Improving initial fluid resuscitation in patients with acute pancreatitis

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Introduction

Acute pancreatitis ('**AP**') is a common cause of emergency hospital admission and is associated with significant morbidity and mortality. Early and appropriate fluid resuscitation is a cornerstone of management, yet both under and over-resuscitation are linked to worse outcomes. At our hospital, we identified variability in fluid prescribing practices and a lack of uniform fluid status monitoring which presented areas of improvement in patient care. Current Royal Devon University Healthcare (RDUH) Trust guidelines generally advocate early provision of at least 3L of preferably Hartmann's solution IV.

Aim

To audit and improve measurement of fluid intake/output ('**I/O**') and adequate initial fluid resuscitation in patients with acute pancreatitis.

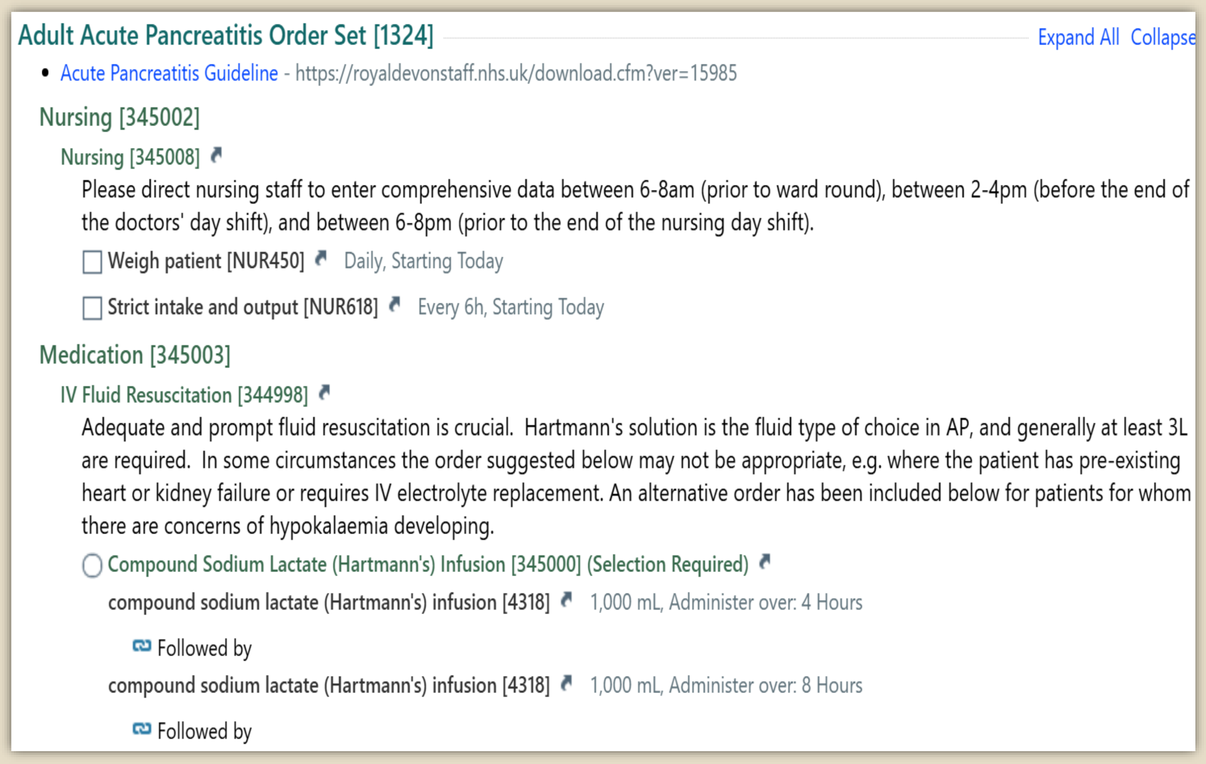
Method

Data from patients with AP discharged from the Royal Devon & Exeter hospital was collected via retrospective review of electronic notes across 2 cycles: November 2024 and January 2026. The November 2024 cohort included 16 patients aged 26-90 years old, whereas the January 2026 cohort included 24 patients aged 20-85 years old. Patients with known heart or kidney failure were excluded.

Intervention

Between the two cycles, an electronic order set was designed and implemented within the Trust's electronic software, incorporating a checkbox management list for AP patients including:

- Nursing orders for I/O monitoring and to weigh the patient
- IV fluid resuscitation with 3L Hartmann's prescribed over 24h as follow on orders
- Analgesia and opioid reversal medication
- VTE prophylaxis
- Specialist consultation orders
- AP specific blood tests and imaging
- Orders for those with high alcohol intake (CIWA scoring, benzodiazepines, vitamin replacement)



Adult Acute Pancreatitis Order Set [1324] — Expand All Collapse

- Acute Pancreatitis Guideline - https://royaldevonstaff.nhs.uk/download.cfm?ver=15985

Nursing [345002]

Nursing [345008]

Please direct nursing staff to enter comprehensive data between 6-8am (prior to ward round), between 2-4pm (before the end of the doctors' day shift), and between 6-8pm (prior to the end of the nursing day shift).

☐ Weigh patient [NUR450] Daily, Starting Today

☐ Strict intake and output [NUR618] Every 6h, Starting Today

Medication [345003]

IV Fluid Resuscitation [344998]

Adequate and prompt fluid resuscitation is crucial. Hartmann's solution is the fluid type of choice in AP, and generally at least 3L are required. In some circumstances the order suggested below may not be appropriate, e.g. where the patient has pre-existing heart or kidney failure or requires IV electrolyte replacement. An alternative order has been included below for patients for whom there are concerns of hypokalaemia developing.

○ Compound Sodium Lactate (Hartmann's) Infusion [345000] (Selection Required)

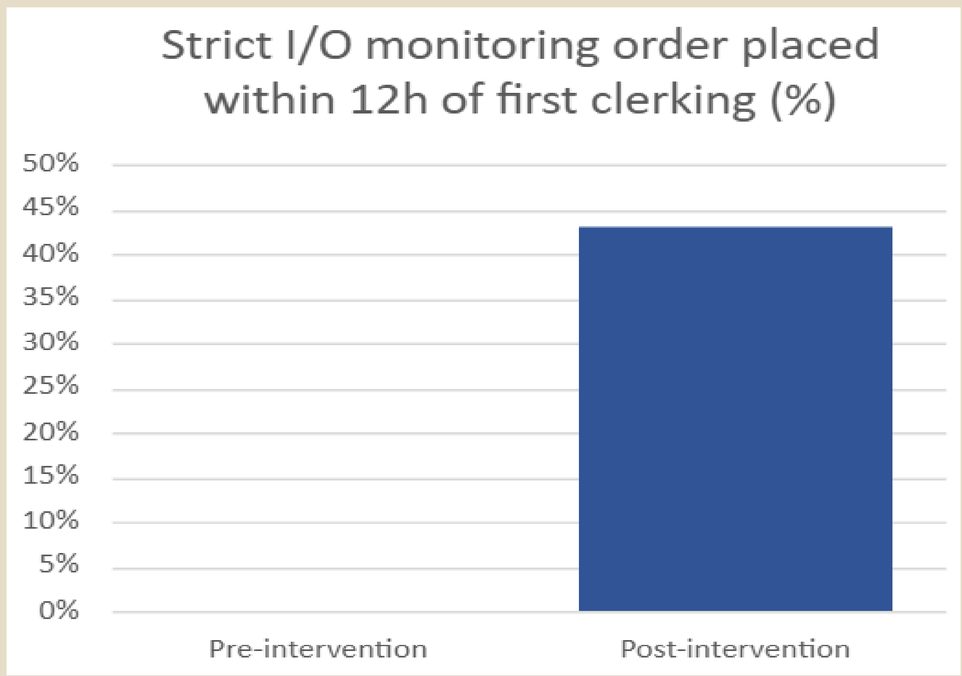
compound sodium lactate (Hartmann's) infusion [4318] 1,000 mL, Administer over: 4 Hours

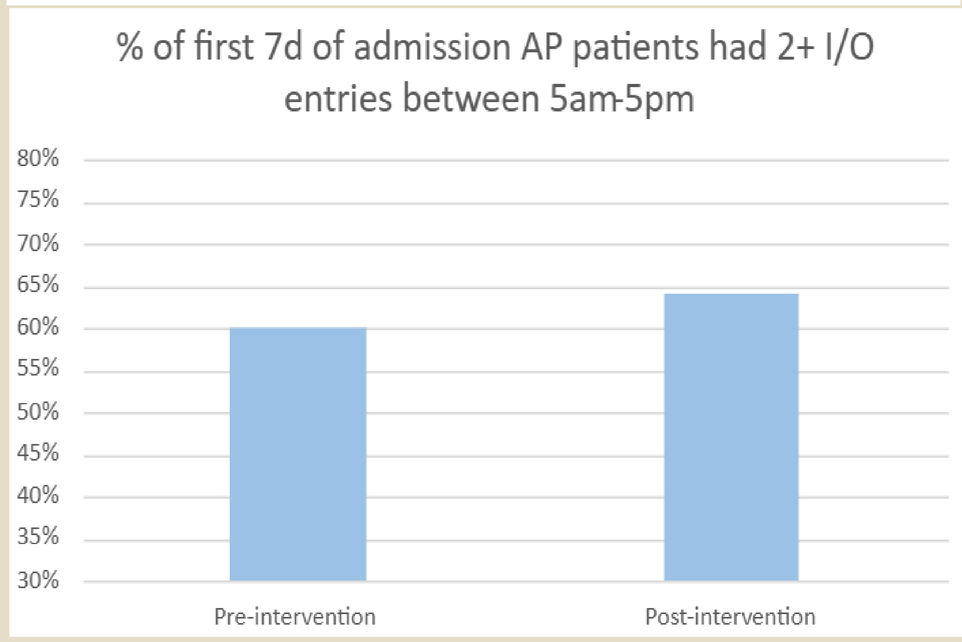
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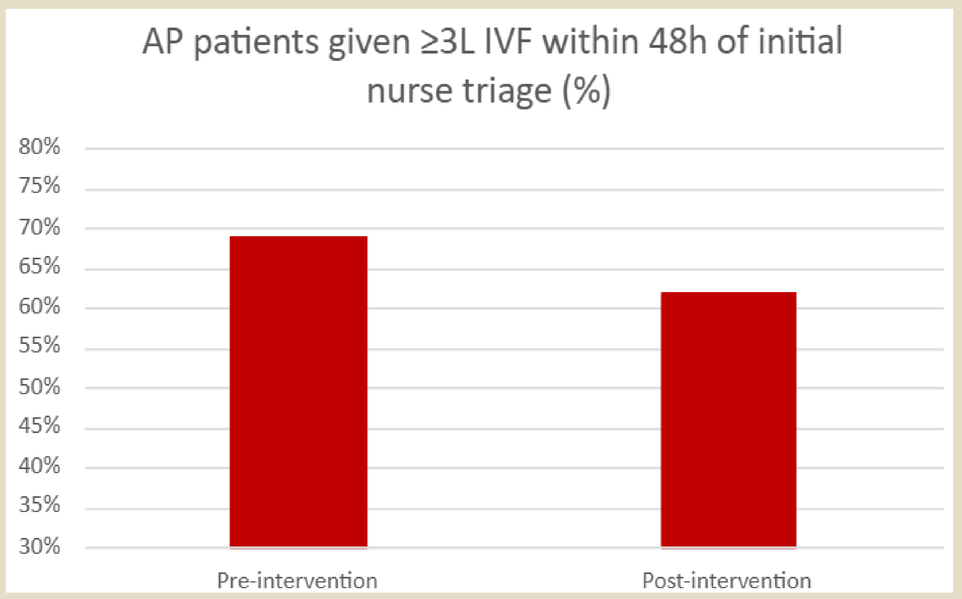
compound sodium lactate (Hartmann's) infusion [4318] 1,000 mL, Administer over: 8 Hours

Followed by

Results







Conclusion

The results are mixed and it is unclear to what extent changes relate to the new order set. While there were improvements in I/O monitoring orders being placed promptly and I/O subsequently monitored, the proportion of AP patients receiving 3L IVF within 48h decreased. Our findings suggest there is still room for improvement in initial IV fluid resuscitation of AP patients. A third cycle may benefit from a larger patient sample group, and consideration of factors preventing IV fluid resuscitation targets being met, for example oral intake. There may also be benefit in auditing whether patient pathway impacts fluid resuscitation and taking further steps to increase order set awareness and usage.