

A Simple Solution? The challenges of accurately preparing St Mark's Oral Rehydration Solution on the ward.

Margaret Collins, Specialist Nurse, Nutrition Support Team

Introduction

St Mark's oral rehydration solution (ORS) is used in patients with a high output ileostomy or jejunostomy, usually associated with short bowel syndrome.⁽¹⁾ Hypotonic drinks are restricted over a 24 hour period and St Mark's ORS taken as additional oral fluid. The aim is to reduce stoma output and maintain hydration by promoting sodium and water absorption in the jejunum.⁽²⁾ The recipe is for an ORS with a sodium concentration of 90mmol/Litre.⁽³⁾

Method

This project has two parts:

A questionnaire was used to investigate the experience of staff in using St Mark's ORS. This was completed by 12 ward staff. Questions were posed to gauge their knowledge on the rationale for St Mark's ORS and any difficulties they faced in making it on the ward.

Secondly, a **study** was created to determine the accuracy of using a measuring spoon to make St Mark's ORS.

29 participants followed our Trust pharmacy recipe measuring dry ingredients using a 5ml/2.5ml medicine spoon.

Each ingredient was weighed on electronic scales⁽⁴⁾ and the actual weight was compared to the desired weight.

The potential sodium concentration in mmol was calculated based on the amounts of sodium chloride and sodium bicarbonate measured by each participant.

Table 1. Question & Responses

When is St Mark's ORS used?

High output stoma (4)	Hydration (1)
Deranged electrolytes (1)	For ileostomy (1)
Diabetics (1)	IBD patients (1)
	Malnutrition (1)

What does St Mark's solution do?

Rehydration and/or prevents rehydration (3)	Reduces output (1)
In IBD with malnutrition (1)	Osmolality regulation (1)
Replace electrolytes (5)	No answer given (2)

What difficulties & concerns do you have about making St Mark's ORS?

- "Getting the measurements right"
- "A heaped teaspoon is different for all people"
- "Inconsistency of measurement"
- "Unsure if accurate measurements are achieved if using spoons"
- "Lack of 1 litre jugs"

References

1. Nightingale, J. (2001). *Intestinal failure*. London: Greenwich Medical Media.
2. Nightingale J. & Woodward J., on behalf of the Small Bowel & Nutrition Committee of the British Society of Gastroenterology. (2006). *Guidelines on the management of patients with a short bowel*. GUT, 55, (Suppl IV), [online] Available at :http://www.bsg.org.uk/pdf_word_docs/short_bowel.pdf [Accessed 26 Jun.2016].
3. Evidence.nhs.uk. (2015). *NICE Evidence Search | "What is St Mark's Electrolyte mix"*. [online] Available at: <https://www.evidence.nhs.uk/search?q=%22What+is+St+Mark's+Electrolyte+mix%22> [Accessed 19 Jun. 2016].
4. U-manual.com. (2016). *SALTER Kitchen Scale manual in the English language - list of available manuals for download | u-manual.com*. [online] Available at: <https://www.u-manual.com/brands-6/SALTER/53-kitchen-scale/en-english-languages.html> [Accessed 19 Jun. 2016].

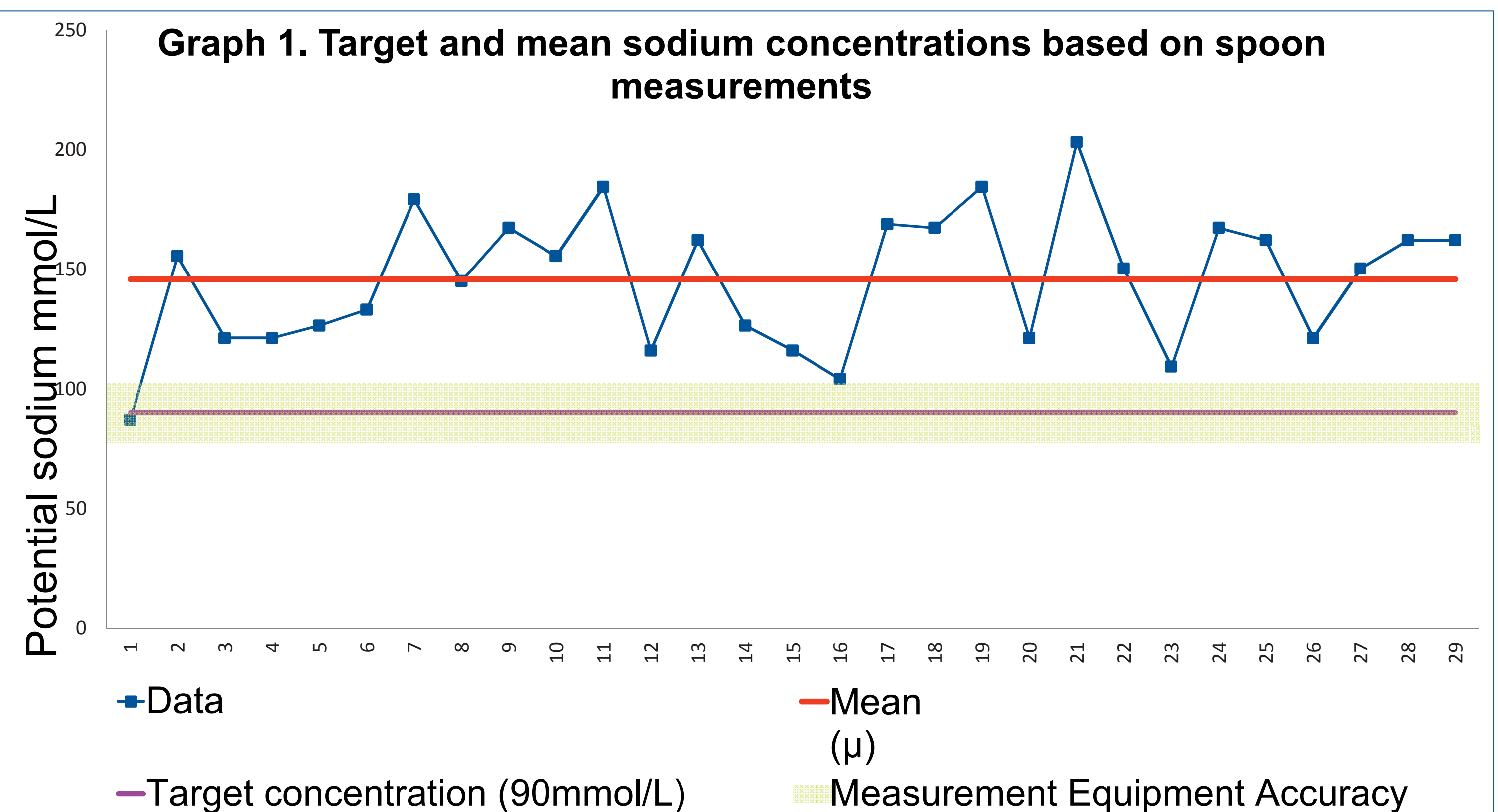
Results

Results show that the use of a measuring spoon to make St Mark's ORS produced a drink with a potential mean sodium concentration of 150mmol.

Table 2. Results comparing spoon measurements to weight*

Ingredient	Target Weight	Result Mean (range)	% error
Sodium chloride	3.5g	5.8g (3-8g)*	66%
Sodium bicarbonate	2.5g	3.9g (2-7g)*	56%
Glucose	20g	19.4g (13-30g)	-3%

* The electronic scales used in this study were accurate to 0.5g and precise to 1g.



Results

Making St Mark's ORS with a spoon produces a drink with an excessively high sodium concentration. This has a detrimental effect on:

- Palatability
- Compliance
- Renal excretion
- Fluid absorption

Action

- Procurement of precision electronic scales and 1 litre jugs for all wards where St Mark's ORS is used.
- Staff training on rationale for use of and accuracy in making St Mark's ORS.
- Revision of current pharmacy instructions on making ORS to highlight the importance of accuracy and the use of scales to achieve this.

Future Plans

- Evaluate accuracy in making St Mark's ORS 3 months after proposed changes implemented.
- Assess for ongoing issues regarding equipment provision, staff knowledge and skill and address gaps.
- Prospectively audit patient tolerance of and effect of St Mark's ORS in management of high output stomas.

PDF- Acceptance

