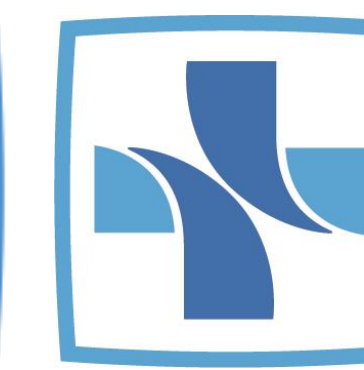




**Singapore Healthcare
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Self-Charting of Intake and Output: Are our Patients and Caregivers engaged?

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Introduction

The healthcare landscape in Singapore is facing a declining nursing workforce which is expected to reduce by 30% in 2030. Coupled with Singapore's aging population leading to an increase in the patient loads at our hospitals and a shift in patient expectations, these have presented as significant challenges to our nurses today.

From focus group discussions conducted with nurses from SGH, KKH and NHCS in 2017, four key areas were identified that required intervention:

Time-consuming
Administrative
Duties, i.e.
ordering diet

Too little time for
Patient
Education

Tedious
Coordination of
Care

Rising Caregiver
Expectations

The Self-Charting of Intake and Output was hence conceptualised to encourage patients and caregivers to participate actively in self-care activities, allowing nurses to focus on direct patient care and higher value-added activities. The initiative was piloted to test patients' receptiveness towards this activity.

With better participation amongst patients in self-care, patients will be empowered to:



Manage their health better



Make more informed decisions regarding their own health

Methodology



We adopted and employed the Plan-Do-Study-Act cycle in an iterative manner, such that the charting forms were reviewed, refined and enhanced over a period of 6 months (between September 2018 and February 2019).

The Plan-Do-Study-Act cycle consists of the following four key steps:

Plan

☐ Establish the hypothesis

Do

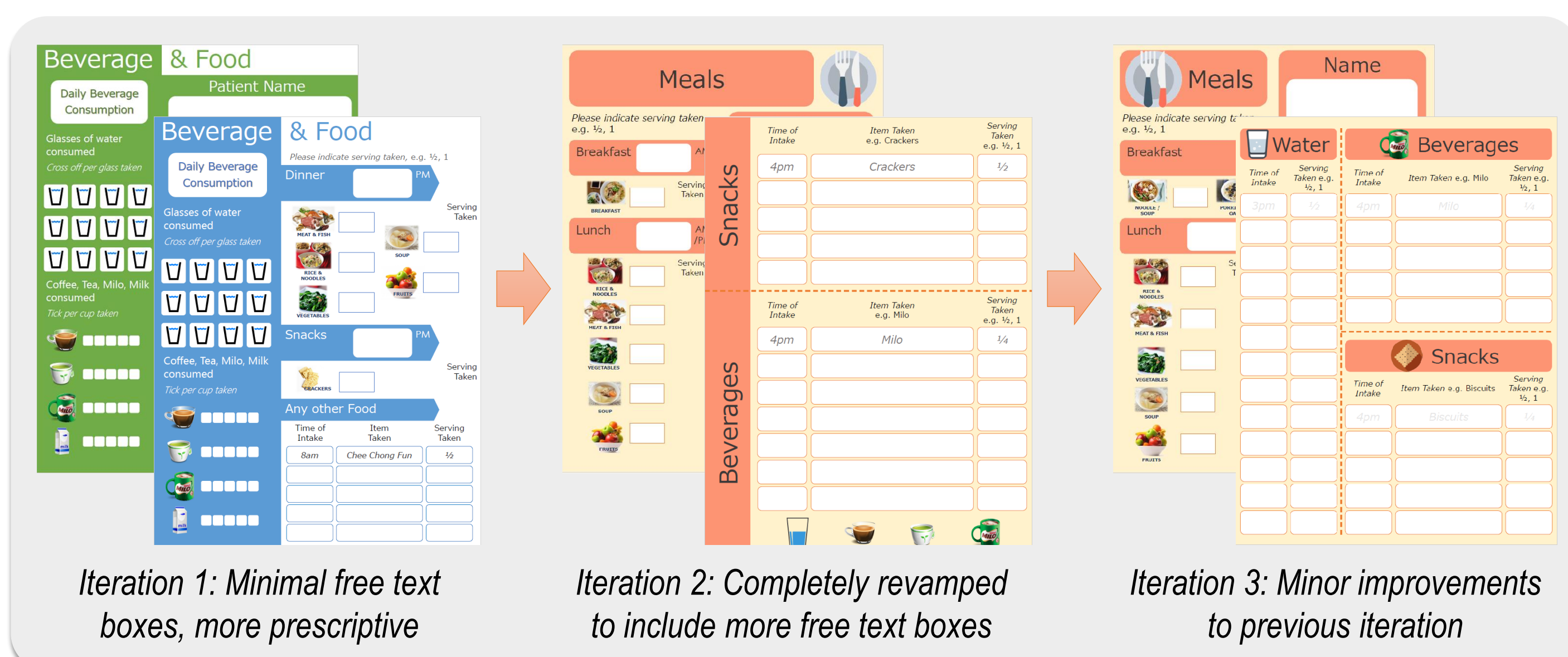
☐ Test hypothesis by prototyping

Study

☐ Use data to analyse result

Act

☐ Refine / adjust hypothesis



The first phase of the initiative included only the charting of Intake, as we felt that Output charting was more complicated to a patient's perspective.

We deployed the charts across selected inpatient wards in SGH, KKH and CGH. Nurses identified patients and caregivers suitable to perform self-charting and issued these forms to them on a daily basis. Thereafter, these were collected back and analysed to make refinements and the process was repeated.



2 wards



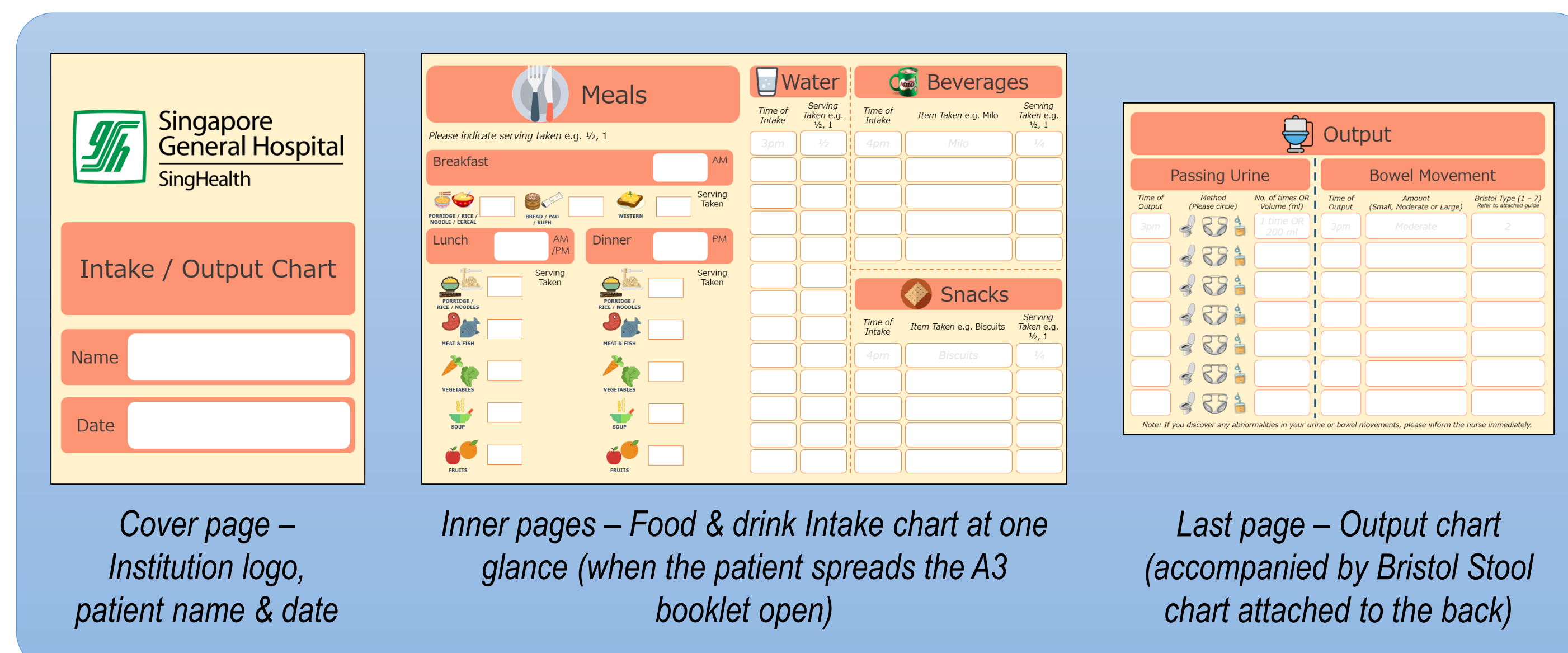
**3 wards
(1 Adult & 2 Paediatrics)**



2 wards

Results

The second and final phase incorporated the Output chart as a combined A3-sized booklet and these were tested across the same seven wards, along with a Bristol Stool chart which aims to educate patients on how to recognise and identify the type of bowel output to aid in their accurate charting:



The adoption rates for this combined booklet were measured over a period of 2 weeks in the second-half of February 2019:



Adult setting (5 wards total):

59%



Paediatrics setting (2 wards total):

73%

We also conducted a questionnaire to solicit feedback from the patients who took part in this pilot. Of the 126 patients who were surveyed, a high majority favoured the Self-Charting of Intake and Output:

92.9%

Agreed or strongly agreed that the layout and presentation of the chart was user friendly

91.3%

Agreed or strongly agreed that they had no difficulty in performing Self-Charting

Conclusion

The pilot results have exceeded the expected adoption of 3% and 50% for adult- and paediatric-setting wards respectively. The difference in expectation can be attributed to the very small subset of the patient population in adult-setting wards who are expected to chart their Intake and Output, as opposed to paediatric-setting wards where currently 100% of patients are expected to self-chart. The high adoption rates suggest that our patients are engaged and receptive towards self-charting of Intake and Output.

As a result of the positive findings, the potential for electronic self-charting is being explored for scale-up across the SingHealth hospitals, leveraging on the Nursing Software Suite which comprises the following key modules.



Through the implementation of the Nursing Software Suite, it is postulated that there will be **increased empowerment and flexibility** for patients in managing their own day-to-day itinerary while in hospital, as well as **enhanced information delivery** for patient education and orientation, resulting in better communication with patients.