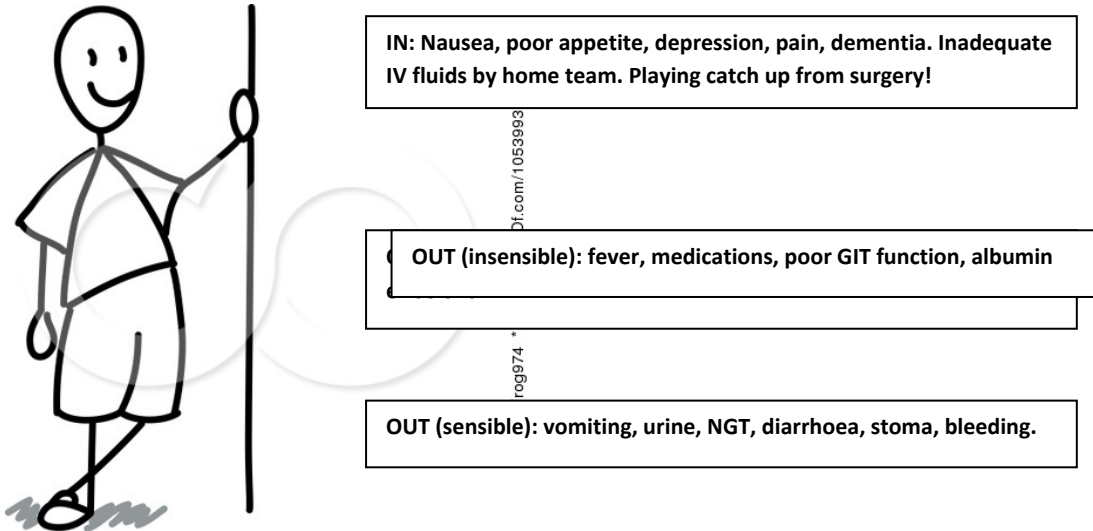


Fluid status and orders

Approach to fluids:

- Look at the patient first!
 - Fluid depleted: tired, drawn, weak. Dry MM. Low JVP. Poor urine output. Thirsty. Tachycardic. Postural drop. Slow central cap refill (should be < 2 seconds).
 - Fluid overloaded: puffy, restless, anxious. Moist MM. High JVP. Tachycardic. Tachypnoea. Peripheral oedema.
- Think about 'ins and outs'. Where is the fluid coming from and going?



What are the risks of fluid imbalance?

Overload: APO (arrest!), MI, atelectasis/pneumonia/effusion.

Underload: renal failure, confusion, MI/AF, GI ischaemia, ARDS.

Some basic principles:

1. Correct fluid abnormalities at the same rate as they have occurred
2. A safe option is to correct half the deficit, then re-assess.
3. Fluids can kill a patient, and are not to be taken lightly!

When seeing a patient with fluid imbalance:

- **IV access:** 20G or 18G if possible.
- **Bloods:** take bloods at the same time as IV access if you need electrolytes, Hb.
- **ABG:** if you are concerned about the patient bleeding or having a major electrolyte abnormality.

Examine the patient:

Listen to heart, lungs, abdomen. Feel calves. Assess JVP. Review obs – tachycardia? AF? Sats? Pulse pressure?

Then think about Ins and Outs:

INS: check FBC for intake. Diet? IVT rate? Ask about nausea, pain, quick depression screen.

OUTS: is patient on diuretics? Likely to have poor liver function (albumin)? Febrile?

OUTS: assess fluid output – FBC for vomit, urine, diarrhoea, NGT outputs. Has patient had high stomal output?

If patient doesn't have IDC: consider inserting one. FBC is not accurate without IDC. Nurses do female IDCs, doctors do male ones. 18Fr for males, 14 or 16Fr for females. Three way IDC if risk of bleeding from renal tract.

If patient has IDC: is it working? Bladder scan, palpate bladder. Ask nurses to flush it. Re-insert a new one if needed. Record the colour of what comes out!

Common ward calls

Low urine output

- Assess fluid status as above
- Remember: not everyone is the same size! A 40kg elderly woman is not going to produce a bucket of urine a day, but a 125kg man may. 30ml/hr is a **rough** guide for most adults.
- Has the urine output truly fallen? Or has the patient had a diuresis of 250ml/hr for the last day and gone back to 40ml/hr now?
- If the urine has truly “dropped off”, consider why.
 - o Most surgical patients are run a little dry intra-op and come out a bit dry, so you have to play catch up with them.
 - o True renal failure is less common on the wards than failure to give adequate IVT/oral intake
 - o Men prefer to pee standing up, so sometimes asking the nurses to get them to the loo rather than give them a bottle solves the problem.
 - o **Find the cause, treat the cause**
- Red flags: elderly patients given renal toxins (clexane, gentamicin, vancomycin, NSAIDS, etc) with the belief that *one dose can't hurt!* Inappropriate doses of gentamicin – remember IDEAL BODY WEIGHT for dose, not actual body weight.
- Generally, you can safely give a bolus of 250ml NS to most patients if you think they are dry. Document in the notes that if urine output remains <30ml/hr for two hours, the MO should be paged to review again.
- If a patient doesn't respond after the second bolus, there's something more than dehydration going on!

My simplistic approach to fluid:

- Young patients: 3 bags of fluid a day, each over 8 hr. Two of NS, one of 4% and 1/5 NS (ie two salty, one sweet).
- Elderly patients: depending on clinical scenario. If generally well and a bit dry, as above. If any history of heart failure, poor LVF, or renal failure, I don't give IVT at faster than 10 hours a bag (ie 100ml/hr).
- Shock situations: if a patient is critically low on BP and you're concerned, first CALL FOR HELP. Then large IV access, and a bag of gelofusin 500ml (stays in the blood vessels longer). NS or similar after that.
- Young patients severely dehydrated/migraine/DKA: aggressive IVT. At least two bags NS STAT. Particularly good for drunk teenagers after a binge.
- Febrile patients need more – this is often underestimated.
- Other orders: PCA – will need at least 40ml/hr as a KVO. Subcut (eg palliative care): 42ml/hr.

Final words

Furosemide is NOT a treatment for poor urine output. The main indication for furosemide is to make surgeons feel better when they look at the FBC on ward rounds!

Also, if you think a patient is dry because of sensible losses, particularly vomiting/diarrhoea, consider checking and replacing potassium in at least one of their IV bags.

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Water, water, every where,
And all the boards did shrink;
Water, water, every where,
Nor any drop to drink.