



Sharing my experiences (Water)
RN in CSD and related learning experiences.

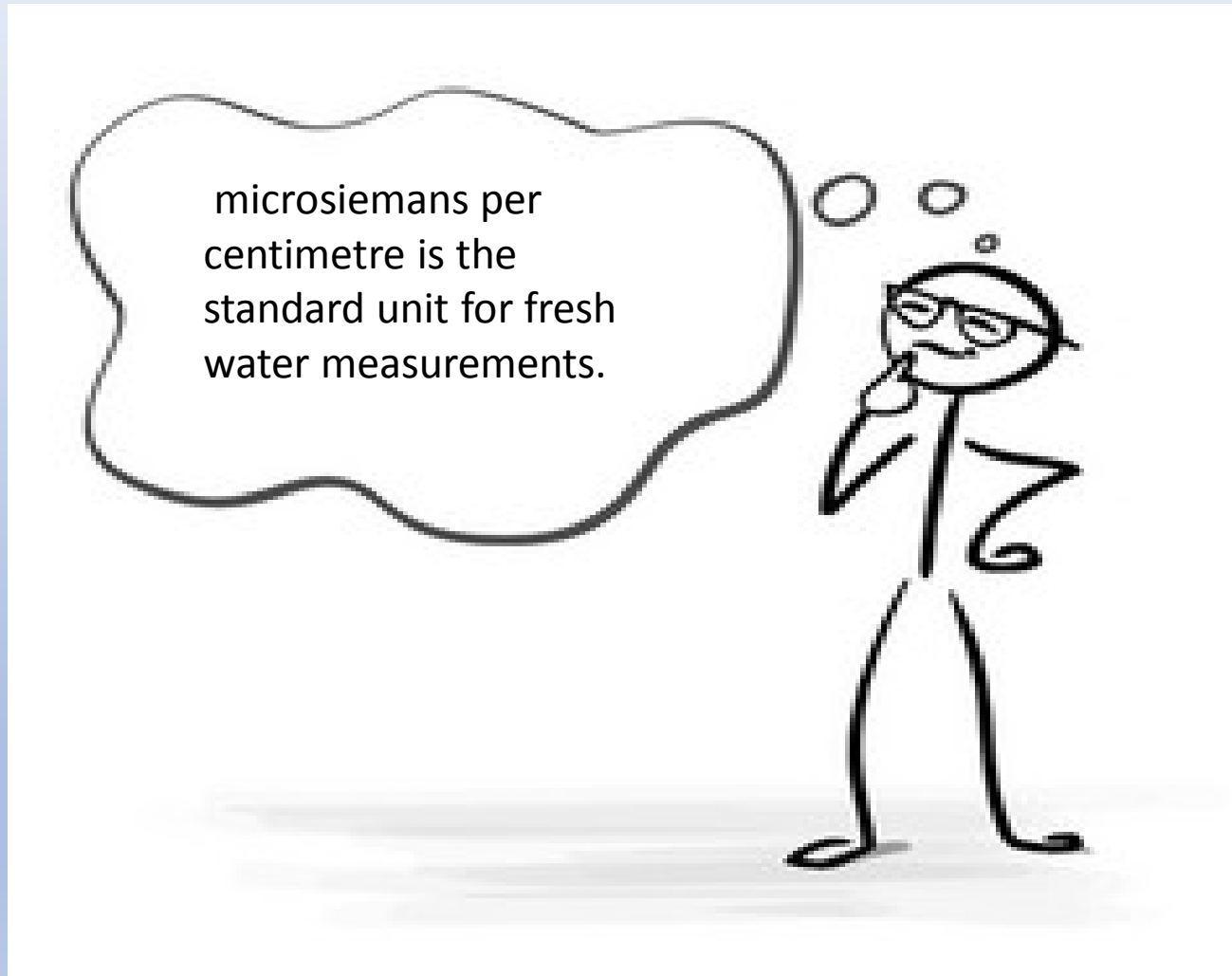
My starting point of understanding water complexities

- **The starting point**- understanding who makes the relevant policies - supply of potable water.
- **Water supply: The healthcare facility** – treatment needs on arrival.
- **CSD applications** - treatment needs for CSD applications.

Governance frameworks

Framework	The scorecards include
<p>The National Water Initiative 2004 The National Plan for Water Security - 2013 United Nations Water Security Framework High Level Panel on Water Plan of Action - 2016 The Public Health Act 2005, Australian Environmental Protection Act 1993, The Environmental Protection Biodiversity Conservation Act 1999, The National Health Reform Act 2011 ,ISO 9001, Australian Drinking Water Guidelines V3.4(updated 2017),</p>	<p>National Water Accounts – Australian Bureau of Meteorology Water in Australia - Australian Bureau of Meteorology 2014-15 State of the Environment Report - Australian Government 2016 Australian National Outlook – CSIRO 2015 The governances and the assurance standards of the Australian Commission on Safety and Quality in Health Care (ACSQHC) and its Guidelines for Prevention and Control of Infection in Healthcare, The Guidelines for Legionella Control in operation and maintenance of water distribution systems in health and aged care(2015),</p>

The basics

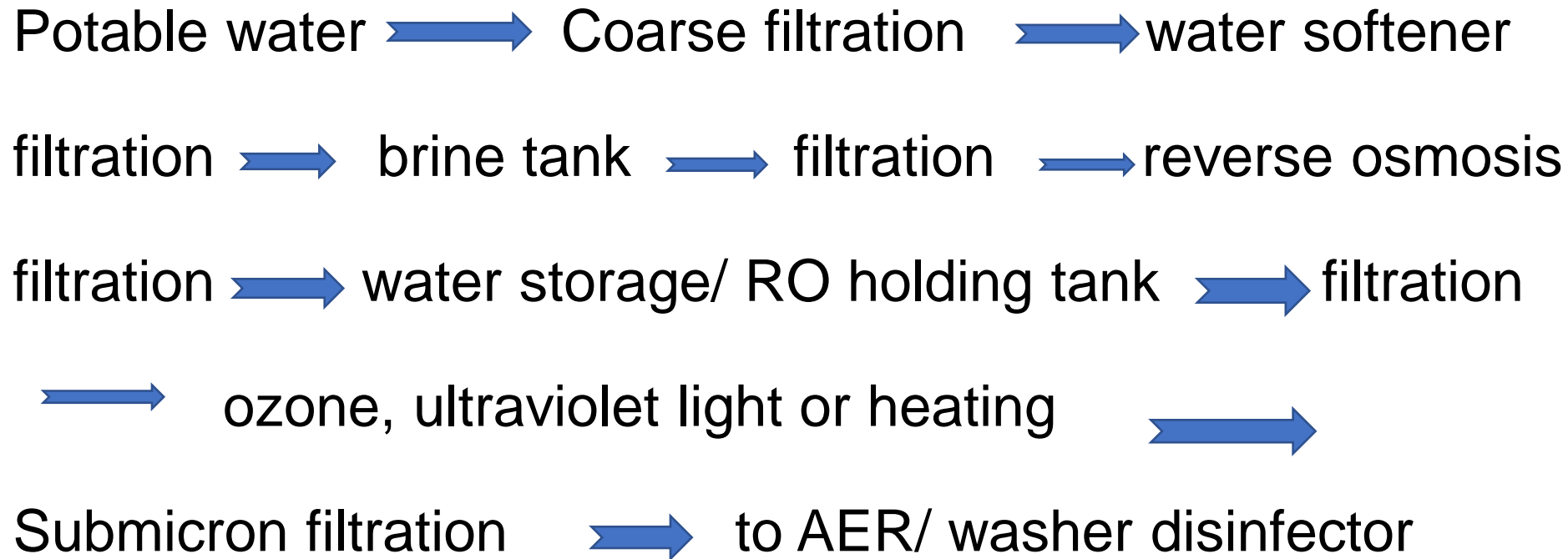


incoming water has the ability to conduct electricity due to the concentration level of ions it contains

the conductive ions come from dissolved salts, inorganic materials; alkalis, chlorides, sulphides and carbonate compounds.

a conductivity unit of measure, is known as a micro-sieman.

An example of water treatment process to produce high purity softened water required for use in washer disinfectors and AERs.



The purity of the water will depend on its intended use

Understand what is happening to the water within the facility and your washer/disinfector, AER ,water dental lines

A hospital's water supply unit was being treated with silver-stabilised H₂O₂ to disinfect the distribution pipework (Approved).

This water was then supplied to the renal dialysis water treatment plant then  into the the dialysis medical devices 

Residual H₂O₂ passed through the **renal dialysis water plant**, and into the **product water**, which was then **used to produce dialysis fluid**.

During dialysis the H₂O₂ passed through the ultrafiltration membranes into **a patients blood stream**, causing haemolysis resulting in the patients **death**.

Used to eliminate pathogenic amoeba, bacteria, biofilms, fungi, moulds and viruses, by allowing silver ions within the solution to react with catalase, a protein produced by bacterium to protect the cell wall from being destroyed, allowing for the hydrogen peroxide in the formula to destroy the cell wall and eliminate the bacterium, for powerful and effective biological control.

Potable Water to CSD Quality

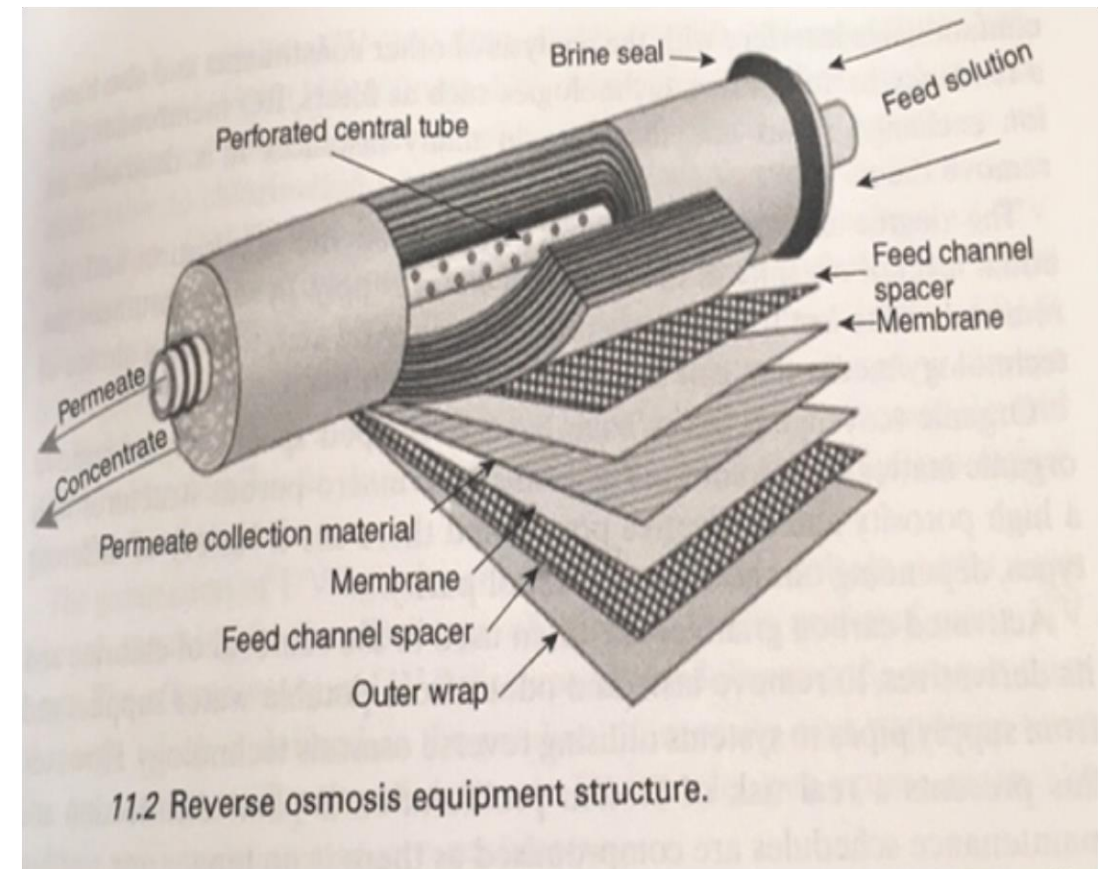
Incoming pre treated water quality
(prior to RO process)

= 550 microsiemens

RO Filter function rejection rate 98%

550 microsiemens x 98%= 539

550 (minus) 539 = 11 microsiemens
water quality ready for CSD use



Water-CSD Quality

The average treated water

R.O. process rejection rate = 95%

(noted at presentation may be as low as 90% ref: A. Gay)

Water-waste water from the RO concentrate

Waste water streams can be designed and engineered to be recovered and a proportion used as grey or black water use.

AS/NZS 4187:2014- (revised) Tables- 7.2,7.3,7.4,8.1,-
paragraph A 7.2.3.1appendix A (water quality)

- **Water pathogens are here to stay!!**
- Water quality assurance is an integral part of RMD decontamination because it identifies, contains and manages transmission risks.
- there are many technologies not just RO- however RO water is preferred because of its broad spectrum removal of organic and inorganic contaminants.
- It provides the element of consistency in one part of the decontamination process,& prolongs life in the downstream equipment.
- RO is not directly implemented in infection hazards- its part is to **enhance other critical equipment** by removing the inorganic and organic contaminants(endotoxins (lipopolysaccharides (LPS), and biofilm) review HTM0101 parts A,C & D