

Traffic Light Water Jug Lids

A Trust-Wide Quality Improvement Project

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Background

- Older adults are susceptible to dehydration due to acute and chronic health problems, which impair thirst, reduce the ability to drink sufficiently and/or increase urinary, skin and respiratory fluid loss¹.
- During hospitalisation negative fluid balance often occurs and is independently associated with poorer clinical outcomes²⁻⁵, longer length of stay and greater costs⁶⁻⁸.
- Although it is a clinical priority to recognise and address risks of insufficient oral fluid intake, there is no standardised nurse-led assessment or formal bedside response protocol commonly applied.

A word on dehydration

- Dehydration can result from deficient water intake (low intake dehydration), volume depletion or both⁹.
- Low-intake (hypertonic) dehydration is common in older adults, and the most effective form of prevention is drinking⁹.
- The key principles of helping a patient to drink have remained unchanged and are clearly reflected in evidence-based national guidelines⁹.
- Preventable dehydration has long been associated with neglect and is an indication of poor quality care.

So what is the proposed intervention?



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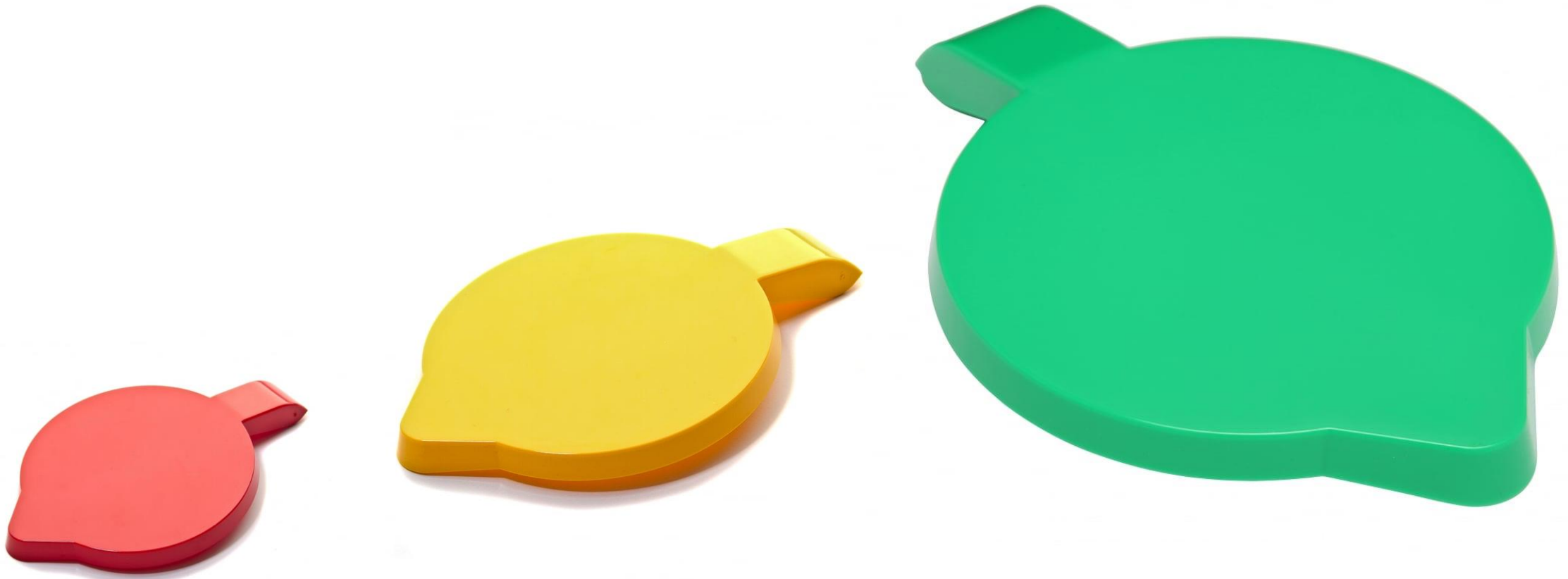
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Water Jug Lids

Patients in hospital are at risk of dehydration. By using a simple, visual way of monitoring how much patients are drinking, we can work together to prevent dehydration, improving cognition, reducing falls and acute kidney injury (AKI).

Different colour jug lids show how much patients are drinking.



Daily Routine

7.30am

Ward Assistants will give every patient a 750ml jug of water with a **RED** lid.

12.00pm

Health Care Assistants will check every patient's water jug.

If jug is **EMPTY**, refill and change the lid to **AMBER** (update FB chart if applicable. Document in care plan).

2.30pm

Health Care Assistants will check every patient's water jug.

If jug is empty and lid is **AMBER**, refill and change the lid to **GREEN**.

If Jug is empty and lid is **RED**, change to **AMBER**.

If lid still RED, inform nursing staff (update FB chart if applicable. Document in care plan).

Health Care Assistants should flag those patients who still have a red lid on their jug after the 2.30pm round to the nursing staff.

Nursing staff should ensure there is a clinical review of the patient if still on a red lidded jug at 2.30pm.

What data supports making such a change?



South Tees pilot study results

	Baseline	Post Intervention Timepoint 1	Post Intervention Timepoint 2	Post Intervention Timepoint 3
Date	13/05/2019	17/05/2019	25/06/2019	28/06/2019
Ward	RAFA Unit	RAFA Unit	RAFA Unit	RAFA Unit
Ward Patients	28	28	27	28
Eligible Patients	25	26	23	25
Included Patients	25	26	23	25
Minimum Oral Intake (ml)	550	900	500	600
Maximum Oral Intake (ml)	750	1300	2150	1900
Oral Intake Range (ml)	200	400	1650	1300
Mean Oral Intake (ml)	(650)	(1100)	1058	1125
Oral Intake >1000 ml	0		11	
Oral Intake >1500 ml	0		3	3
Patients on IV Fluids	8	6	5	2
Bristol Stool Score	4.70	3.96	3.80	4.10
AKI Alerts				



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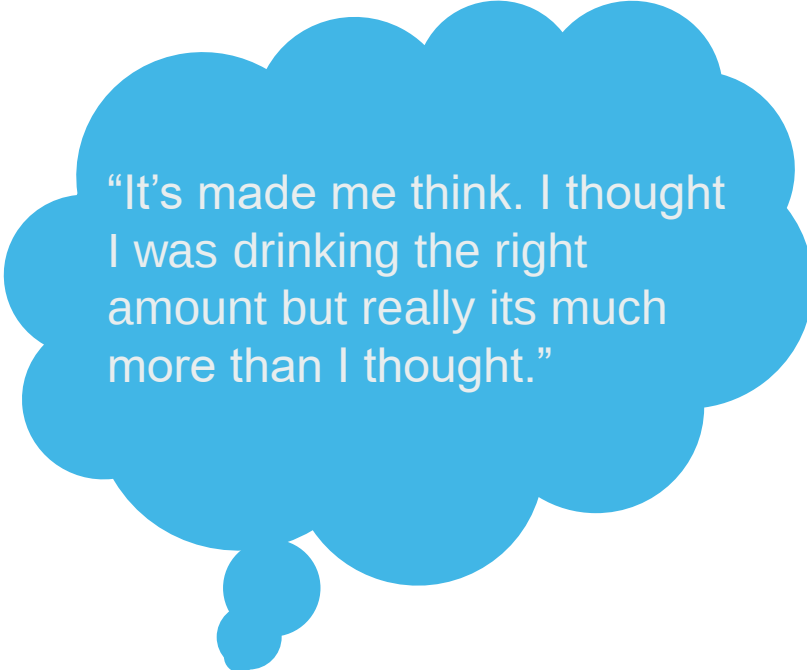
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Ward	RAFA Unit	RAFA Unit	RAFA Unit	RAFA Unit	Ward 34	Ward 34	Ward 34
Ward Patients	28	28	27	28	33	34	31
Eligible Patients	25	26	23	25	23	28	27
Included Patients	25	26	23	25	23	28	25
Minimum Oral Intake (ml)	550	900	500	600	300	900	800
Maximum Oral Intake (ml)	750	1300	2150	1900	3100	3000	2000
Oral Intake Range (ml)	200	400	1650	1300	2800	2100	1200
Mean Oral Intake (ml)	(650)	(1100)	1058	1125	1159	1472	1374
Oral Intake >1000 ml	0		11				
Oral Intake >1500 ml	0		3	3	4	8	9
Patients on IV Fluids	8	6	5	2	2	0	0
Bristol Stool Score	4.70	3.96	3.80	4.10	1.57	3.75	4.52
AKI Alerts					2	2	0

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AKI Alerts							

Selected feedback



"It's made me think. I thought I was drinking the right amount but really its much more than I thought."



"It helps me keep a closer eye on when he's drinking. I've felt more confident about his fluid intake. Makes me feel like he's getting well looked after."



"Its easier to see. It helps me prompt if I see a red top at lunchtime. Better visual awareness. Patients more aware and competitive."



Costings

- £1.08 including VAT per jug lid
- Total cost under £100 for a 30-bedded ward



Project advantages

- Paper-light and popular intervention
- Extremely likely to be cost-effective
- Environmentally responsible
- Quick and simple to initiate

Areas of potential concern?

- Medically unsuitable patients
 - Palliative patients
 - Maternity/paediatric patients
- } to remain on blue-topped lids
- Red jug lids (in isolation) used to highlight poor intake patients
 - discontinue this system
 - Solid red jugs used to highlight those needing assistance
 - to continue operating this system



How did this project develop?

- *York Teaching Hospital NHS Foundation Trust*
 - Patient safety & improvement fellow QI project 2015
- *Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust*
 - Older person's medicine ward pilot 2018
 - UK Kidney Week 2019 poster presentation (Brighton)



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 - Trust-wide launch September 2019
 - Nursing Times [article](#) November 2019



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- *The Rotherham NHS Foundation Trust*
- *South Tees Hospitals NHS Foundation Trust*



South Tees Hospitals NHS Foundation Trust



Project introduced to RAFA and Ward 34 May '19 and Jan '20 respectively



South Tees Hospitals NHS Foundation Trust



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Rolled out trust-wide June '21



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Rolled out trust-wide June '21



Audit work during 2022 showed sub-optimal system implementation



Lessons learned

- Yellow lids instead of amber
- Water jugs to be changed regularly with cold water
- More *active* prompting by staff to drink fluids
- Ward hydration champions encouraged
- Competition established for best hydration display on the wards
- Information sheets to encourage and increase patient awareness
- Further monitoring measures, e.g. bay signs showing current lids
- Monthly checks of jug lid status on wards



South Tees Hospitals NHS Foundation Trust



Project introduced to RAFA and Ward 34 May '19 and Jan '20 respectively



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Staggered relaunch (surgery Aug '22, medicine Sept '22, then full trust-wide "refresh" Sept '23)



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Rolled out trust-wide June '21



Audit work during 2022 showed sub-optimal system implementation



Staggered relaunch (surgery Aug '22, medicine Sept '22, then full trust-wide "refresh" Sept '23)



Audit work (pre- and post-trust refresh) showed increased engagement in areas

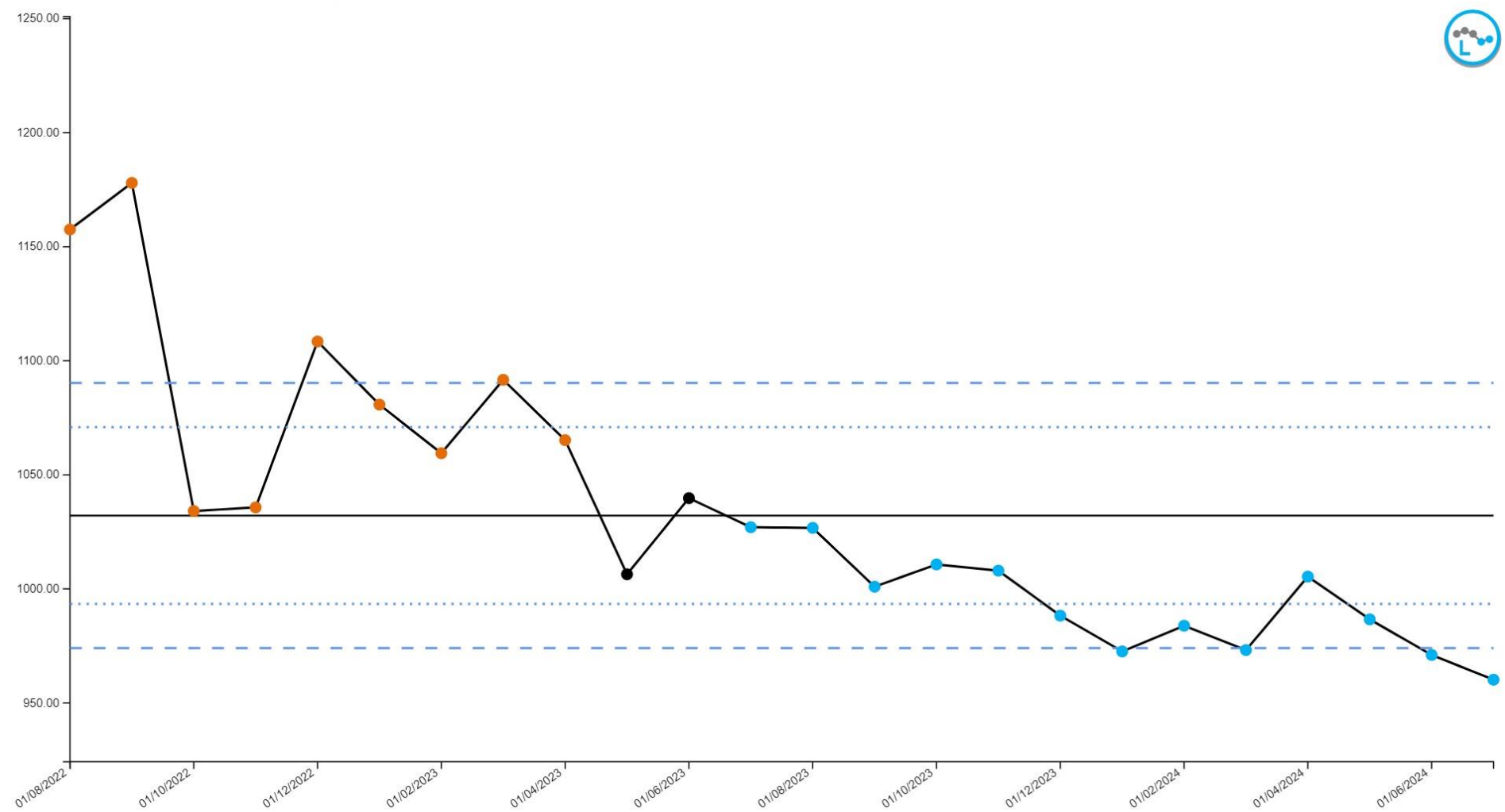


What has been the measurable impact at South Tees?

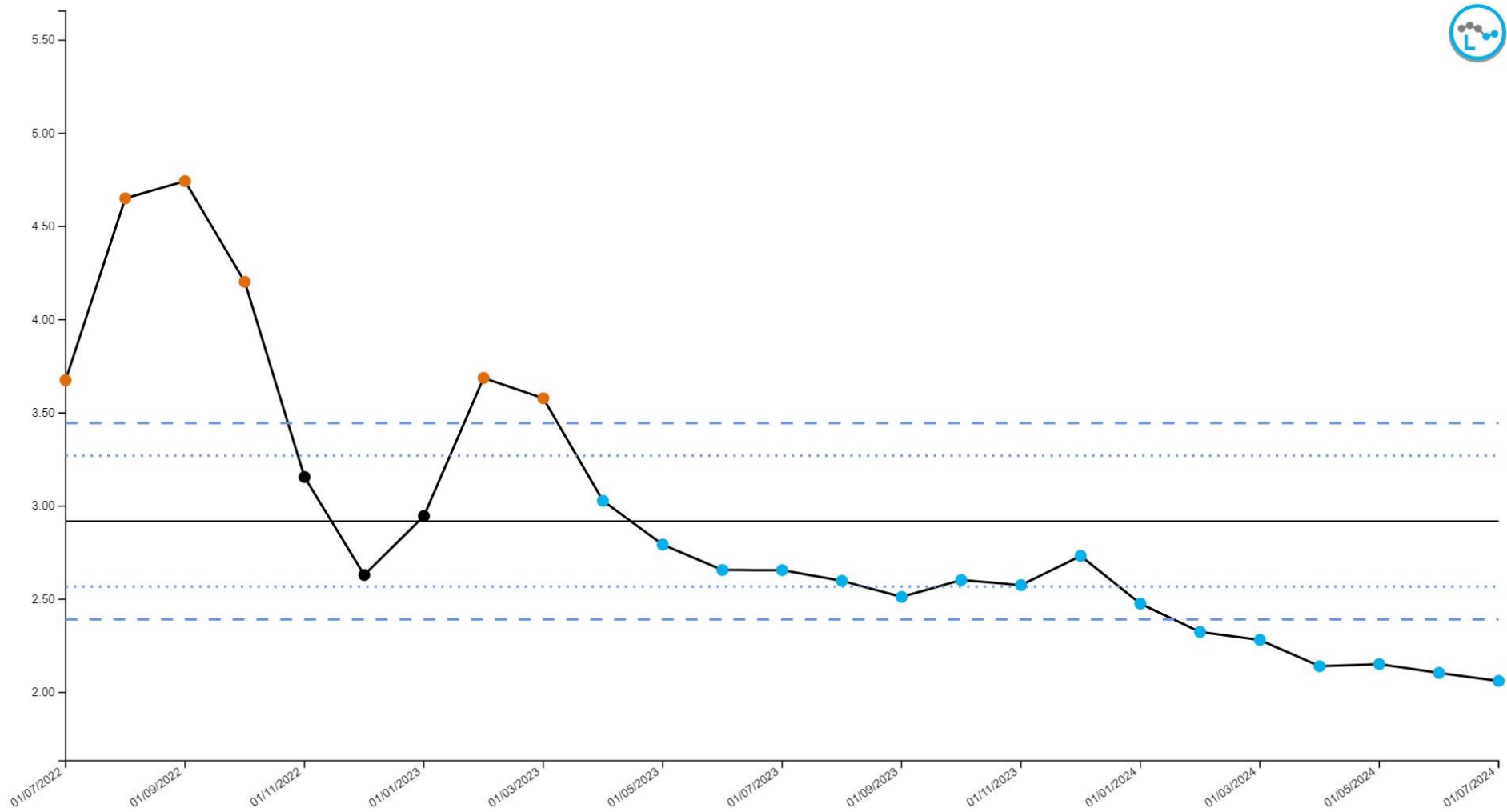
- Hospital episode data sought for all adult, non-day case discharges between 1st July 2022 and 31st July 2024
- Over 160,000 patient episodes were recorded in this timeframe
- Using multiple electronic database packages, it was possible to assess the wider impact of the project via a number of key metrics



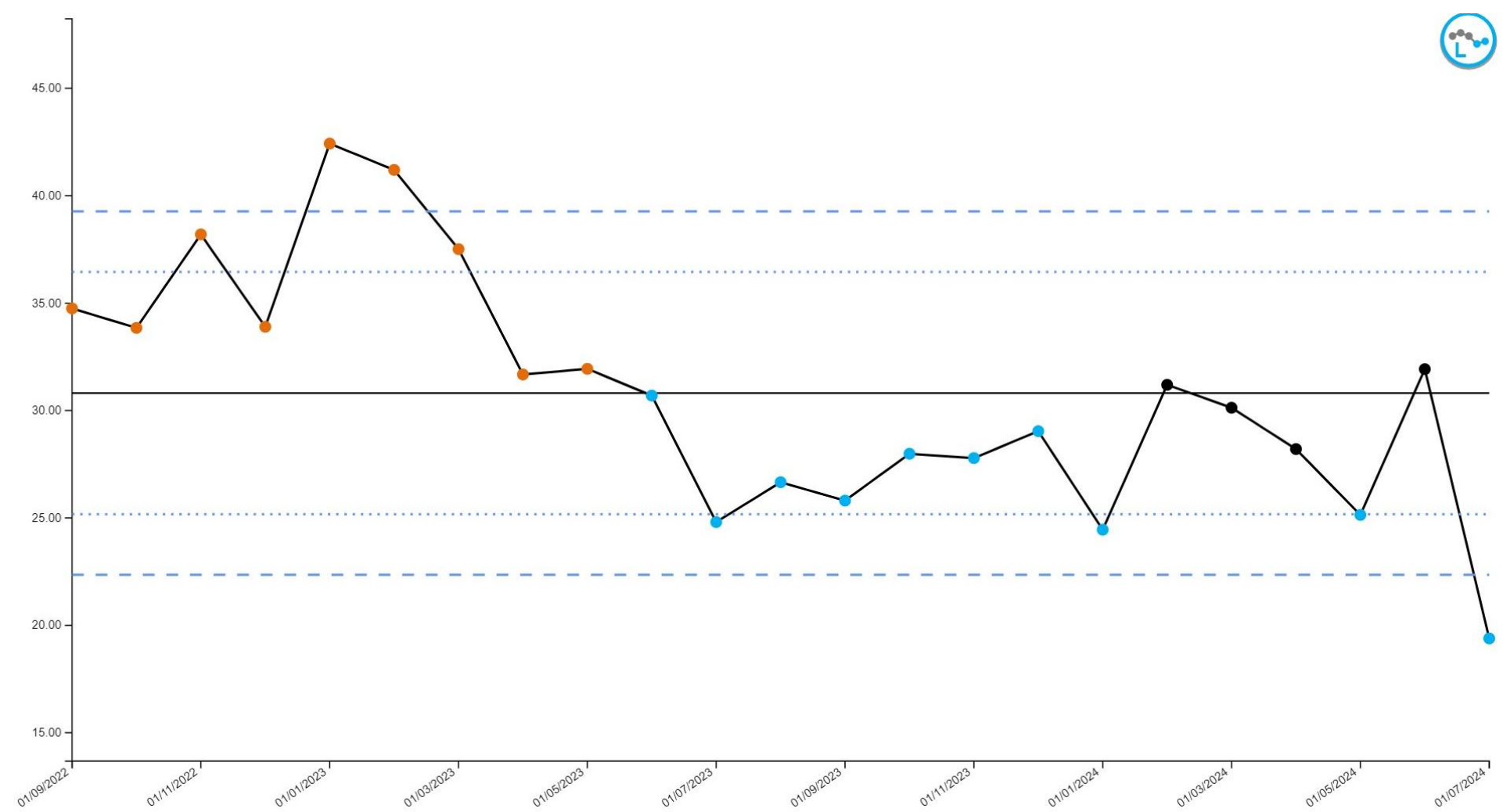
Maintenance intravenous fluid use (ml per patient, per day)



Laxative use (doses per patient, per stay)

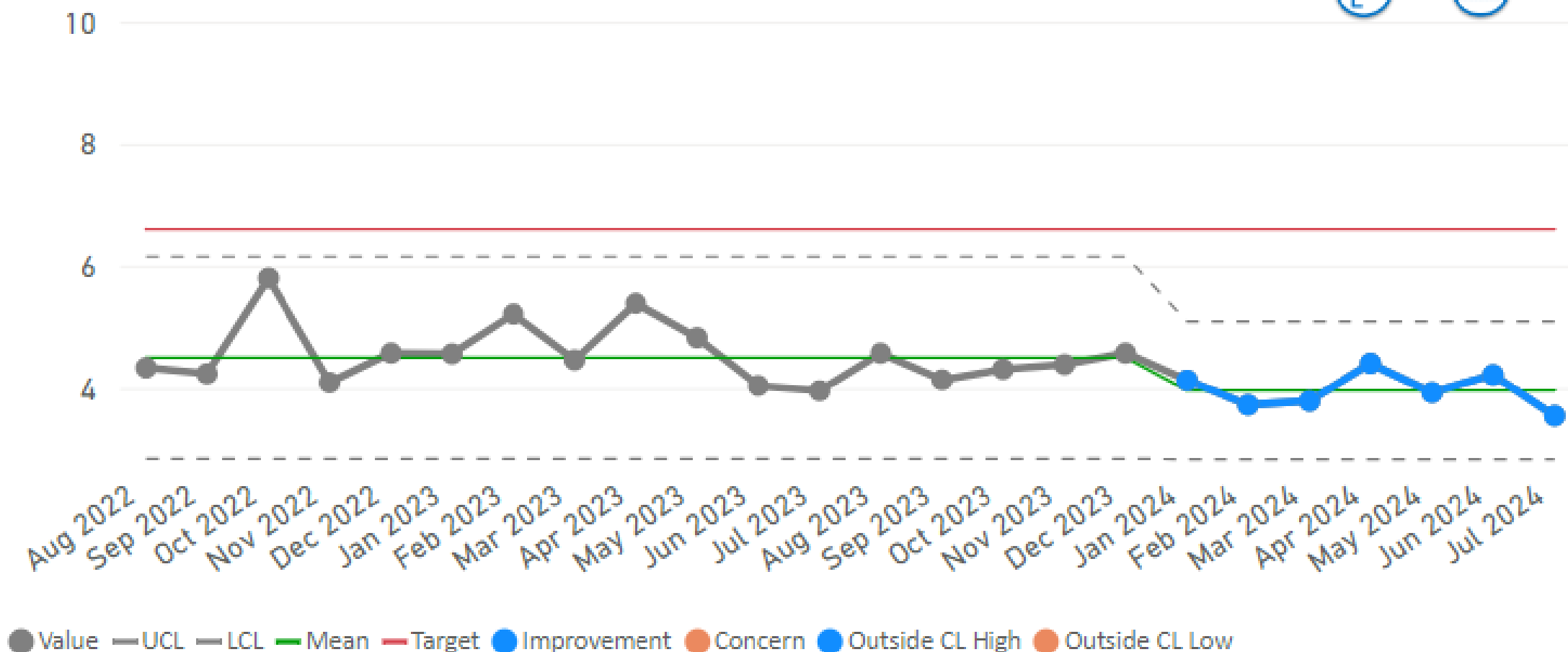


Sacral pressure ulcer incidence (per 1000 patient episodes)

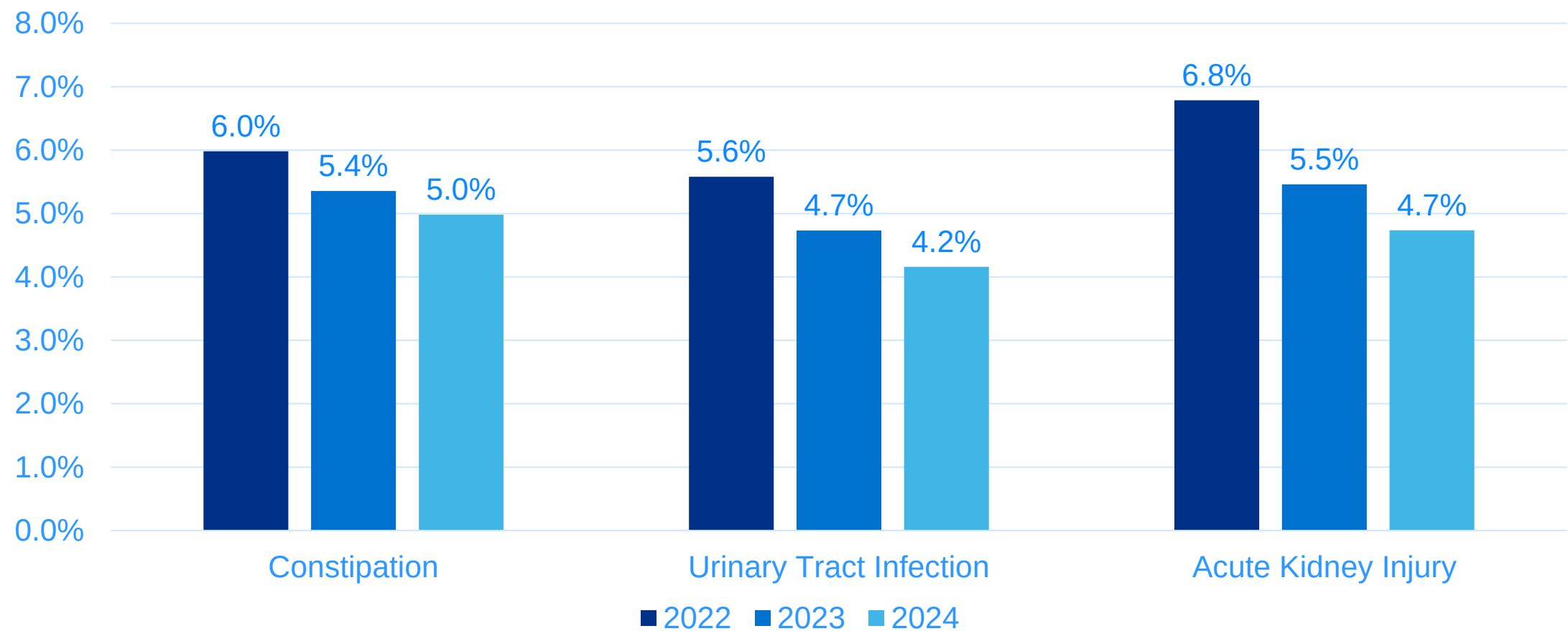


Falls Rate % (Per 1000 Bed Days)

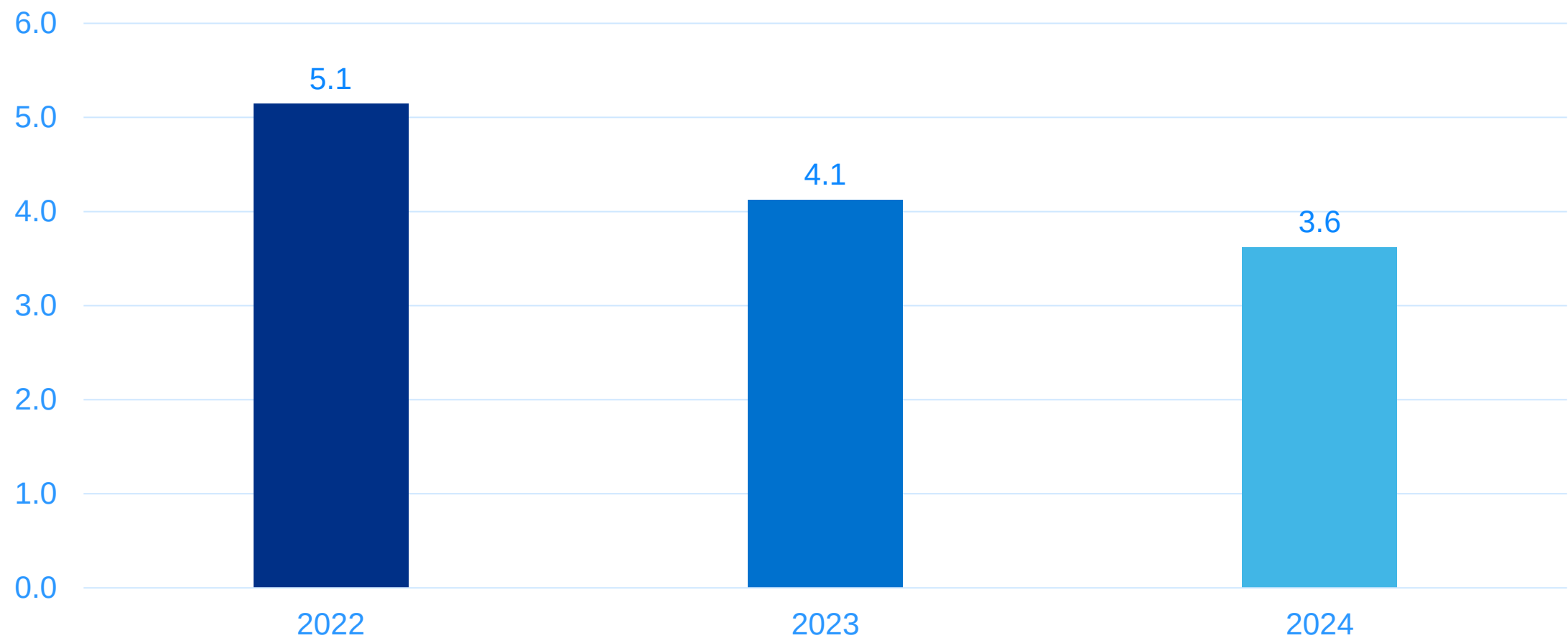
Month	Performance	Target	Trend	Assurance
Jul 2024	3.5	6.6		



Coded diagnoses on discharge



Mean length of stay (days, excluding critical care)



Conclusions

- A simple and likely cost-effective quality improvement project demonstrated a marked and sustained increase in measured oral fluid intake on both an acute older persons' medical admissions unit and general orthopaedic ward at South Tees.
- The project was popular with patients, relatives and staff and had multiple associated halo effects that look to have been reproduced following trust-wide rollout.
- The potential impact on care is substantial, further project dissemination could be straightforward and there is clear relevance to both health *and* social care settings.

Acknowledgements

- **at York**
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Questions?

