

Enhancing food diet preparation and dispensing process to optimise nurses' utilisation and productivity during meal and feeding times

A. Problem Statement (current state)

The task of preparing and serving food during mealtimes is an administrative and time-consuming activity. These tasks are being carried out by the nursing care staff. This resource could otherwise be better utilised to feed residents with high levels of care needs or perform other productive tasks.

Currently, the nurse submits meal orders to the in-house kitchen every week. The kitchen will purchase and prepare the food. The food will then be placed on the respective food trolleys of the different wards. Once ready, the nurses will collect and deliver the food trolley to their wards, where they will then prepare and plate each individual's food. Then, the nurse will proceed to support feeding the residents who needs feeding.

A case in point is the preparing and serving food for the residents (elderly and the children).

During mealtimes, the nurses are mobilized to oversee the preparation and distribution of food based on the above process. While on the surface this may appear to be a straightforward task, there are several complexities and considerations to note:

1. Feeding assistance: Vulnerable residents (elderly and children) require different levels of assistance or supervision when taking their meals (depending on the individuals' ability to care for themselves). Generally, the children (aged below 18 years old), require 1:1 feeding support for the entire duration of meal times.
2. Different dietary needs: Residents may have different dietary requirements, e.g. certain food types they can eat as a result of swallowing difficulty, health conditions (e.g. renal, diabetes, high cholesterol, etc), food allergies, or just preferences. Adding to this challenge, each resident may require different food calories or even prefers to consume different food quantities. Nurses need to remember these preferences/requirements based on root memory, and this may risk the chance of providing the wrong food type or quantity to the resident.
3. Up-to-date dietary records: Maintaining up-to-date records of each resident is arduous. The nurse needs to look up the list and change the food requirement every time a new order has been made. Yet, the lack of up-to-date records may lead to wrong food consumption for the residents. The challenge of maintaining accurate records further exacerbates the shortage of nursing time, as staff may spend more time on administrative tasks and less time on direct resident care.

The above complexities are not limited. Every ward has different residents requiring different types and levels of care. Nurses have the responsibility to ensure that food safety and hygiene protocols are adhered and cater to the individual diet and preferential needs. As a result, the utilisation of nursing resources to prepare and serve food takes away opportunities to perform essential tasks, reducing the overall efficiency of care provided in the facility. The consequences of these challenges are significant. The shortage of nursing time limits the attention and care that each resident receives, potentially leading to decreased monitoring and oversight of their overall health, safety, and wellbeing. Moreover, the added burden of

non-direct resident care tasks affects nursing staff morale, job satisfaction, and overall efficiency and may be beneficial if better utilised.

B. Challenge Statement

How might we enhance the process of diet preparation and serve our residents' meals timely and correctly?

C. What are we looking for? (to-be state)

1. Join us on this discovery and collaborative journey through HealthX to explore and build newer, valuable technology-enabled solutions to:
 - a. Optimise utilisation and productivity of nurses – reduce resource waste in purchasing, preparing, and delivery of meals and ensure timely serving of meals to residents
 - b. Improve the quality of resident care – ensure that our residents received the right portion of food and meal type, and ensure timely serving of meals
 - c. Enable providers – equip nurses with tools and solutions to manage the food preparation and dispensing process, from customized individual meal planning to food dispensing
2. General performance requirements:
 - a. Intuitive Usability: Solution should be low-complex and user-friendly with minimal guidance and support
 - b. Scalable: The proposed solutions must be easily scaled across similar use cases in other institutions
 - c. Cost-effective: The proposed solutions must be cost-effective to support the solution to scale across other institutions. To support time motion study (if needed) to justify/ support the business case and ROI.