration

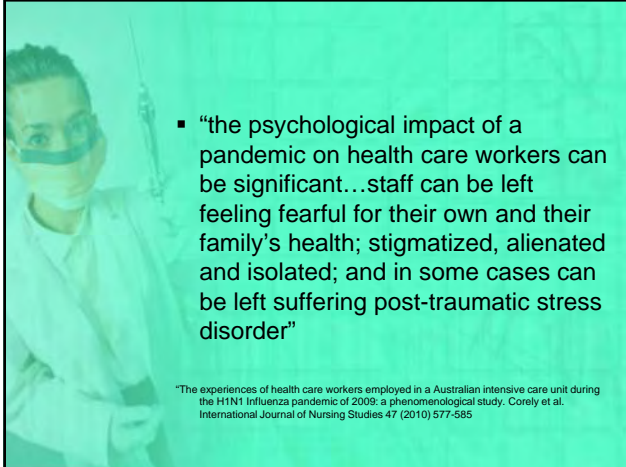
- Always "heavy" patients with equipment at different levels
 - ❑ Hard on back
 - ❑ Lots reaching/straining

Physical Challenges cont

- Infection control/cross-contamination challenges
 - ❑ Sometimes confusing information being disseminated
 - Where to don/doff, what to don/doff
 - Mask confusion
 - ❑ Isolation without walls/mental challenges
 - ❑ Proximity of patients, lack of privacy, confidentiality

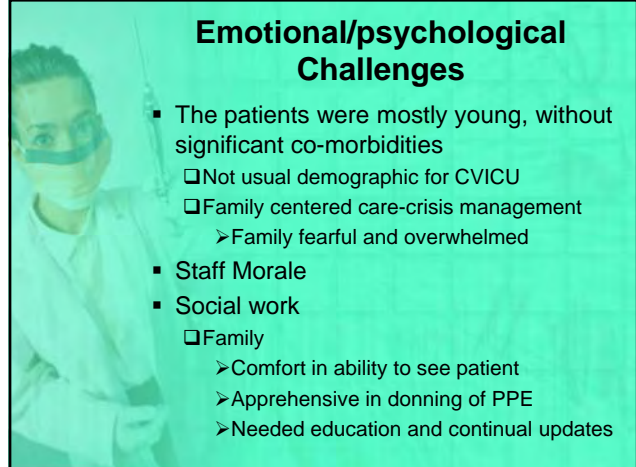
Physical Challenges cont

- Nursing care
 - ❑ Very complex, multisystem issues
 - ❑ Multiple tasks
 - CRRT mixing bags
 - Medication mixing (often with unfamiliar concentrations and dosages)
 - ++ dressings
 - Basic care was increased in complexity



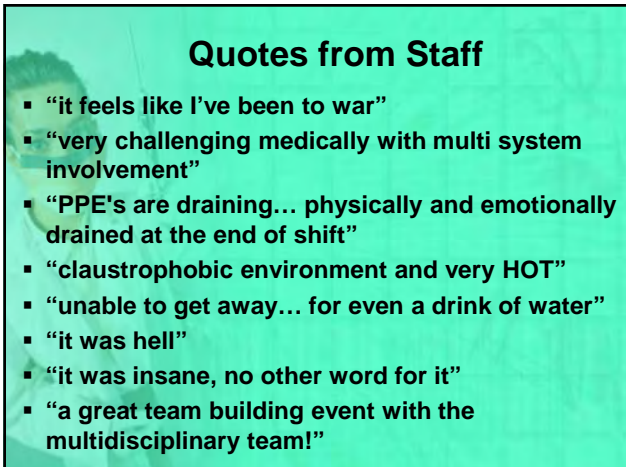
- “the psychological impact of a pandemic on health care workers can be significant...staff can be left feeling fearful for their own and their family’s health; stigmatized, alienated and isolated; and in some cases can be left suffering post-traumatic stress disorder”

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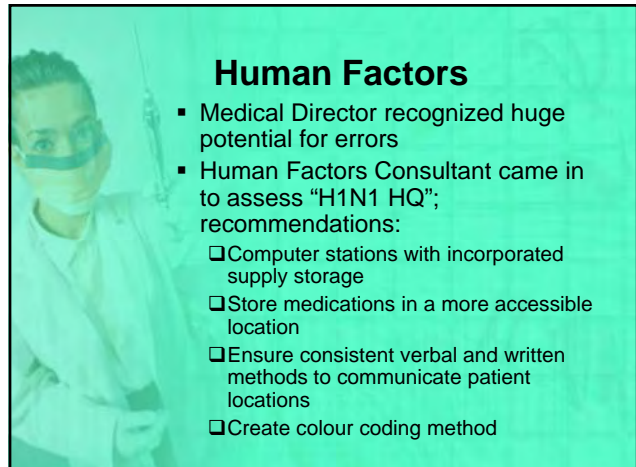
Emotional/psychological Challenges

- The patients were mostly young, without significant co-morbidities
 - Not usual demographic for CVICU
 - Family centered care-crisis management
 - Family fearful and overwhelmed
- Staff Morale
- Social work
 - Family
 - Comfort in ability to see patient
 - Apprehensive in donning of PPE
 - Needed education and continual updates



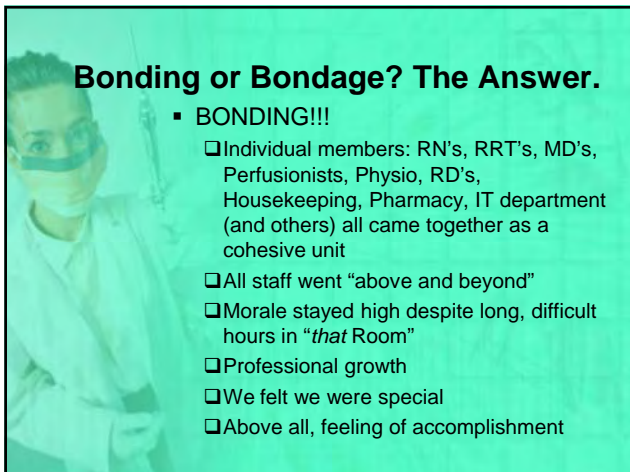
Quotes from Staff

- “it feels like I’ve been to war”
- “very challenging medically with multi system involvement”
- “PPE’s are draining... physically and emotionally drained at the end of shift”
- “claustrophobic environment and very HOT”
- “unable to get away... for even a drink of water”
- “it was hell”
- “it was insane, no other word for it”
- “a great team building event with the multidisciplinary team!”



Human Factors

- Medical Director recognized huge potential for errors
- Human Factors Consultant came in to assess “H1N1 HQ”; recommendations:
 - Computer stations with incorporated supply storage
 - Store medications in a more accessible location
 - Ensure consistent verbal and written methods to communicate patient locations
 - Create colour coding method



Bonding or Bondage? The Answer.

- BONDING!!!
 - ❑ Individual members: RN's, RRT's, MD's, Perfusionists, Physio, RD's, Housekeeping, Pharmacy, IT department (and others) all came together as a cohesive unit
 - ❑ All staff went "above and beyond"
 - ❑ Morale stayed high despite long, difficult hours in "that Room"
 - ❑ Professional growth
 - ❑ We felt we were special
 - ❑ Above all, feeling of accomplishment



