Quality Improvement Project

Leveraging an Experience-Based Codesign Approach to Improve the Inpatient Food Service Experience

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ABSTRACT

Introduction: Hospital food service is a key patient experience domain in an inpatient setting, which also plays an important role in responding to clinical and nutritional needs by providing food that is acceptable to patients. To achieve the strategic objective of a "distinguished patient experience," a Food Service Patient Experience Improvement Project was implemented at Al Hada Armed Forces Hospital during the second quarter of 2021 (Q2-2021) to improve the patient experience of meals at inpatient units. **Methods:** A quasi-experimental study design was used to assess the improvements in the inpatient meal experience by implementing an experience-based codesign approach. Improvements in the inpatient setting patient experience survey (Press Ganey) meals domain were measured. SQUIRE 2.0 guidelines were used to report this quality improvement project. **Results:** A significant improvement was observed in the inpatient meals patient experience mean score before (Q1-2021, 68.75) versus after (Q3-2021, 81.93) the implementation of the Food Service Patient Experience Improvement Project. **Conclusion:** Food services are an important element in the patient recovery process and experience. The experience-based codesign is an effective coproduction approach to improve the patient experience and promote patient-centered care.

Keywords: patient satisfaction, patient experience, patient engagement, quality improvement, experience-based codesign, food services, patient-centered care

INTRODUCTION

Patient experience is a strategic priority of healthcare organizations globally striving to deliver patient-centered care.[1,2] Providing an exceptional experience through patient-centered care is one of the quality improvement goals in which healthcare is respective and responsive to patient's preferences, needs, and values.[2] Achieving such a state of patient-centered care and experience must be founded on insights into the experiences and preferences of patients.[3,4] Experience-based codesign (EBCD) is an approach to improve patient-centered care and experience in which services are codesigned with patients and families as valuable partners.[4–7] The EBCD looks to proactively design experiences rather than processes to improve both patients' and providers' experiences of healthcare, ultimately improving the quality of healthcare.[4–7] Food services at the hospital play a significant role in shaping the patient's overall experience of inpatient care. Patients who experience high-quality hospital meals (i.e., taste, temperature, and variety) are four times more likely to rate their overall inpatient care experience higher.[8] Al Hada Armed Forces Hospital (AHAFH) is a 371-bed tertiary care academic medical center located in Taif, Saudi Arabia, with approximately 12,648 annual admissions at inpatient units.

Hospital food services fulfill the nutritional needs of patients in clinical settings and are an important

component of the overall inpatient experience. Thus, activities aiming to improve the inpatient experience should also focus on the provision of high-quality meals.[8,9] The EBCD approach has been used by healthcare organizations across various countries, leading to sustained and cost-effective healthcare delivery and patient experience improvements.[3–7,10] However, literature demonstrating the use of EBCD to improve patient-centered care and experience in Saudi Arabia is sparse. Therefore, AHAFH Continuous Quality Improvement and Patient Safety (CQI & PS) department's patient experience division launched the Food Services Patient Experience Improvement Project. It used the EBCD approach as a framework, in which healthcare providers, patients, and families partnered to improve the inpatient meal experience at AHAFH.[10]

In the first quarter of 2021 (Q1-2021), the AHAFH patient experience survey (Press Ganey) mean score for the meals domain in inpatient care settings was the lowest (68.75) among all domains (Supplemental Fig. S1, available online). This finding was also concerning because the provision of food in the hospital is a basic patient right, affecting a high-volume area that is linked to patient recovery and high-quality healthcare services.[9]

We aimed to increase the inpatient meal experience mean score at AHAFH from 68.75 to 81.00 (a 17.8% increase to be on par with other inpatient experience domains) within 6 months (by the end of Q3-2021).

METHODS

This quality improvement project was exempt from organizational ethics committee approval, and informed consent was not required.

Providing a distinguished patient experience is one of the AHAFH strategic objectives in alignment with its organizational values of "patients first" and "human centric."[11] The Saudi Arabia Vision 2030: Health Sector Transformation Program nationally promotes an excellent patient experience as an indicator of healthcare organizations' operational excellence and reputation.[12] There were also frequent comments on AHAFH inpatient experience surveys concerning the temperature and quality of the food, which provided helpful insights on potential areas of improvement for the inpatient meal experience. These contextual elements played an important role in garnering hospital executive leadership, food service departmental leadership, and frontline staff support at the outset of introducing the Food Services Patient Experience Improvement Project.

Experience-Based Codesign (EBCD) Intervention

An EBCD approach was used to implement the Food Service Patient Experience Improvement Project (Fig. 1) during Q2 and Q3 of 2021.[5] The stages of the EBCD intervention were as follows.

Setup

The CQI & PS Department's patient experience division at AHAFH created a multidisciplinary team of stakeholders from various departments, including food services, nutrition, nursing, maintenance, fire and safety, and infection prevention and control. The stakeholders recommended including a patient affairs representative and a patient and family representative in the team (Table 1). The head of the hospital patient experience was assigned as the team leader, and the hospital director was designated the project sponsor.

Engaging staff

Multiple sessions were conducted to observe the food services across the hospital's inpatient units, and various staff interviews through focus groups were gathered to understand the daily processes that may affect the patient's experience of food services. A staff feedback event was conducted to review various themes arising from these interviews and identify priorities (Table 1) for improving food and dietary services to share with patients and families during the codesign events.

Engaging patients and family members

Multiple interviews were conducted to gain a deeper understanding of patient and family member experiences of food services, and surveys were randomly distributed to gather information about the patient and family experience, including positive and negative touchpoints. An event for patients and family members was conducted to discuss how the various touchpoints reflect their priorities and experiences and how this feedback helps to identify priorities (Table 1) for improving food and dietary services.

Codesign events

A food services patient experience codesign meeting was conducted, where the food services staff, healthcare providers, patients and family members, and multiple industry experts (i.e., airlines food catering services, hospitality, and local benchmark healthcare organizations) were invited. This codesign meeting reviewed the experiences and priorities around food services that were previously gathered from staff, patients, and family members. Different meals were presented for evaluation, and meeting attendees shared their experiences with AHAFH food services. Shared priorities for improvement were identified (Table 1), and participants were offered an opportunity to volunteer to join the codesign team to help design and implement the Food Service Patient Experience Improvement Project. The codesign meeting was facilitated by CQI & PS. Patient experience experts met regularly and used service codesign tools (i.e., experience mapping, prioritization of options, storytelling, surveys, and data sharing) to

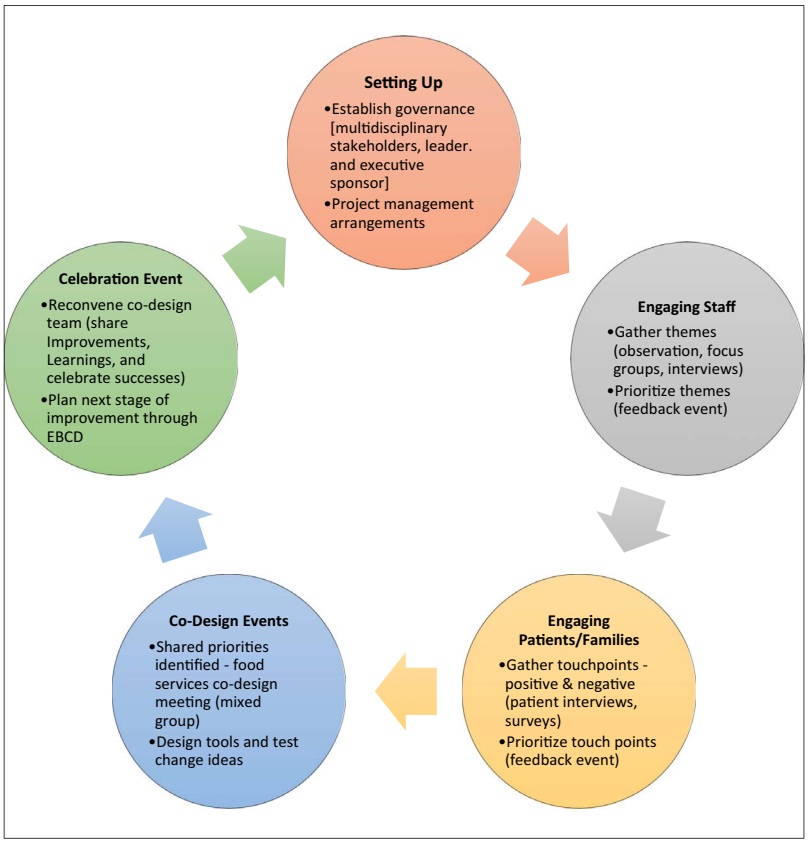

Figure 1. Experience-based codesign (EBCD) approach stages for the Food Service Patient Experience Improvement Project at Al Hada Armed Forces Hospital.

redesign processes, remove barriers and pain points, and implement the priorities from the codesign meeting.

Celebration event

The codesign team reconvened to discuss their work on the Food Services Patient Experience Improvement Project and celebrate successes. Plans were made for the next stages of the Food Services Improvement Project by prioritizing the learnings (Table 1).

A quasiexperimental design was used to assess the effectiveness of implementing the EBCD approach for the food services to improve the patient experience of meals in the inpatient setting.[13] Mean scores from preintervention and postintervention inpatient experience surveys for the meals domain were used to establish that the observed patient experience improvements in the AHAFH food services resulted from using the EBCD approach during the Food Services Patient Experience Improvement Project.

Measures

Data were collected using a reliable and validated instrument, the Press Ganey inpatient experience survey. Surveys were conducted by Press Ganey (third party) with a randomized sample of the patients discharged from AHAFH inpatient units, and quarterly reports of survey results were generated. Quantitative measures (i.e., mean scores) were assessed quarterly, including the process measures (food temperature and food quality) and outcome measures (inpatient experience).

Qualitative data were collected throughout the EBCD approach described above. Food services staff and nursing experiences and comments on meals were collected as professional feedback. Patient and family member perspectives were collected through interviews and surveys that were randomly distributed by attending nurses or clinical dietitians during daily rounds. Codesign meetings and team activities were used to capture the shared perspectives of staff, patients, and families around food services and meals.

Analysis

Quantitative measures (process and outcomes) collected over time were reported as control charts with pre- and post-intervention phase analysis.[14] The corresponding mean, upper control limit (UCL), and lower control limit (LCL) were reported to identify improvements in these measures. An independent sample *t* test was performed to report inferential statistics on the quarterly inpatient meal experience mean scores and to compare pre- and post-intervention

Table 1. Experience-based codesign (EBCD) stages for food service patient experience improvement project and identified priorities during the each stage

EBCD Stage	Order of Identified Priorities
Setup	• Patient and family representation • Patient affairs representation
Engaging staff	• Food services supplies or equipment or materials • Multidisciplinary process to communicate with patients on meal times or delay in meals due to patient procedures by nursing, dietary services staff, and patient affairs • Food services main station and kitchen renovation • Manpower and local trained traditional chef recruitment
Engaging patients and families	• Food temperature • Quality of food • Texture and juiciness or freshness • Flavor and taste • Appearance and color • Odor or aroma or smell
Codesign meetings	• Food temperature • Quality of food • Texture and juiciness or freshness • Flavor and taste • Appearance and color • Odor or aroma or smell • Portion size • Variety of food • Food menu redesign • Tray arrangement • Type of material for food serving container or plates • Food services supplies, equipment, or materials • Multidisciplinary process to communicate with patients on meal times or delay in meals due to patient procedures by nursing, food services staff, and patient affairs • Food services main station and kitchen renovation • Manpower and local trained traditional chef recruitment
Celebration event	• Food tray waste

scores. A p-value of $\leqslant 0.05$ was considered statistically significant (95% confidence level).

Qualitative data collected during the various EBCD stages were analyzed using the affinity diagram, which facilitated thematic analysis and prioritization of the shared themes for improvement-related change ideas for food services from staff, patients, families, and industry experts.[15]

Standards for Quality Improvement Reporting Excellence for Education (SQUIRE) 2.0 guidelines were followed.[16] The data were analyzed using Microsoft Excel to generate descriptive analysis. The inferential statistics were calculated using SPSS Statistics (version 26).

RESULTS

Qualitative data identified three major shared themes (food, process, and structure) and priorities for improvement-related change ideas (Fig. 2).

As shown in Figure 3, the inpatient meal experience mean score improved from 68.75 ($n = 38$) during the preintervention phase (Q1-2021) to above the target level at 81.93 ($n = 164$) during the postintervention phase (Q3-2021). There was also a shift in the control chart mean (from 73.59 to 80.69), UCL (from 81.06 to 88.16), and LCL (from 66.12 to 73.23) for inpatient meal experience during the postintervention phase. Further analysis showed a statistically significant

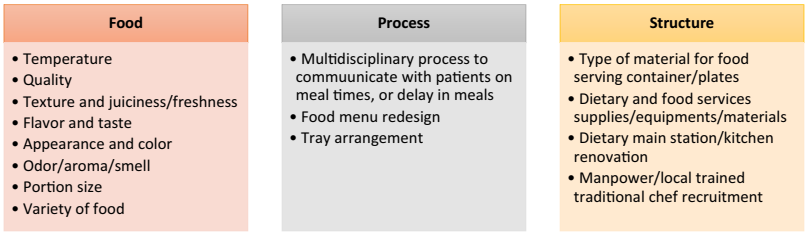

Figure 2. Affinity diagram for shared themes and priorities captured throughout various experience-based codesign stages.

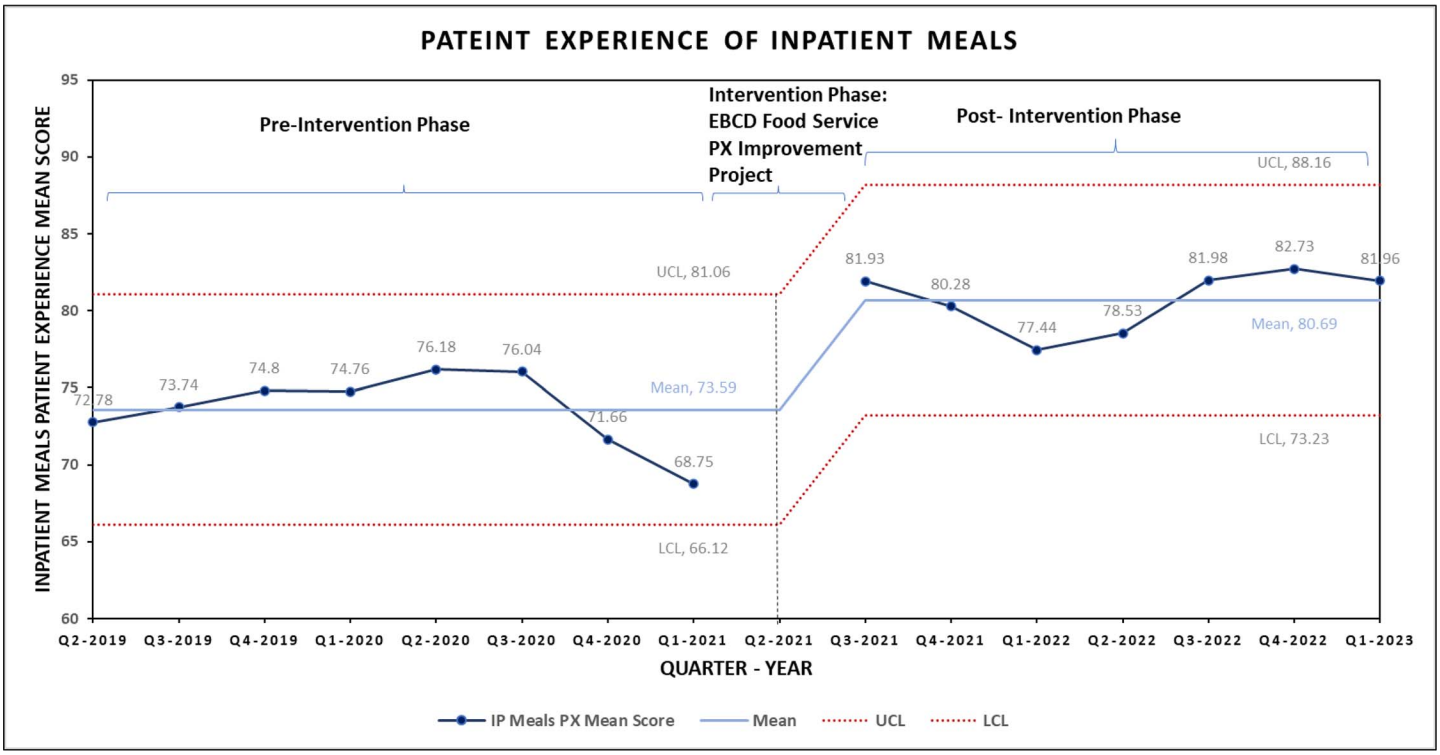

Figure 3. Control chart of patient experience of inpatient meals showing variation and improvement during preintervention, intervention, and postintervention phase in the outcome measure of IP meals PX mean score. EBCD: experience-based codesign; IP: inpatient; LCL: lower control limit; PX: patient experience; UCL: upper control limit.

improvement in inpatient meal experience scores, with a difference of 7.10 ($p < 0.001$, 95% CI, 4.55–9.66) after the intervention compared with before (Supplemental Table S1). There was a decline in the inpatient meal experience mean score to 77.44 ($n = 179$) during Q1-2022 (Fig. 3). The mean score reached 81.96 ($n = 174$) by the end of Q1-2023, indicating a sustainable improvement. Figure 4 shows similar improvements in the process measures (food temperature and quality).

DISCUSSION

To our knowledge, this is the first initiative to improve the inpatient meal experience using the EBCD approach in a tertiary care hospital in Saudi Arabia. Our quality improvement initiative is also unique in breadth, encompassing patients and families, staff, and industry experts for sharing improvement-related change ideas and implementation through the EBCD approach.

This quality improvement project demonstrated significant improvement in the inpatient meal experience and has a positive impact on the overall inpatient experience. The improvement achieved sustainability as shown by the Q1-2023 mean score of 81.96 at AHAFH (Fig. 3). The mean score dropped to 77.44 during Q1-2022, which was expected because of an increased expatriate staff turnover resulting from the local authorities' decision to lift pandemic-related travel restrictions, as well as the complete reopening of all the hospital services after the COVID-19 pandemic (Fig. 3).[11] The patient experience leadership and codesign team acted proactively by partnering with the recruitment department to reduce the vacancy rate. This strategy led to improved and sustained scores for inpatient meals well above our target aim by the end of Q3-2022 (Fig. 3).

The key element for success in this project was the leadership buy-in and relentless support, which helped in aligning the EBCD approach with organizational strategic priorities and values. The EBCD approach used in this project provided a strong framework where healthcare staff, patients, and families participated in developing a deep understanding of the inpatient food service experience.[5] This rigorous approach allowed us to identify what lies at the heart of patient experiences, both positive and negative, and identified unique issues that other improvement methods do not. The post-intervention EBCD celebration event allowed the codesign team to continuously engage with each other, resulting in sustainable improvement and developing a culture of continuous improvement in patient-centered healthcare.[17] The EBCD approach has also resulted in healthcare cost reductions when used in other quality improvement projects.[5]

Our project was a single-center pilot of the EBCD approach, which could limit generalizability, but we

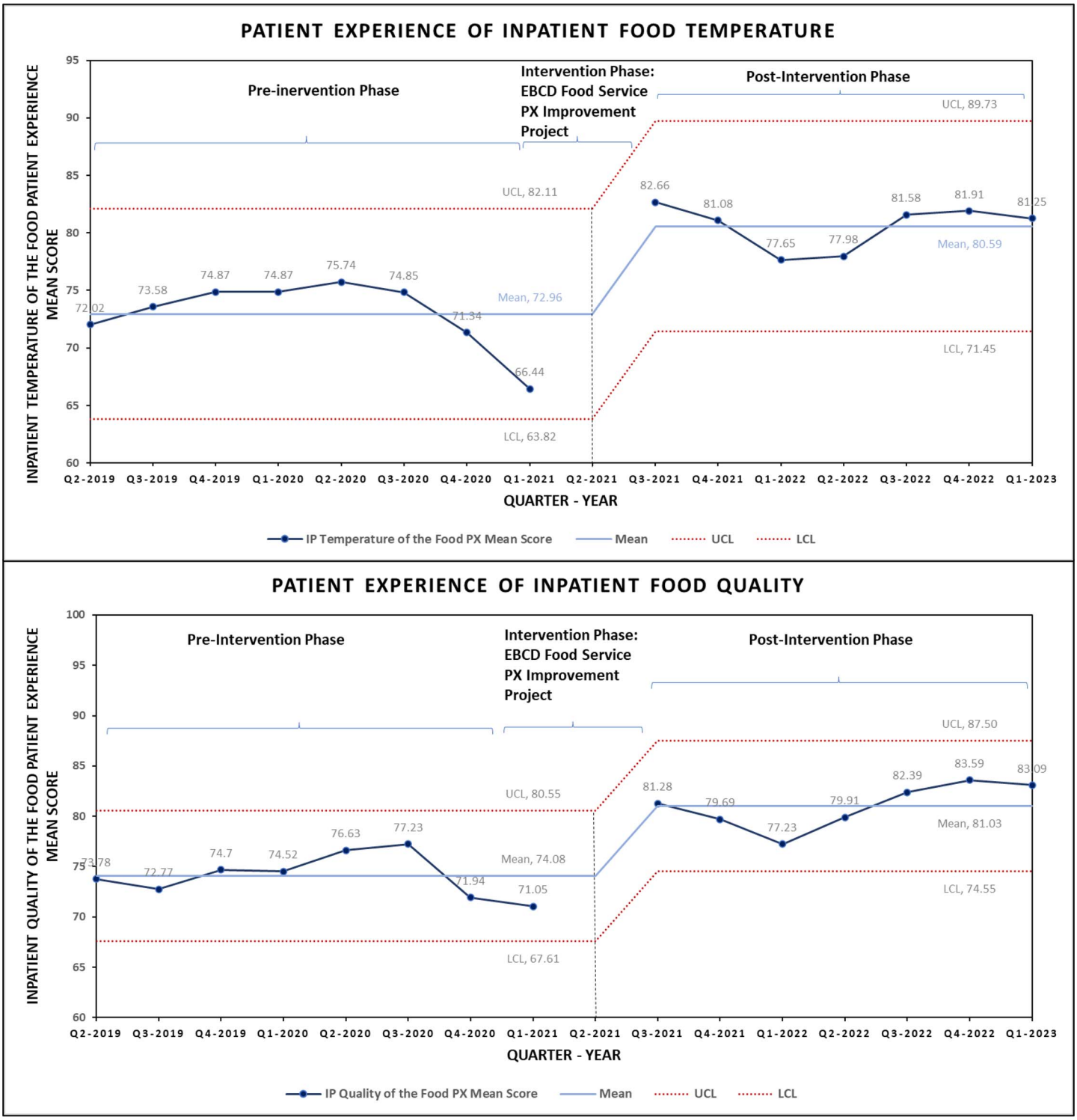

Figure 4. Control chart of patient experience of inpatient food temperature and patient experience if inpatient food quality showing variation and improvement during preintervention, intervention, and postintervention phase in the process measures of IP temperature of the food PX mean score and IP quality of the food PX mean score. EBCD: experience-based codesign; IP: inpatient; LCL: lower control limit; PX: patient experience; UCL: upper control limit.

believe that the basic principles described on using the EBCD approach and evaluating its effectiveness can be easily extrapolated to other institutions. To further assess the implementation of the EBCD approach on the food services patient experience, we are currently cataloging food tray waste as a balancing measure, which will be used in the next phase of this EBCD approach.

CONCLUSION

Food and dietary services in hospitals are an important domain of patient experience and play a vital role in the patient healing process. EBCD is a unique approach for quality improvement in healthcare, with promising early results and actionable lessons for ongoing refinements. Although a significant institutional effort, this project was conducted with minimal cost beyond the time of lead staff. Once embedded as a core strategy for improving the human experience in healthcare, the EBCD approach has potential to dramatically improve patient-centered care.

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