NICE guideline and quality standards for IV fluid therapy in adults in hospital

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NICE Guidelines...

• systematically-developed recommendations on how to care for people with specific conditions
• based on the best available evidence.
The legal authority of NICE...

• April 2013 NICE was established in primary legislation, becoming a Non Departmental Public Body (NDPB) as set out in the Health and Social Care Act 2012

• accountable to the Department of Health (DH) but operationally independent of government

(NICE 2015)
NICE CG 174 – why was it needed?

- NCEPOD (1999) - mortality from too little or too much IV fluid
- estimated harm from inappropriate fluid & electrolyte management - 1 in 5 patients
- NPSA – adverse event reporting
- wide variations in clinical practice
- poor levels of evidence for non-specialist clinical areas
- prescribing often delegated to the most junior Drs
- fluids get minimal attention in undergraduate curricula
- few professionals know the composition of IV fluids
Time to ask the audience...

• What’s the sodium content of 0.9% Saline?
   a) 54 mmol/L
   b) 104 mmol/L
   c) 154 mmol/L

• What’s the sodium content of Plasmalyte 148?
   a) 41 mmol/L
   b) 141 mmol/L
   c) 161 mmol/L
Issues during guideline development

• complexity/scale of the task and the time constraint!
• very broad target population
• an astonishing lack of evidence; especially high quality evidence from RCTs and large cohort studies
• fraudulent research; a number of trials were retracted or under investigation during guideline development
• in some areas, in the absence of high quality evidence, the review strategy became one of robust pragmatism
• a number of exclusions were necessary
Exclusions from the guideline

Patients with more specialised fluid needs including:

• patients under 16 years of age
• pregnant women
• severe liver or renal disease, diabetes or burns
• intensive care and anaesthesia
• traumatic brain injury including neurosurgery
Aims of CG 174

To help prescribers understand the:

• physiological principles that underpin fluid prescribing
• pathophysiological changes that affect fluid balance in disease states
• indications for IV fluid therapy
• principles of assessing fluid balance
• reasons for the choice of the various fluids available
NICE CG 174

28 recommendations
10 key priorities for implementation across 5 domains
1. Principles & protocols for intravenous fluid therapy

✔ When prescribing IV fluids remember the 5 Rs: Resuscitation, Routine maintenance, Replacement, Redistribution, Reassessment

✔ Offer fluid therapy as part of a protocol – use the algorithms for IV fluid therapy

✔ Patients should have an IV fluid management plan detailing the fluid & electrolyte prescription for the next 24 hours and the assessment & monitoring plan
2. Assessment and monitoring

✓ Assess the patient’s likely fluid & electrolyte needs from the history, clinical examination, medications, clinical monitoring and laboratory investigations

✓ All patients on IV fluids need regular monitoring; daily assessment of fluid status, blood chemistry, fluid charts and twice weekly weights

✓ Fluid mismanagement to be reported through standard critical incident reporting to improve training and practice
3. Resuscitation

- If patients need fluid resuscitation use crystalloid fluids containing 130 – 154 mmol/L with a bolus of 500mL over < 15 min
4. Routine maintenance

If patients need IV fluids for routine maintenance alone, restrict the initial prescription to:

- 25 – 30 mL/kg/day of water and
- approx. 1 mmol/kg/day of potassium, sodium and chloride and
- approx. 50 – 100g/day of glucose to limit starvation ketosis (this is not adequate to meet nutritional needs)
- eg. A 70 kg man needs 2 litres of fluid containing 70 mmol each of Na⁺, K⁺ & Cl⁻ + a bit of sugar
5. Training & education

Systems in place to ensure competence in the principles of the guideline:

- Physiology of fluids & electrolytes in health and illness
- Assessing fluid & electrolyte needs (the 5 Rs)
- Assessing the risks, benefits & harms of IV fluids
- Prescribing & administering IV fluids
- Monitoring the response, evaluating and documenting changes
- Taking appropriate action as required

An IV fluids lead responsible for training, governance, audit & review of prescribing and patient outcomes
NICE Quality Standards - definition

• a concise sets of prioritised statements designed to **drive measurable quality improvements** within a particular area of health or care

• derived from the best available evidence such as NICE guidance and other evidence sources accredited by NICE.
Quality standard 66

**Statement 1.** Hospitals have an intravenous (IV) fluids lead who has overall responsibility for training, clinical governance, audit and review of IV fluid prescribing, and patient outcomes.

**Statement 2.** Adults receiving IV fluid therapy in hospital are cared for by healthcare professionals competent in assessing patients’ fluid and electrolyte needs, prescribing and administering IV fluids, and monitoring patient response.

**Statement 3.** Adults receiving IV fluid therapy in hospital have an IV fluid management plan, determined by and reviewed by an expert, which includes the fluid and electrolyte prescription over the next 24 hours and arrangements for assessing patients and monitoring their plan.

**Statement 4.** For adults who receive IV fluid therapy in hospital, clear incidents of fluid mismanagement are reported as critical incidents.
The aim of the Quality Standards

The quality standard is expected to contribute to improvements in the following outcomes:

✓ Mortality or serious harm from errors in fluid therapy
✓ Patient experience of hospital care
✓ Patient safety incidents reported
✓ Length of hospital stay
Who assesses quality and how...?

Who:
- Board lead for quality
- Managers at a local level
- Commissioners eg. CCGs
- CQC

How:
- Evidence and data collection
- Quality structures, training records, competency assessment processes, direct questioning, incident reporting
Resources to support implementation

• E-learning available via the NICE website
• Baseline assessment & audit tools
• Algorithm poster set
• Guide to abnormal fluid and electrolyte losses
• Guide to the composition of commonly used crystalloids
• A pathway document for IV fluids
What might the future look like?

• Under graduate curricula with a greater focus on the management of fluids and electrolytes
• Professionals competent to prescribe
• Less harm attributed to mismanagement

More importantly…..

• CG 174 ought to be a lever for industry to develop the ‘ideal’ maintenance solution
Has CG 174 made an impact...?

.....lets ask the audience