

IV fluids

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| [critical care](#), [Emergency Medicine](#), [geriatrics](#)

Script Writer: Sam Orton

Interviewee: John Myburgh

Summary Writer: Lise Kempler

Reviewer: John Myburgh and Luke Collett

James chats to John Myburgh IV fluids, which are an integral part of therapy for patients in the hospital.

Professor John Myburgh is Professor of Critical Care at the Faculty of Medicine, University of New South Wales; Director of the Division of Critical Care and Trauma at the George Institute for International Health and senior intensive care physician at the St George Hospital, Sydney.

He also holds honorary professorial appointments at University of Sydney and Monash University School of Public Health.

Professor Myburgh was a foundation member and past Chairman of the Australian and New Zealand Intensive Care Society (ANZICS) Clinical Trials Group. He has an extensive research record of accomplishment over 25 years and is regarded as a national and international expert in catecholamines, traumatic brain injury, fluid resuscitation, endocrine dysfunction in critical illness and in the development and co-ordination of over 40 studies in Intensive Care Medicine. He has been awarded over \$75M in cumulative research funding from national and international research funding agencies.

His list of publications include over 230 refereed research publications and 45 book chapters, with an h-index of 41. He has delivered over 400 presentations, including over 50 plenary presentations at major international and national scientific congresses.

He has a long-established profile in education in Intensive Care Medicine, both at undergraduate and postgraduate levels. He was instrumental in establishing the College of Intensive Care Medicine of Australia and New Zealand, serving as President from 2010-2012. For services to medicine, he was made an Officer of the Order of Australia in 2014. Professor Myburgh was elected to the WFCCM Council in 2013 and as Secretary-General in November 2017 and will hold this office until 2019.

With Professor John Myburgh, Intensivist at St George Hospital and Professor of Intensive Care Medicine at The University of New South Wales, Australia

Case 1 - You are working in the Emergency Department and you have been called into the Resuscitation Bay by the registrar to help with a 65 year old gentleman, who is septic from a presumed urinary source. HR 140 and BP 90/60. He is confused and warm to touch.

1. The registrar asks you to chart resuscitation fluids. What fluids will you administer?

- This patient is in early septic shock, as evidenced by the hypotension and tachycardia
- Urosepsis is a condition that responds to antibiotics, without much fluid loss
- The patient needs one bag of fluid (1000 mL) to correct the deficit (e.g. Hartmanns)
- Antibiotics is truly what this patient needs
- The team may consider an early vasopressor for this patient

2. What's harmful about giving too much fluid?

- Fluid accumulates!
 - 1L = 1kg!
 - In the brain, kidney, lungs, skin, gut - causes lots of morbidity
 - E.g. delirium and gut dysfunction - due to osmotic shifts from fluid administration
- Give LESS - volume is more important than the crystalloid you choose
 - If the patient is hypovolaemic and needs fluid, give 500 mL to look for confirmatory evidence through clinical improvement
 - Oliguria can be considered to be 'acute renal success'

Case 2 - On your night shift, the nursing staff on the wards call you at 3am as they are concerned about a 65 year old female, who is day 1 post-hemicolectomy. Her urine output has dropped to 20 ml/hr and they are asking you to please fill out a fluid order.

1. What is your approach?

- Oliguria not always bad - don't use urine output as the main parameter
- Approach:

- Clinical status - talking, analgesed, warm to touch? - no fluid necessary
 - Urine output - what does it look like?
 - How small or large is the patient? - consider fluids for 45 kg frail lady vs. 95 kg
 - Examine the patient
 - How is the surgical site including the wound and abdomen?
 - Is there evidence of bleeding?
 - Abdominal compartment syndrome? - Fluid would be harmful
- What is the serum sodium, osmolarity, bicarbonate (or pH)?
 - What fluids has she been given thus far?
 - Does this patient need fluids?

Take home messages

- IV fluids are toxic drugs - their use needs to be rationalized
- Crystalloids are first-line therapy
- Always ask - does this patient really need IV fluids?

- Identifying the sick patient

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