

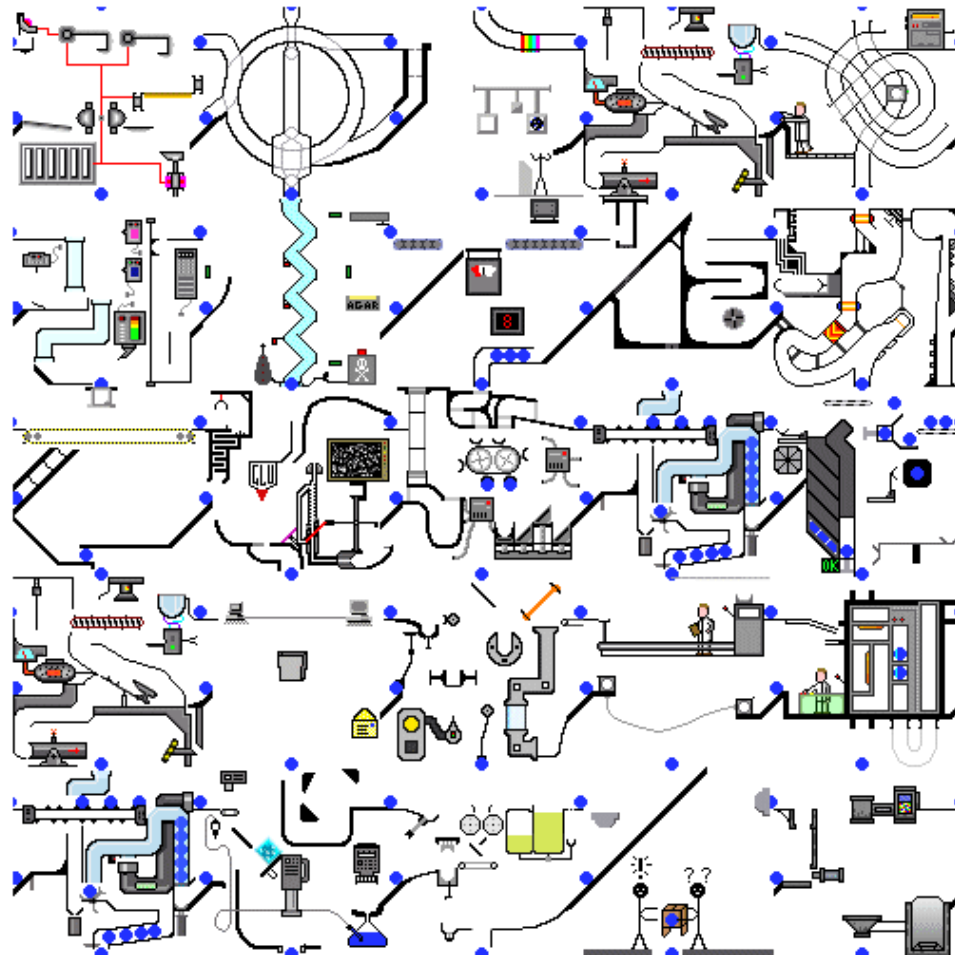


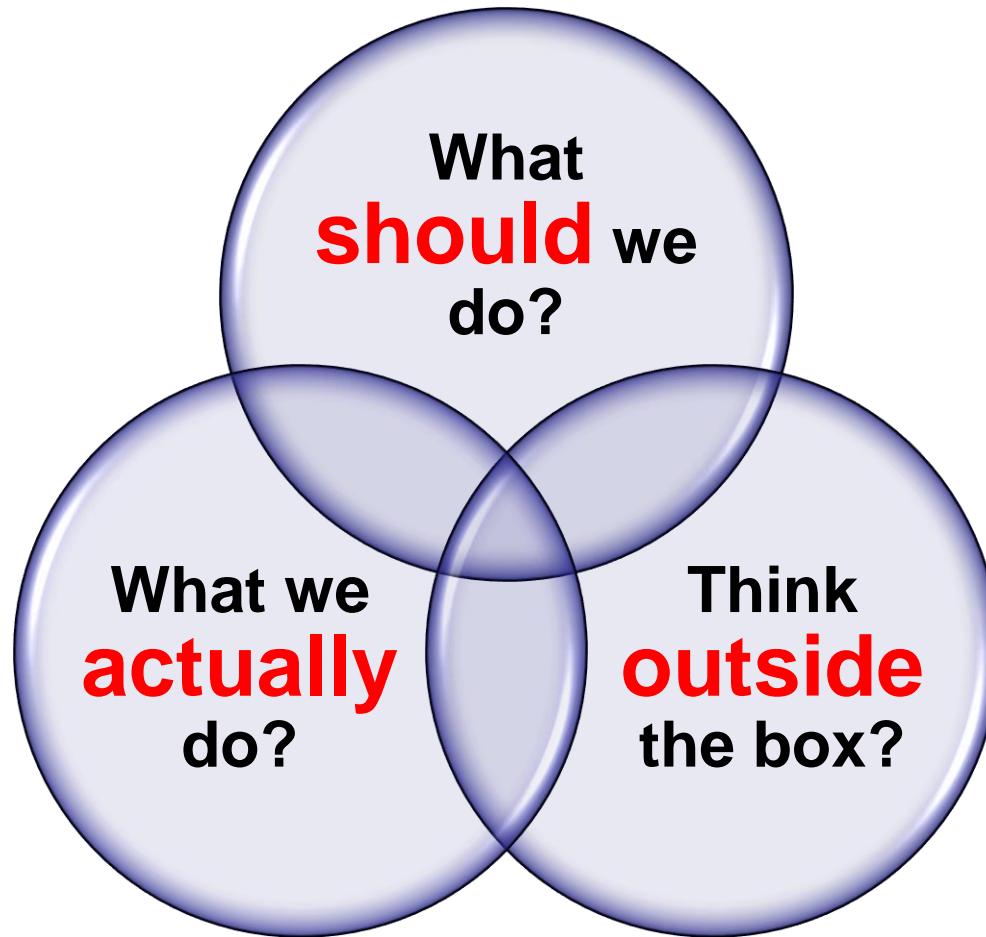
Nursing the ventilated patient in ICU

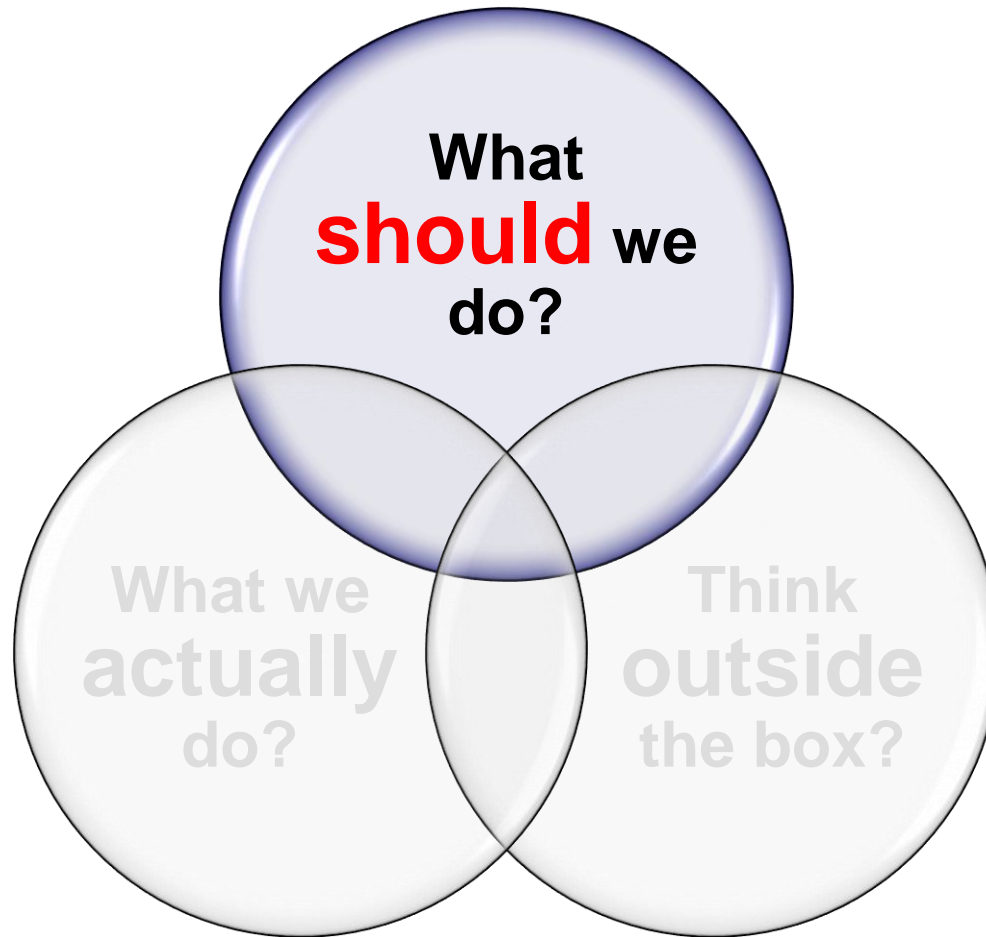
Juan Scribante

Department of Anaesthesiology

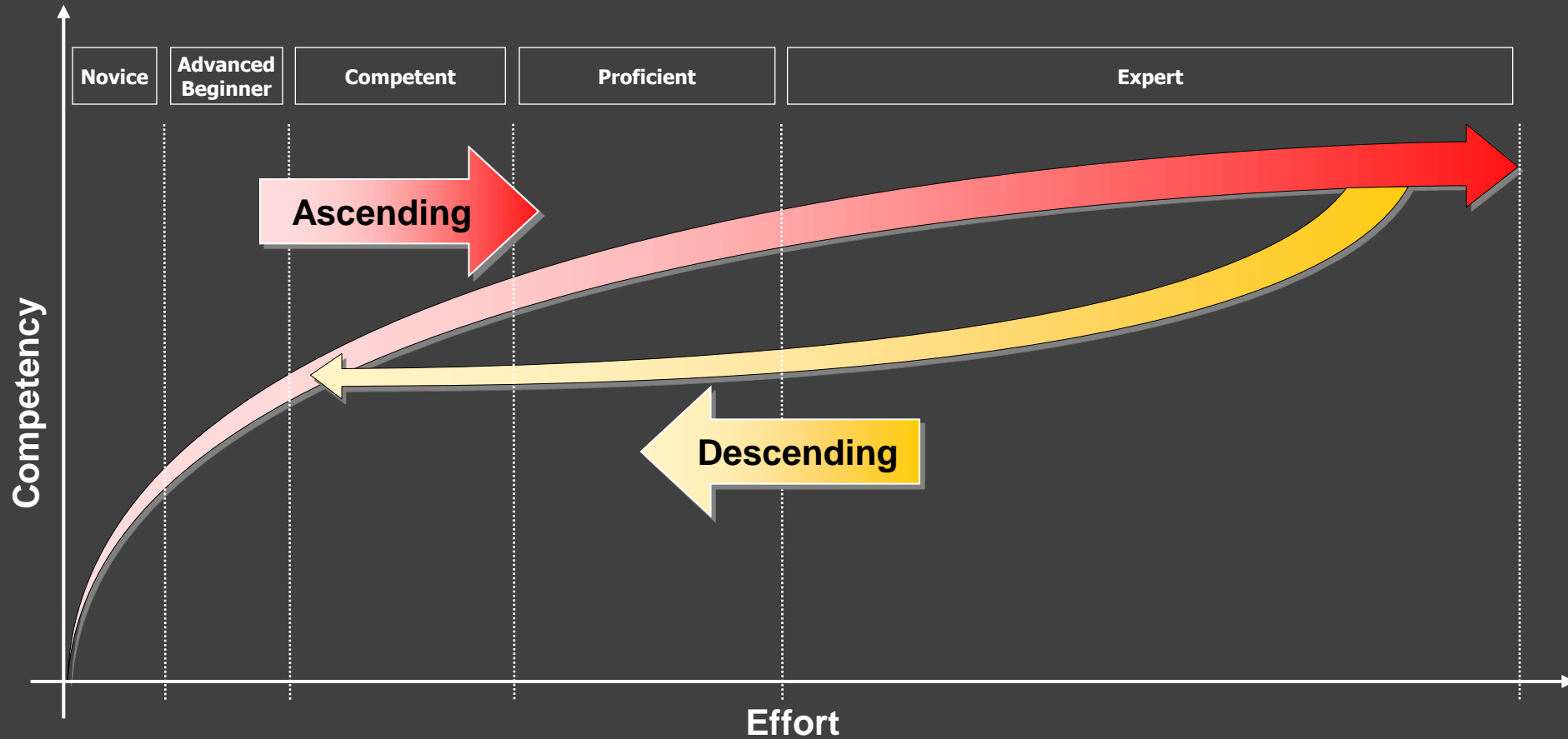
University of the Witwatersrand







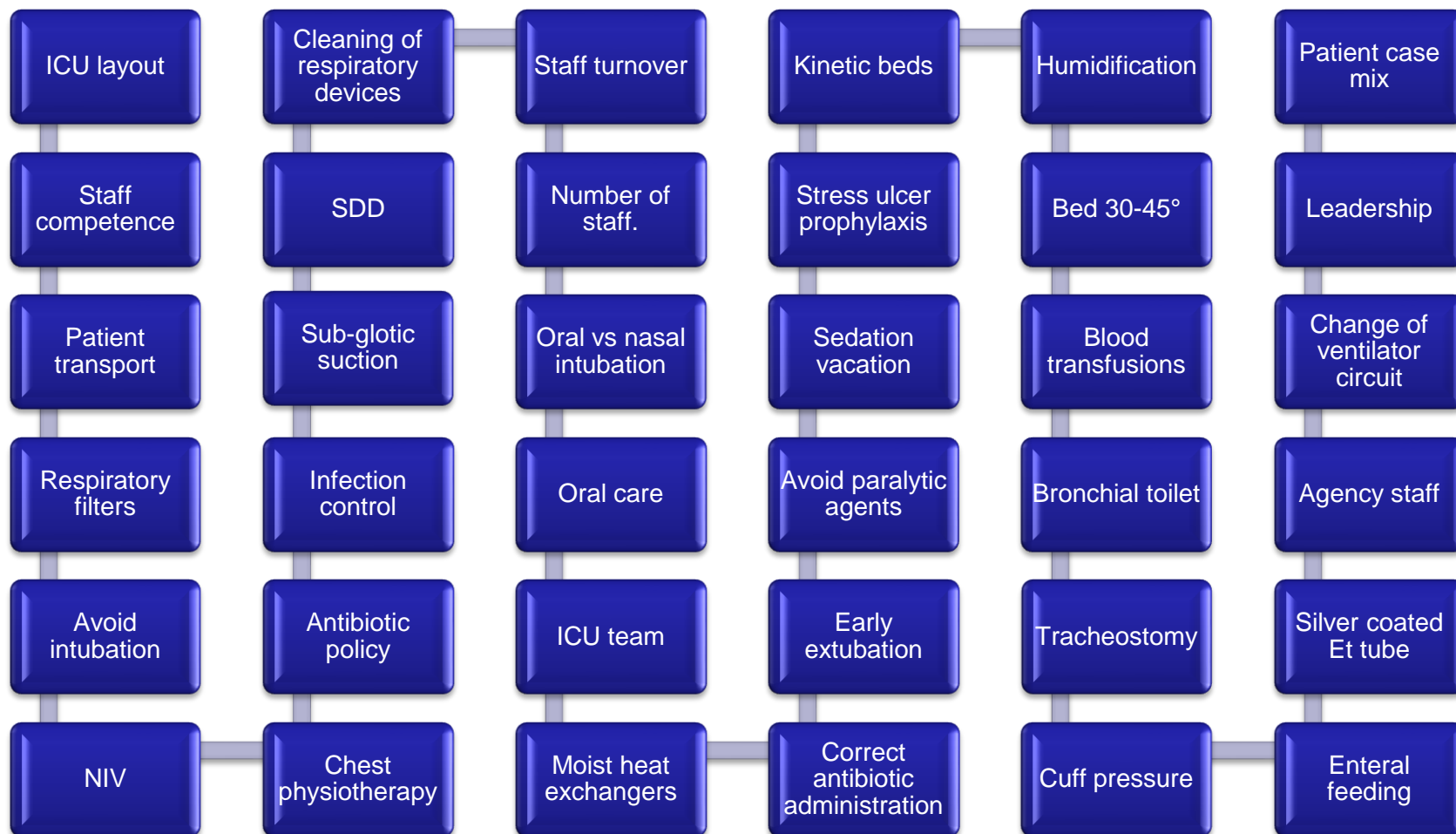
Professional growth



What should we do?

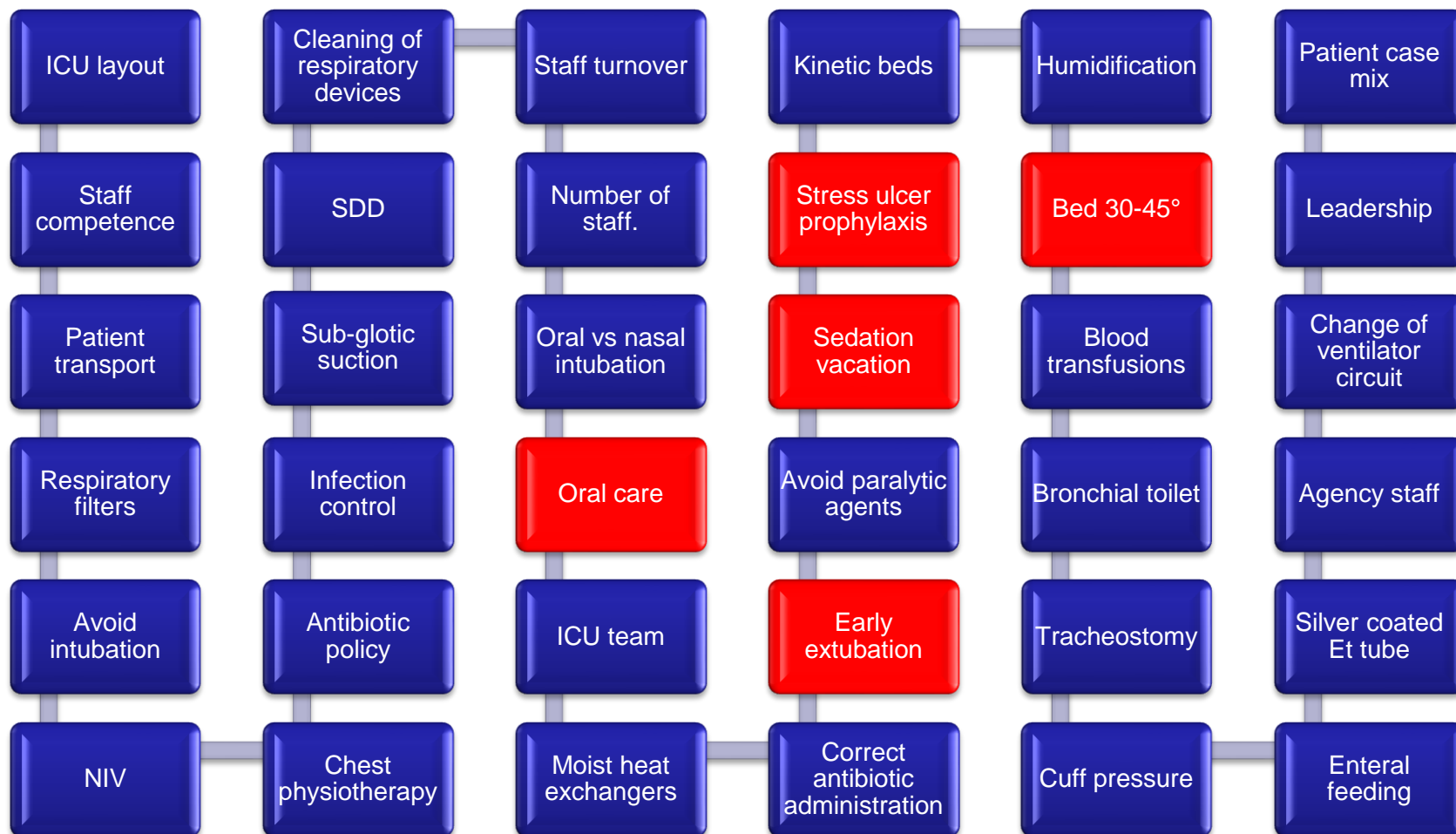
- **Evaluate the available “evidence” very critically**
 - Be cautious of *flavour-of-the-day* interventions/technology
- **Expensive always sounds better**
 - Practice in a resource constraint environment
 - Remember all interventions/technology have limitations

What should we do?



Lorente et al. Eur Respir J. 2007; 30: 1193-1207. Adapted.

What should we do?



Lorente et al. Eur Respir J. 2007; 30: 1193-1207. Adapted.

What should we do?

- **VAP study designs questioned**

*Kollef. Surgical infections. 2010. pub ahead of print
Zilderberg, Shorr & Kollef. CCM. 2009; 37:305-309.*

- **Surveillance and clinical definition of VAP problematic**

- Not sensitive
- Not specific
- Not done rigorously
- Low inter rater reliability

*Klompas. CID. 2010. 51:1123-1126.
Bonten. Am J Resp & CCM. 2010. 182:993-994.*

- **New draft CDC definition: 24 September 2010**

Magill. Draft CDC Definition, September 2010

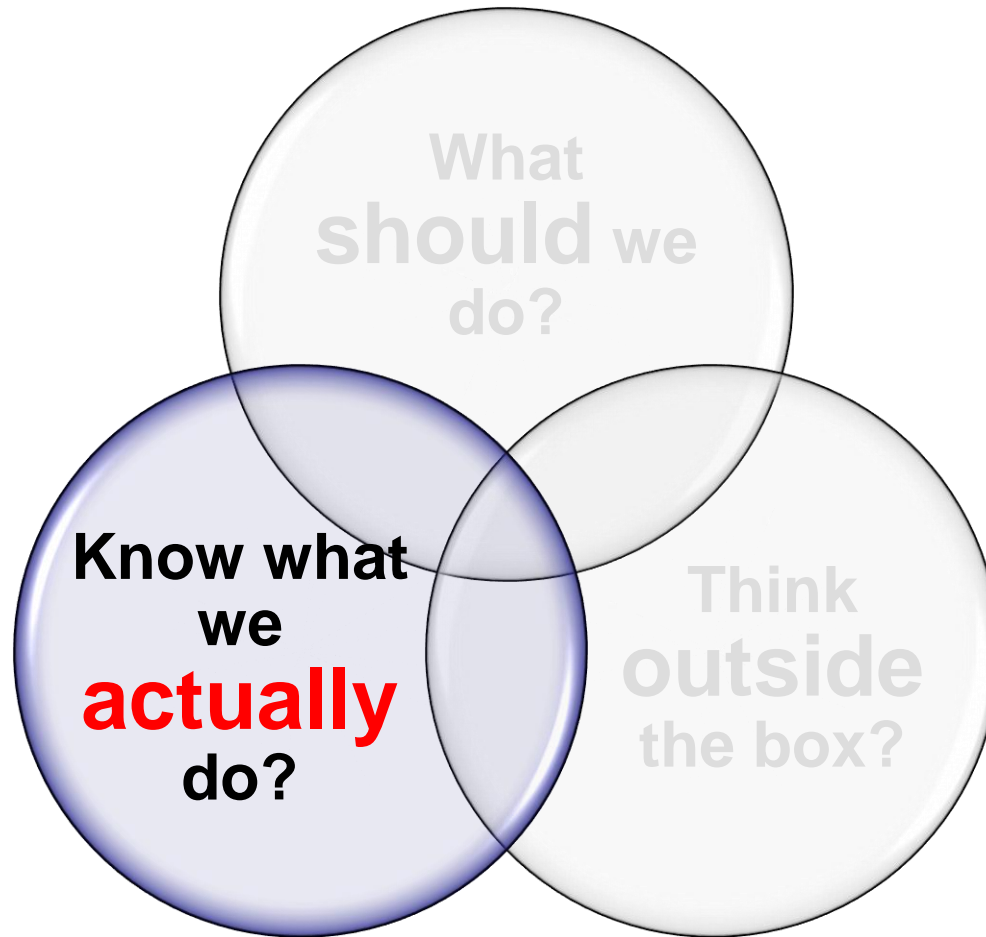
What should we do?

- **Expensive always sounds better**
- **Caution do not evaluate “evidence” in isolation**
 - Be careful to change practice based on results from one study
- **There is no perfect intervention/technology**
 - Be aware of interventions/technology limitations
 - The “how of the operator” very important determining factor
- **Continuous aspiration of subglottic secretions**
- **Continuous monitoring of ET cuff pressure**
- **Open vs Closed bronchial suction**

Lorente et al. Am J Respir Crit Care Med. 2010; 182: 870-876

Grap et al. J Emerg Med. 2010; Published ahead of print

Muscedere et al. J Crit Care. 2008; 23: 126-137



Know what we actually do

- *“Reality is that deep and dangerous gaps exist between the care that patients should receive and the care they actually receive”*

Livizzo-Mourey & Berwick. AJN. 2009; 109:3

- *“many...do not receive the ideal recommended care (either at all or in a timeously fashion), whereas others receive too much or the wrong care”*

Ting et al. Circulation. 2009; 119: 1962-1974

Know what we actually do

- **Positioning therapy has been advocated to prevent complications of immobility in ventilated patients**
- **Two hourly positioning has been suggested as a standard of care**

Bryan-Brown, & Dracup. AJCC. 1998; 7: 165-167.

Know what we actually do

- **A prospective observational study of ICU patient positioning and frequency of turning**
 - Recorded patient position every hour for 24 hours in 40 UK ICUs on two separate days (393 sets of observations)

Goldhill et al. Anaesthesia. 2008; 63: 509-515

Average time between turns	4.85 hours (SD 3.3)
Elevated back rest	97%
45° back rest elevation	47%

Do we know what we actually do?

- **Nurses' accuracy in estimating backrest elevation**
 - 39 nurses in 3 ICUs in Johannesburg academic hospital
 - 42% of the nurses were accurate in estimating backrest elevation
 - Only 28% of nurses indicated that backrest elevation was to prevent aspiration

Perrie et al. SAJCC. 2007; 23: 10-14.



How many of you have been ventilated?

Know what we actually do

- **Qualitative analysis of patients' intensive care experience during mechanical ventilation**
 - Being in an unconventional environment
 - Physical suffering
 - Psychological suffering
 - Self-encouragement
 - Self-reflection

Wang et al. J Clin Nurs. 2008; 18: 183-190.

Know what we actually do

- **Being in an unconventional environment**

- Made them feel that they in another world

- *“Like a child who could not swim and was thrown into a cold swimming pool”*
 - *“Terrible surroundings...like a jail”*
 - *We were lying like vegetables on the beds, it seemed if we did not exist to the nurses, they were chatting and laughing, to noisy..”*

Wang et al. J Clin Nurs. 2008; 18: 183-190.

Know what we actually do

- **Physical suffering**

- Helplessness

- *“you had no choice when you were lying there not doing anything for yourself even respiration must depend on the ventilator”*

- Received treatment and care passively

- *Feeling of “passive an taken over by others” were overwhelming*
 - *“I just remembered someone pressed my arms and legs forcefully, some others opened my mouth and put something in my throat, after that I knew that was the tracheal tube, why did nobody tell me about it before that”*

- Experiencing pain and discomfort

- *“suction was too sore, I even wanted to hold the nurse’s hand to stop it”*
 - *“Could you imagine how painful it was when they punctured your wrist here and there for taking blood”*

Wang et al. J Clin Nurs. 2008; 18: 183-190.

Know what we actually do

- **Psychological suffering**

- Experiencing hallucinations and nightmares
 - *“I had the same dream for several nights, ...it was awful.. I was so scared..”*
- Experiencing fluctuating level of consciousness
- Relying on technology and others for survival
 - Made them feel dependant and fearful
 - Technology used was perceived in a fluctuating way:
 - From friend to enemy
 - From nuisance to scary

Wang et al. J Clin Nurs. 2008; 18: 183-190.

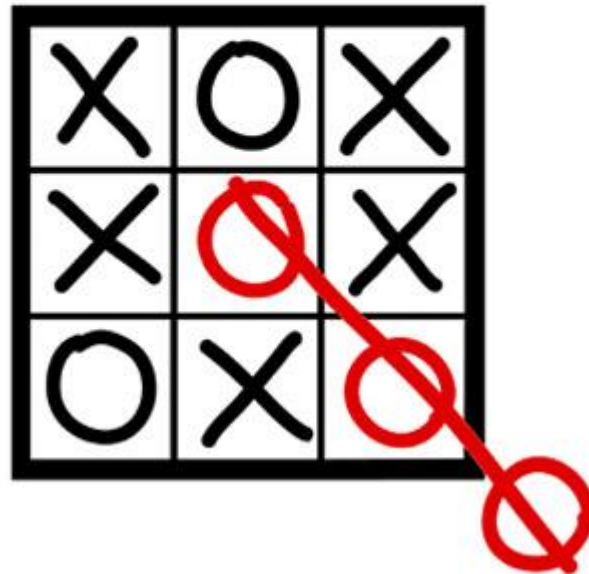
Know what we actually do

- **Self-encouragement**

- Relying on self-positive attitude
 - *“you must have confidence, otherwise you would say farewell to life”*
- Getting better and better
 - Displayed memories of:
 - being sick
 - turning point
 - and then getting better
- Crediting family support
 - Unanimously credited family support
- Aspiring for professional support
 - Majority of patients were discontent with ICU staffs behaviour and showed more need for professional support

Wang et al. J Clin Nurs. 2008; 18: 183-1

**THINK
OUTSIDE
THE BOX**





Thinking outside the box

- **Complementary and alternative therapies (CAT) in ICU**
 - Can't be ignored
 - 1 in 3 American adults (72 million) in 2002 used CAT
 - 629 million visits to CAT practitioners, exceeding the total number of visits to primary physicians
 - 72% of those who used CAT did not tell their health care providers
 - Significant number of people use CAT in combination with conventional medicine

*Eisenberg et al. JAMA. 1998; 280: 1569-1575.
Tindle et al. Altern Ther Health Med. 2005; 11: 42-49.*

Thinking outside the box

- **CAT is generally defined:**
 - as the use of non-allopathic remedies
 - often the aim is to provide comfort /care rather than cure

Eisenberg et al. JAMA. 1998; 280: 1569-1575

Some CAT...

- Relaxation techniques
- Massage
- Counselling / psychotherapy
- Therapeutic touch
- Music therapy
- Meditation
- Guided imagery
- Animal / pet therapy
- Megavitamins
- Herbal medicine
- Biofeedback
- Chiropractic
- Aromatherapy
- Acupressure / puncture
- Homeopathic medicine
- Hypnotherapy

Eisenberg et al. JAMA. 1998; 280: 1569-1575

Thinking outside the box

- **Music therapy**

- Older adults undergoing cardiovascular surgery
 - One group listened to music during and after surgery
 - Lower anxiety scores ($p = 0.022$)
 - Reduced intubation time ($p = 0.031$)

Twiss et al. AJCC. 2006; 11: 224-231

- Sedated ventilated patients experienced significant higher Ramsay sedation scores

Dijkstra et al. JCN. 2010; 19: 1030-1039

Thinking outside the box

- **Music therapy recommendations**
 - Use with medical therapeutic apparatus and devices
 - Co-ordination between routine nursing care and music therapy sessions
 - Nurse should be available to conduct the session
 - Patient must want to listen to music.
 - Appropriate music selection
 - Slow, harmonious rhythms and low pitch
 - Variety of genres

Variska. 2010. unpublished masters

Thinking outside the box

- **Animal assisted therapy (AAT)**
 - Is a scheduled intervention that uses specially trained therapy animals
 - Is specific in their goals
- **Pet visitation therapy**
 - Involves the patient's personal pet

DeCourcy et al. Dimens Crit care Nurs. 2010; 29: 211-214.



Thinking outside the box

- **Evidence supporting AAT**

- AAT improves cardiopulmonary pressures, neuro-hormonal levels and anxiety in patients with heart failure

DeCourcy et al. Dimens Crit care Nurs. 2010; 29: 211-214.

	During AAT Rx	After AAT Rx
> Decrease in systolic PAP	-4.32 mm Hg $P=0.03$	-5.78 mm Hg $P=0.001$
> Decrease in PCWP	-2.74 mm Hg $P=0.01$	-4.31 mm Hg $P=0.001$
> Decrease epinephrine levels	-15.86 pg/mL $P=0.04$	-17.54 pg/mL $P=0.04$
> Decrease in non-epinephrine levels	-232.36 pg/mL $P=0.02$	-240.14 pg/mL $P=0.02$
Anxiety sum score		1) -6.65 units $P=.002$ 2) -9.13 units $P<.001$

Thinking outside the box

- **Refuting AAT**
 - Currently no evidence to refute AAT
 - Difficult to scientifically explain and prove the power of the human animal bond
 - Need more research

DeCourcy et al. Dimens Crit care Nurs. 2010; 29: 211-214.

Thinking outside the box

- **Possible risks of AAT**

- Fear of animals
- Animal allergies
- Cultural biases

- Can be eliminated by careful screening of patient and animal therapist

DeCourcy et al. Dimens Crit care Nurs. 2010; 29: 211-214.

- **Safety and sanitation**

- AAT program had no episode of a zoonotic infection or animal transmission of infection among patients
 - CDC has never had a reported case of infection from AAT
 - To ensure AAT to be safe the animal must:
 - Annual check ups
 - Receive appropriate vaccinations
 - Behavioural assessments

Cullen et al. Crit Care Nurs. 1999; 19: 84-87.



Thinking outside the box

- **Earplugs**

- Silicone earplugs facilitate weight gain in very low birth weight and better outcomes persist at 18-22 months

Turk et al. J Perinatol. 2009.; 29: 358-363.

- Earplugs improve patient's subjective experience of sleep in critical care

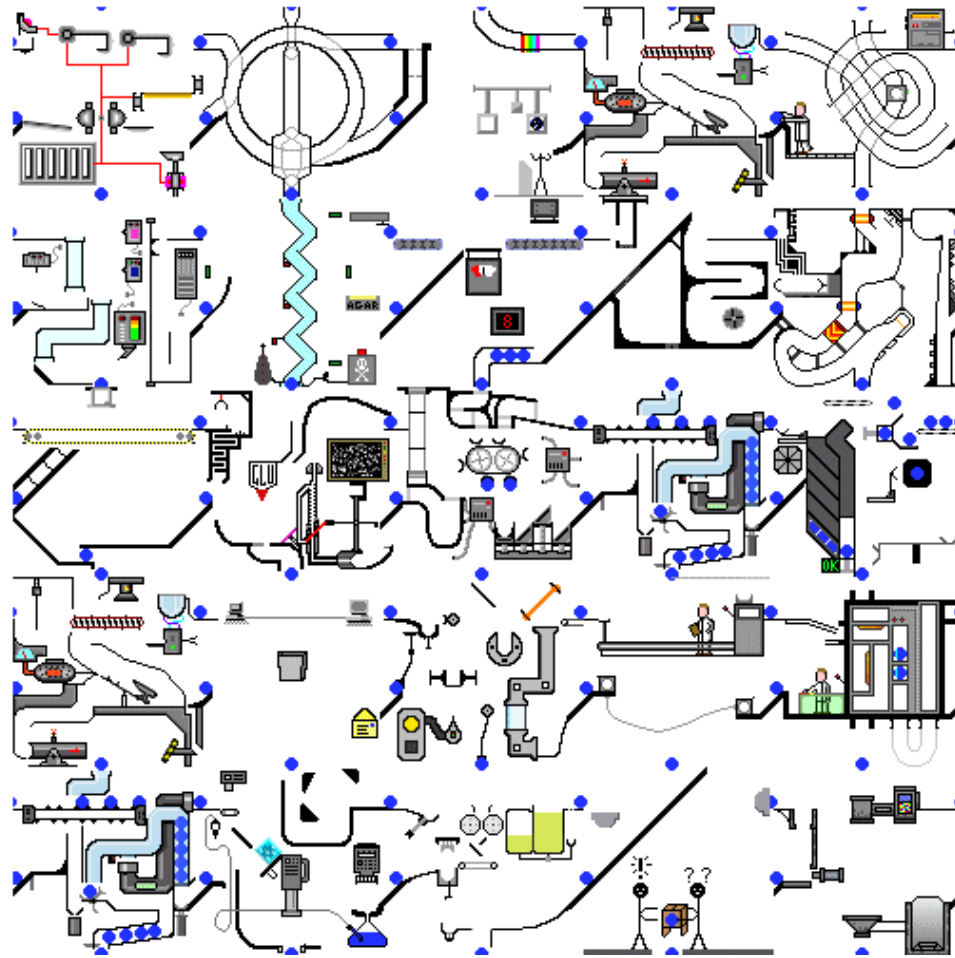
- Non-ventilated, non sedated adult ICU patients

Scotto et al. Nursing in Crit Care. 2009; 14: 180-184.

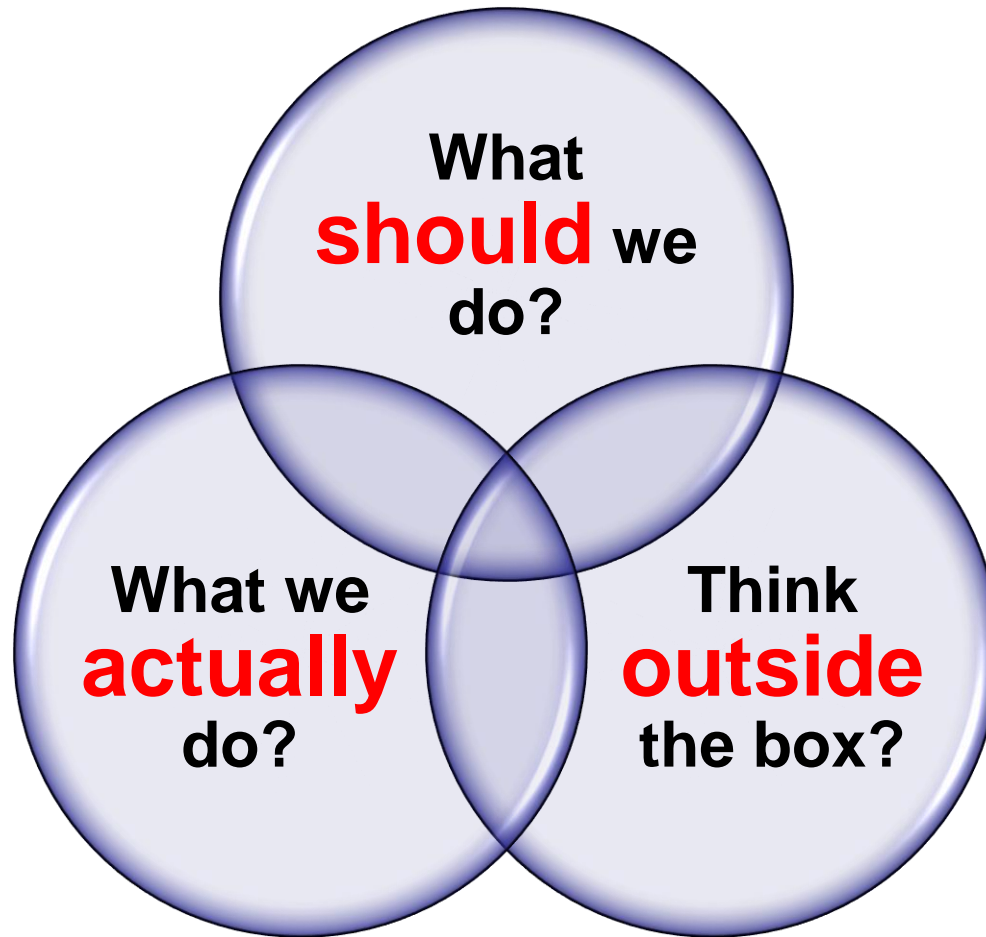
- Effect of earplugs and eye masks on nocturnal sleep in simulated ICU environment

- Improved subjective sleep quality
- More Rem time sleep, shorter REM time latency and less arousal ($P < 0.05$)
- Elevated melatonin levels ($P = 0.002$)

Hu et al. Crit Care. 2010; 14: R66



Conclusion



Thinking outside the box

- **Animal therapy is used to:**
 - Re-orientate patients to reality
 - Improve body image
 - Reduce stress
 - Stimulate comatose patients
 - Provide emotional support
 - Increase social interaction
 - Decrease depression
 - Provide comfort for both patients and families
 - **Boost the morale of the healthcare workers**

DeCourcy et al. Dimens Crit care Nurs. 2010; 29: 211-214.

Thinking outside the box

- **Music therapy**
 - Music therapy promote relaxation via physiological and or psychological entrainment
 - Entrainment
 - Physics principal in which two objects vibrating at similar frequencies tend to cause mutual sympathetic resonance and vibrate and the same frequency
 - Relaxation through entrainment music should have a tempo below resting heart rate

Chlan. Arch Psyc Nurs. 2009; 2: 177-179.