

From Unconscious Incompetence to Conscious competence – Learnings from a Legionella outbreak

**Kathy Taylor – Infection Control Manager
The Wesley Hospital**

In the beginning.....

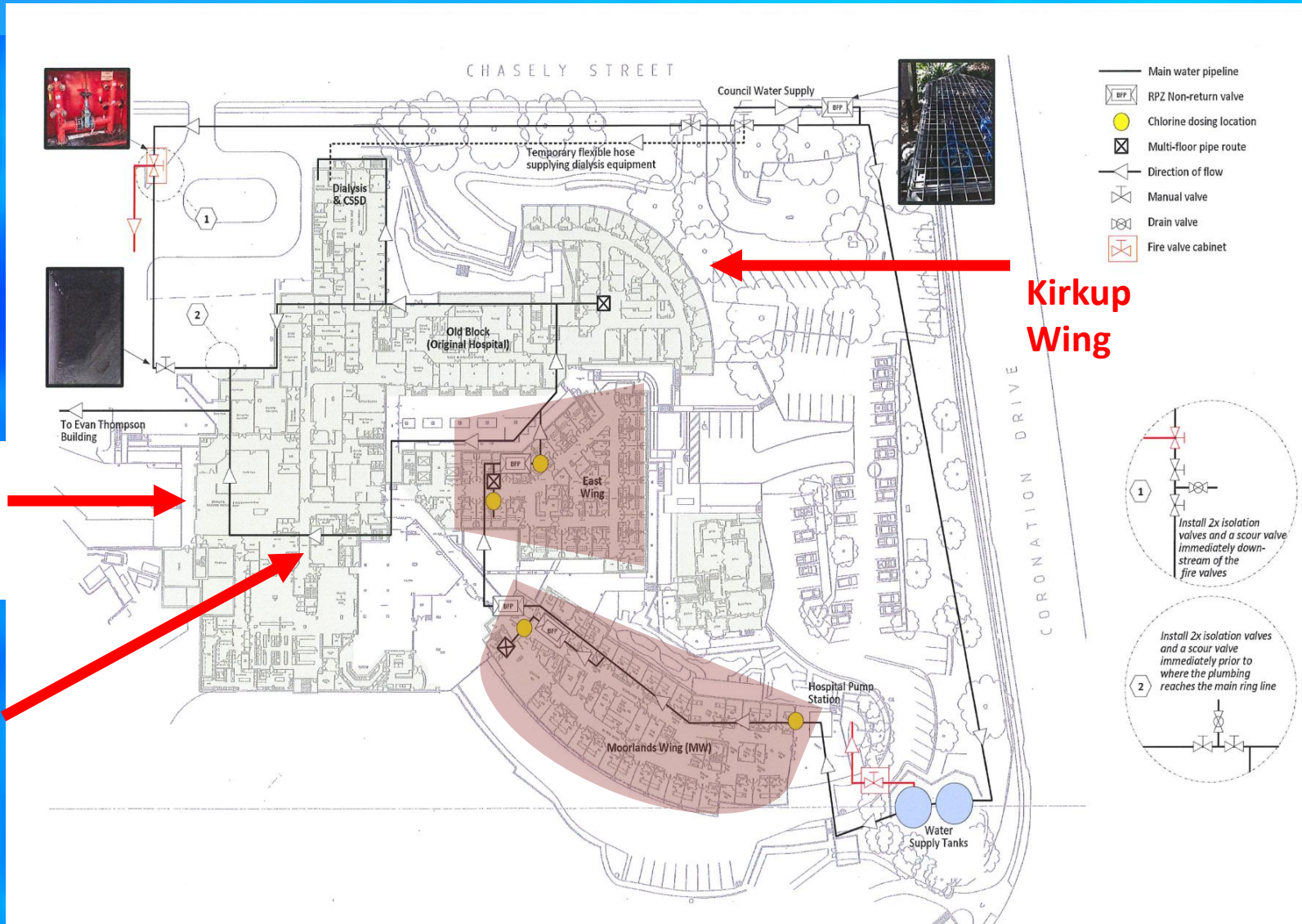
St Helens Hospital at South Brisbane was to be replaced by a new facility at Auchenflower, Planning began in 1972

The cost of construction was recorded as \$11 million.

Water hygiene
Would not have
Been a high
priority



Soon additional buildings were added:



Ahhhhhhh...

- 😊 Certifications
- 😊 Compliant
- 😊 Water Efficiency Management Plan in place
- 😊 Accredited



What can possibly go wrong??

Unconscious incompetence: 5th June 2013

OMG — Legionella in the drinking water



Outbreak: 2nd patient confirmed with healthcare associated Legionella ☹️

Conscious incompetence



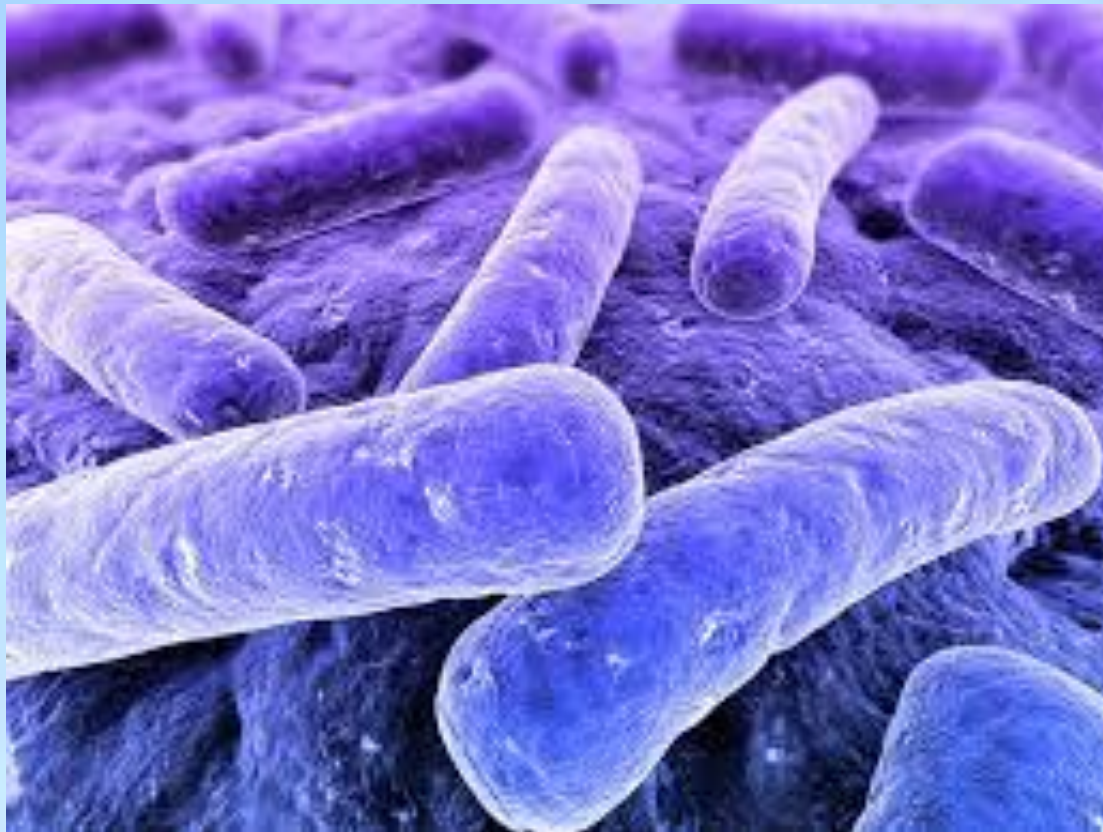
Second case of legionnaires' disease at Brisbane's Wesley Hospital

Updated 6 Jun 2013, 8:26am

UnitingCare executive director Richard Royle says the Wesley Hospital has cancelled all admissions and surgery after the death of a patient from legionnaires' disease.

Conscious incompetence

OK, So what is legionella?



Conscious incompetence

What about other Queensland healthcare facilities – could they also have Legionella in their pipes?

Queensland chief health officer Jeannette Young said it would be unlikely that legionella would grow independently. “It would be unusual to have two incidents happening at the same time without an original single source, so that's what we're working through at the moment,” Dr Young said.

Health Minister Lawrence Springborg ordered all state hospitals to test their hot water systems for legionella, and Dr Young said Queensland Health was now investigating whether it should be mandatory. “At the moment it is a requirement, but not a particularly specific requirement – it doesn't have a protocol attached to it saying how often to test, how much testing to do,” she said.

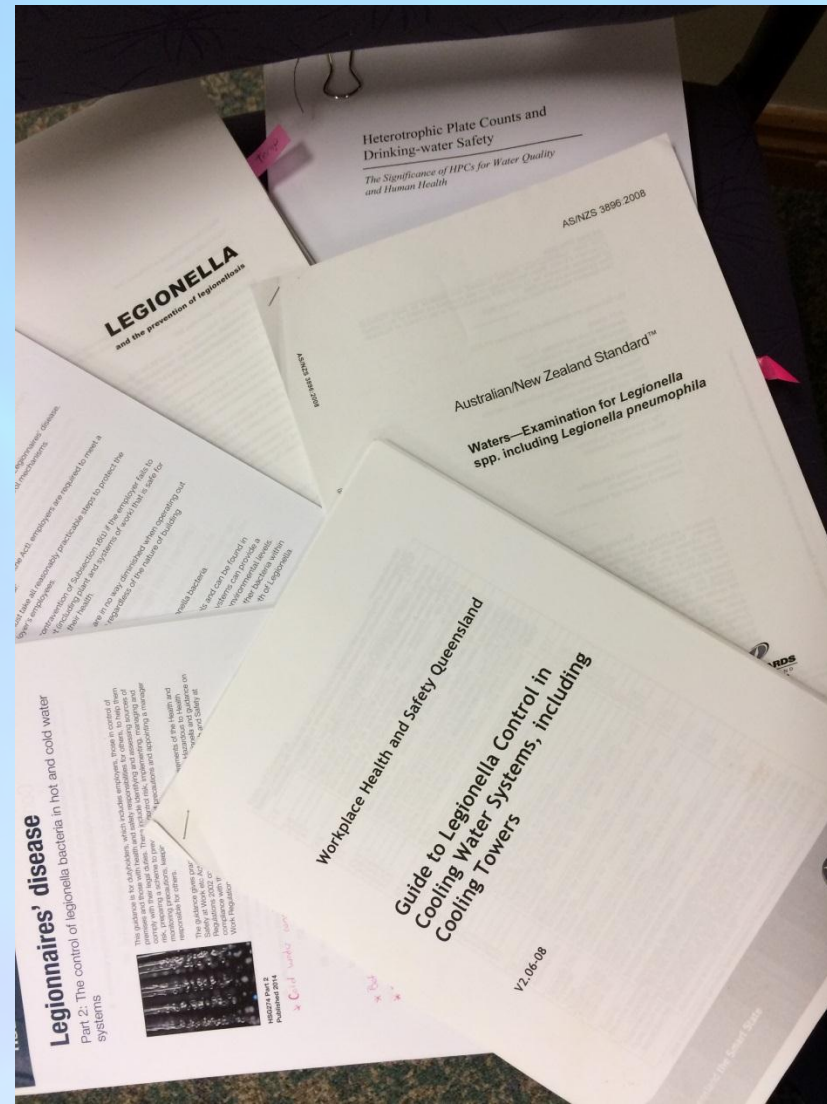
“That's what we're looking at, whether we should be introducing that in Queensland.”

Brisbane Times 7 June 2013

Conscious incompetence

What do we
need to do?

What
guidelines
do we
follow?



Conscious incompetence

How do we
make our
hospital safe?



Conscious incompetence

Scalding

The definition of idiocy is to do the same thing again & again ...

and expect a different outcome!



Conscious incompetence – Code yellow control group in action

**We need help to fix this....
Bring on the experts**



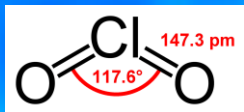
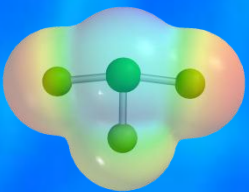
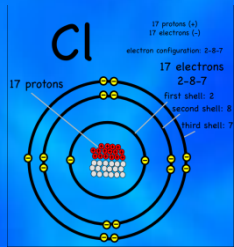
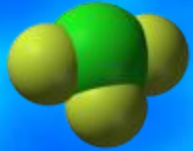
Conscious incompetence

Why is Rehab special?

Building	Ward	Outlet Code	Area Sampled	Date Sampled	Date Reported	TWH Sample No.	Result Legionella serogroup 1	Legionella other Serogroups	Total Plate count	Other
Original	1K Rehab	O1K4b	Basin - room 4	28/06/2013	5/07/2013	81	100	<10	4,400	post clean day 7 original
Original	1K Rehab	O1K4C	Shower - room 4	28/06/2013	5/07/2013	82	<10	<10	14,000	post clean day 7 original
Original	1K Rehab	O1K1011C	Shower - rooms 10 + 11	28/06/2013	5/07/2013	83	20	<10	5,700	post clean day 7 original
Original	1K Rehab	O1K1617b	Basin - rooms 16 + 17	28/06/2013	5/07/2013	84	100	<10	3,400	post clean day 7 original
Original	1K Rehab	O1K1617C	Shower - rooms 16 + 17	28/06/2013	5/07/2013	85	10	<10	5,600	post clean day 7 original
Original	1K Rehab	O1K2223b	Basin - rooms 22 + 23	28/06/2013	5/07/2013	86	20	<10	5,800	post clean day 7 original
Original	1K Rehab	O1K2223C	Shower - rooms 22 + 23	28/06/2013	5/07/2013	87	20	<10	2,500	post clean day 7 original
Original	1K Rehab	O1K2728b	Basin - rooms 27 + 28	28/06/2013	5/07/2013	88	<10	<10	2,500	post clean day 7 original
Original	1K Rehab	O1K2728C	Shower - rooms 27 + 28	28/06/2013	5/07/2013	89	<10	<10	3,800	post clean day 7 original



Moving towards - Conscious Competence



By the end of June 2013

– Warm Water Party

(AKA Infrastructure Safety Committee) weekly meetings commence



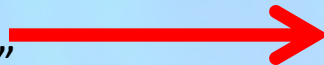
Chlorine dosing of Wesley water commences



2nd July 2013 All buildings re-opened to admissions, Code yellow ceased & control team disbanded.

Moving towards - Conscious Competence

Plumbed in
large “deadleg”



Deadlegs, low flow in pipework became a focus



The need for accurate “as constructed” site wide drawings

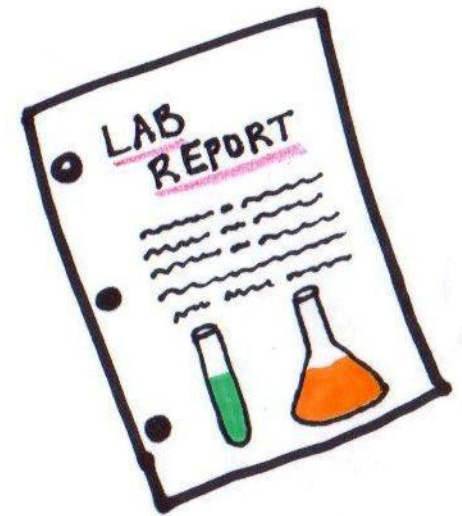
Moving towards - Conscious Competence

The Wesley “Crack” plumbing team in action



Moving towards - Conscious Competence

Make friends with the laboratory staff



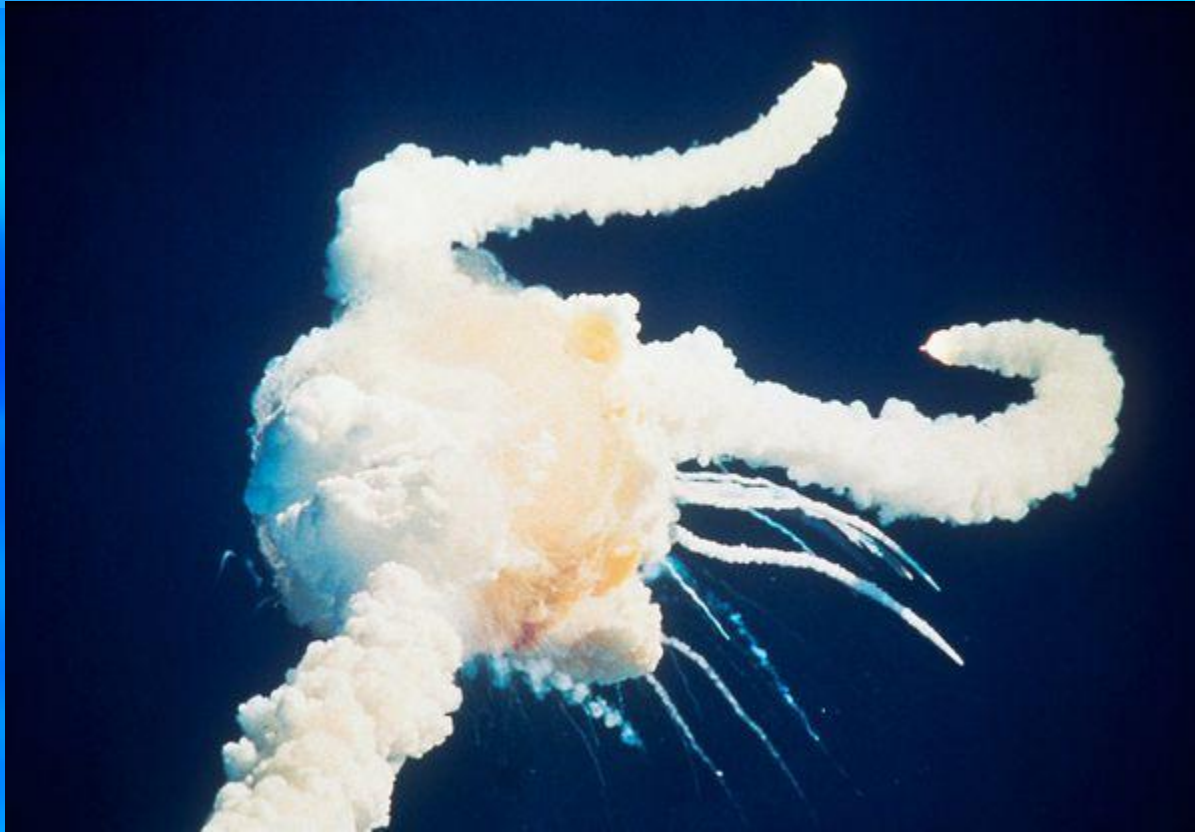
Moving towards - Conscious Competence

We're Back....



GH**STBUSTERS**TM

Moving towards - Conscious Competence



Disaster – more legionella in the water!

- 26th May 2014 - Heartcare partners sink
- 29th Sep 2014 - Day surgery sink

Moving towards - Conscious Competence



Make friends with the experts

Dr Susanne Lee conducted an external review of the Wesley's water systems management in September 2014. Recommendations included..

- Moving to a water safety plan as a holistic approach to managing water safety
- Building maintenance system (BMS) be monitored 24/7 & alarms in place so early notification should parameters fall outside of expected, e.g. chlorine level low, hot water temp drops below 50 degrees.
- Education in water safety is provided to the infrastructure safety team
- Ensuring the process around flushing low use outlets is robust & monitored for compliance
- Identifying a laboratory that can provide more sensitive legionella detection to 1cfu/litre (ISO 17025)
- Installing a multi-barrier point of entry treatment plant
- Test ice for Legionella
- Test for Pseudomonas in the water



Moving towards - Conscious Competence – Or are we?

Brisbane hospital ice machine tests positive for legionella pneumophila following patient diagnosis

“The state's chief health officer Dr Jeannette Young said Metro North Public Health Unit was working closely with Wesley Hospital staff to carry out the investigation and necessary testing”

Courier Mail 2 Jan 2016, 10:17am



Queensland Health	
Chief Health Officer Patient Safety Notice	Number 01/2016 CH011571
Subject Ice from ice machines and water from chilled water dispensers should not be provided to severely immune-compromised patients where there is a risk of micro-aspiration.	

Conscious competence? False sense of security

Year	No. samples	Negative Legionella	Result Legionella sero-group 1	Legionella other Sero-groups	% positive
2013	4234	4069	115	52	3.94%
2014	2877	2873	3	1	0.14%
2015	1839	1831	1	7	0.49%
2016	987	985	0	2	0.20%

- ✳ Low level detection (1cfu/100mls) !
- ✳ New technology – qPCR for 24 hour turn around of results (WA), 1 hour detection test
- ✳ Genome sequencing
- ✳ ? What is next

Moving towards - Conscious Competence

The ARIA – pre-commissioning



Is Qld moving towards conscious competence?

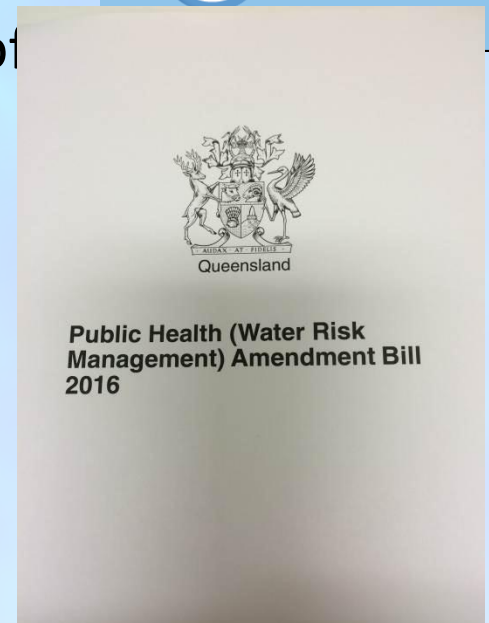
What's new?



The national enhealth Legionella guidelines were published on 15th January 2016



Amendments to the Queensland Public health Bill & Establishment of Qld Water Safety Unit to oversee compliance with water management in 2016



Are we there yet?

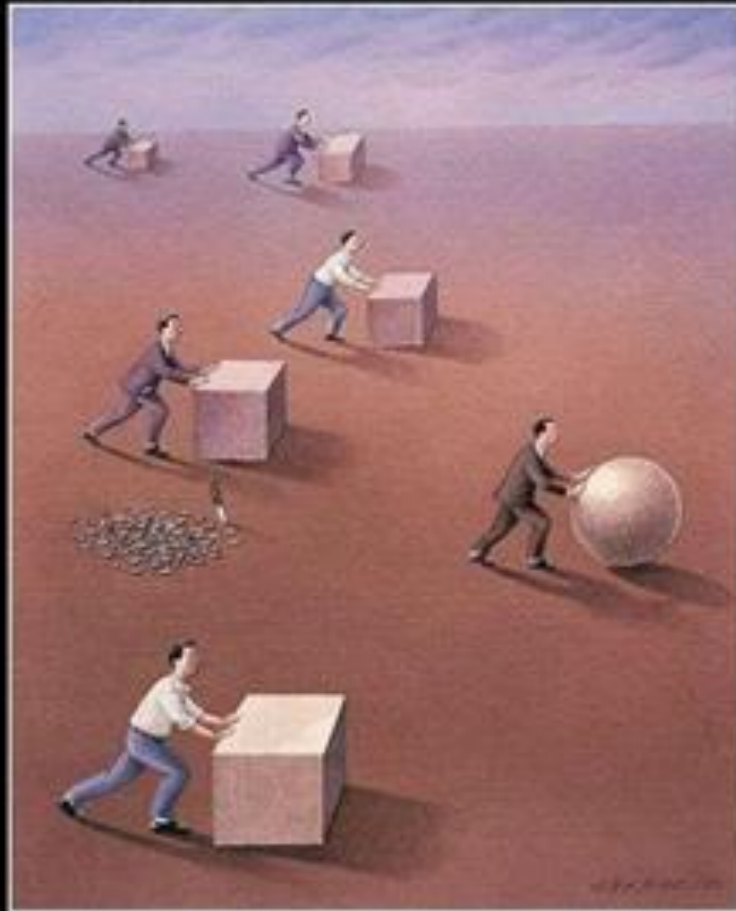
Unconscious competence?

- ◆ WRMP is in place & is a living document
- ◆ Detection level at similar level to the exposure level necessary for infection, e.g. 1 cfu/100mls or 1cfu/1 L
- ◆ Does your pipe work have rough internal surfaces or is manufactured from material that encourages bio-film formation?
- ◆ Incoming water filtered to prevent “biofilm food” down stream
- ◆ Water sufficiently disinfected (but does not smell like a swimming pool)
- ◆ Outlet Flushing regime in place & monitored
- ◆ Sampling regime is routine, but is alterable in reaction to results
- ◆ POU filters for patient outlets if legionella detected & only until remedial action has removed the bacteria
- ◆ Ice and water for ingestion is made from non-carbon filtered, ultra filtered (0.1 micron) water

Points to ponder????

- 💣 Legionella isn't going to go away & stay away – it will not be “cured” and needs to be constantly managed!
- 💣 Aussie cold water isn't cold enough – what are you gonna do about the cold water when it is at 32 degrees?
- 💣 What about multi-resistant pseudomonas? Is that a potential problem when splashed from a drain onto tap fittings and onto HCW hands?

Wesley is moving in the direction of Unconscious Competence?



**Don't work hard
work intelligent**