Research Contribution

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CHARACTERISTICS AND PRACTICES INFLUENCING THE IMPLEMENTATION OF HOSPITAL FOODSERVICE SOFTWARE

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ABSTRACT
The purpose of this research was to investigate the implementation of specialized foodservice software into hospital foodservice departments through a multi-case study design. Five sites were included in the study, 27 employees involved in the implementation were interviewed. Findings included: identification of barriers and facilitators to implementing software, preferred methods of training, and necessary communication tools. Employees of the foodservice department saw value in the use of technology. Foodservice directors need to familiarize themselves with organizational change management prior to major software implementation to smooth the transition and increase the likelihood of new software acceptance.

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INTRODUCTION

Implementing change to achieve excellent quality is vital in current hospital foodservice environments (Jacoby & Berger, 2013). Changes to patient meal services can affect not only patient foodservices, but the entire foodservice department (Stein, 2000). Tools, such as specialized software, are available to assist hospital foodservice directors in improving quality and efficiency. Training and skill building are often a focus of leaders during change; however, employees' emotional responses to change needs to be addressed as well (Atkinson, 2014). Common dynamics often present during change that can impact employee emotional wellbeing include: internal political forces, work modifications, emotional responses, uncertainty, and conflict.

Implementation of an innovation, such as computer software, as part of a planned change is most successful when it is comprehensive and systematic. Those involved in implementing are most effective when they listen, question, and clarify their concerns at the beginning of the change process (Cameron & Green, 2004). Forces that drive change (facilitators) and forces that restrain change (barriers) effect implementation of innovations. Lewin (1964) found that success at a group level often facilitates change at the individual level. Barriers hinder innovation and are categorized as cultural, social, organizational, and psychological (Surry & Ely, n.d.). They often stem from employees': 1) perceptions that the change will decrease their ability to perform their job as they envision; 2) concern that they do not possess the skills necessary to accomplish the change or 3) feelings of threat due to the change (Ford, Heisler, & McCreary, 2008). Decreasing barriers can help change progress more effectively than increasing facilitators (Gregoire, 2013).

There is no specific formula that leads to the successful adoption, implementation, and institutionalization of an innovation. Surry and Ely (n.d.) found a systematic approach and use of a change agent to coordinate the steps of the process facilitated success. Ely (1990) reviewed successful implementations in educational technology; identifying eight factors influencing successful implementations: 1) dissatisfaction with the status quo; 2) adequate knowledge and skills; 3) resources available; 4) time available; 5) rewards or incentives available; 6) expected participation; 7) commitment to the implementation; and 8) evident leadership.

Chustz and Larson (2006) followed the adoption of a policy change in a small rural hospital in Louisiana. The researchers identified four areas for implementation success: 1) the implementation process needs to be planned well in advance; 2) employee accountability to implement the new policy is expected; 3) a change agent is present, recognized as the leader, and has responsibility to ensure change is occurring; 4) frontline employees affected by the change need to be guided throughout the entire process, including post-implementation (Chustz & Larson, 2006).

General managers of hotels within a large hotel company undergoing an innovation implementation were contacted by Enz (2012), 53 responded and completed surveys investigating techniques used by the general managers. The varied implementation strategies included 26 techniques. Meeting one-on-one with employees was the tactic that correlated most significantly with innovation success (Pearson Correlation 0.434). Other tactics significantly associated with innovation success included the use of rewards (0.366); benchmarking (0.363); focus groups (0.344); employee involvement (0.333); review process (0.291); trial or experiment (0.291); and a point person (0.290). Popular techniques that did not seem to aid in success included the use of an idea champion, staff meetings, and informal networking.

An innovation is communicated over time through individuals or channels in a social system. This process is known as diffusion (Rogers, 1995). Four components comprise the Diffusion of Innovations (DOI): the innovation itself, the communication channels, time, and the social system (Rogers, 1995). In alignment with this process, Davidoff (2008) found successful change management starts with a defined purpose and vision. Communicating the change as a positive move for the organization and the employees help reduce resistance (Ford et al., 2008); noting it is important to clearly communicate not only what is going to change, but also what is not going to change. Kanter (2000) recommends communicating change as an aspiration thus appealing to the betterment of each person to become greater. Change often ends in failure if the value and essential need for the innovation are not communicated to those affected (Ford et al., 2008).

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The purpose of this research was to investigate how a significant technological change in hospital foodservice is received by employees and how to navigate the change process to increase success and acceptance of the change. The objectives of this study were to: 1) determine diet office employees' expectations and level of readiness for change related to the implementation of diet office software; 2) identify barriers and/or facilitators when implementing foodservice software; and 3) analyze department employees perceptions of communication prior to and during software implementation.

METHODS

Qualitative research methods were used to conduct this research. A multi-case study design was used and followed a single case study methodology; whereby, the same study is conducted at multiple sites (Yin, 2003). Five hospitals were studied in depth, all part of a healthcare division of 17 hospitals and geographically grouped. Hospital characteristics are provided in Table 1. This collection of hospitals is one of several corporate divisions within a large healthcare corporation. Institutional Review Board (IRB) approval was obtained prior to the study being conducted. In order to be granted access to the hospital sites, IRB approval was required by the healthcare division.

Case Study Overview

The foodservice departments of the division hospitals went through a mandatory software implementation. The implementation of the software into all 17 hospitals was completed over a 12 month period through a phased process. The first phase consisted of the adaptation of software for the division. A customized version of the software was copied from another division within the healthcare company. Customization included: menu items, menus, diet orders, diet restrictions, and recipes. These data were modified at the division level before allowing software access to the implementation teams at each hospital. The customization including inputting patient and cafeteria menus written at the division level, additional recipes, diet restrictions, and diet orders.

The second phase of the implementation involved initiating the use of the software at the individual hospital sites. The first foodservice department started using the software in month 4 of the process and the last hospital in the sequence started using the software in month 12. Pre-implementation training included webinars and conference calls provided by the software company. A team at each hospital was selected by the foodservice director to go through the training. The webinars provided informational sessions about the software, how to customize the software specific to the hospital and how to navigate certain areas of the software. The sites went through a pre-implementation training and software customization process for three to four months, with a minimum of eight training sessions.

This time frame was used to help the individuals at each site learn the software as well as provide time for the sites to input data into the system specific to their foodservice operation, such as room numbers, patient tray ticket printing sequence, and menu modifications. During the week in which the initial use of the software in the foodservice department was scheduled, a trainer from the software company came onsite to the department and conducted face-to-face training with the end users of the software (i.e. diet clerks, clinical dietitians, and foodservice directors). The trainers were present during the first two days of software use to troubleshoot and provide guidance for the end users of the software.

Interviews

In-depth face-to-face interviews were conducted with key hospital foodservice employees. All interviewees volunteered to participate. Once agreement to participate was obtained, each participant signed an informed consent form prior to participating. Interviewees included diet clerks (DC), clinical dietitians (RD), supervisors of the diet office (DO), and foodservice directors (FSD). Interview guides were developed based on the literature review, the research questions, and previous experience of the primary investigator. The guides were reviewed by industry experts for clarity and depth. The interviews consisted of main questions asked consistently from interview guides as well as follow-up questions designed to illicit more information or to gain clarification and improve understanding (Rubin & Rubin, 2012).

Examples of interview guide questions are provided below:

- What obstacles did you encounter during the implementation of [the software]? (FSD Interview guide)
- Was there any information you know now about [the software] that you feel should have been communicated to you differently? (FSD Interview guide)
- What challenges did you encounter during the implementation of [the software]? (DC Interview guide)
- What information would you have liked to know, but did not, prior to "Go Live"? (DC Interview guide)
- What has been the greatest challenge related to [the software]? (DO Interview guide)
- How would you describe the communication you received regarding the [the software] implementation? (DO Interview guide)
- What obstacles did you encounter during the implementation of [the software]? (RD Interview guide)
- How would you describe the pre-implementation communication you received regarding [the software] and the implementation of the software? (RD Interview guide)

Pilot Study

A pilot of the study was conducted at a hospital foodservice department undergoing the division initiated software implementation, but was not one of the five case study hospitals. The interview guides for the clinical dietitians, and diet clerks were pilot

Table 1: Hospital Characteristics

	Hospital Size	Director Credentials	Menu Service Pre-Implementation	Diet Office Pre-Implementation Process
Site 1	250+ Beds	Registered Dietitian	Hybrid (some floors rooms service, others traditional trayline)	Automated System
Site 2	50-149 Beds	Certified Dietary Manager	Traditional Trayline operation (provided menus for patients to order, but operated traditional trayline)	Manual
Site 3	150-249 Beds	Executive Chef	Traditional trayline	Manual
Site 4	50-149 Beds	Certified Dietary Manager	Traditional trayline	Manual
Site 5	50-149 Beds	Certified Dietary Manager	Room Service	Automated; Call Center

tested. The pilot test site did not have a foodservice director or supervisor of the diet office in place at the time of the pilot test. The pilot allowed the primary investigator to test the interview questions and practice conducting semi-structured interviews. Minor language modifications to questions were made secondary to the pilot test.

Data Analysis

Interviews were recorded, professionally transcribed, and verified. Three researchers independently read and analyzed all 27 transcripts. Using cross-checking, as described by Creswell (2009), each researcher identified codes which were then grouped into categories and over-arching themes identified. Following the process recommended by Saldana (2009), the analysis of transcripts, including themes and categories, were discussed between researchers and agreed upon.

Member checking was completed as ten of the 27 interview participants were contacted post-analysis of the transcripts and the researchers' interpretation and accuracy of the transcripts were discussed. Each contacted interview participant validated the accuracy of their transcript and agreed with the interpretation of the interviews as recommended by Creswell (2009) and Maxwell (2013).

RESULTS AND DISCUSSION

A total of 27 interviews were conducted at five hospitals. Participants included eleven diet clerks, three diet office supervisors, eight clinical dietitians, and five food and nutrition service directors. Ninety-two percent of the participants held positions during the entire implementation process. Participant comments in the results and discussion are unedited quotes from the interviews.

Expectations and Readiness

The expectations and readiness of employees were influenced by their prior knowledge of diet office software, previous experience with computers, and training received. Many participants indicated that seeing the software operating in another diet office, prior to their hospital's implementation, would have been helpful. None of the FSDs visited hospitals that had previously adopted the software. Site 1 and Site 3 were very early in the sequence of the software implementation, thus their opportunity was limited. Sites 2, 4, and 5 were in the middle or toward the end of the implementation cycle and therefore would have had opportunity to visit other sites but did not.

Interview participants indicated a range of expectations from positive to negative and other participants indicated no expectations or had given no thought to the software and its effect on their work life. Several participants stated they were "looking forward" to the software. Common themes included expected: ease of use of the software, less manual work, and the software completely programmed and ready-to-go. DC6 stated "I think that originally… perception was that it was gonna eliminate a lot of clerical work. Well, it doesn't eliminate it. It just shifts it." Participants did acknowledge they expected issues related to change and that there would be a "learning curve" related to the new process. Others did not envision how the software was going to affect their daily duties. "I don't know if it made me feel like it was gonna change my job" stated DC5.

DC6 actively sought information related to the software prior to the implementation process. During the interview DC6 stated, "As soon as I…heard that we were… lookin' into [the software], I called the company…and I said, 'Is there any, any resources I could find to see how it works?'"

Readiness of the diet office employees varied from "somewhat" ready to "very" ready and was influenced by training. Repeatedly during interviews, the DCs discussed needing more hands-on experience with the software, or wanting to observe the software in use at another facility prior to their hospital's implementation. DC6 illustrated this request, "It's easy to send somebody a video, have somebody train, but I think someone should go to a hospital that uses it and see it [in use]". FSD3 further explained, "Any kinda technology, it's good to play around with it before…it's real"; and DC9 stated, "I wish we coulda had like maybe two, three days before we went live [with the software]…just that one day [of classroom training], I felt that wasn't long enough." Readiness for the software was also influenced by the employee's comfort level with computers. DC8 discussed her trepidation, "The computer. I'm getting into it. I don't have one at home, but I'm learning." Along these same lines DC7 stated, "The only thing I worried about was being able to do it, [I'm] not computer savvy."

Two department directors discussed moving individuals who were diet clerks prior to the software implementation into different departmental roles post-implementation. The employees were not able to effectively use the software and perform the modified diet clerk duties. Both individuals stayed as full-time employees in their foodservice department, but worked in areas other than the diet office. FSD5 stated, "We had a diet office staff that just couldn't cut it anymore and they've worked in the diet office for years."

Barriers and Facilitators

Participants were interviewed regarding specific items they felt impacted the implementation of the software. A list of ten barrier themes and nine facilitator themes were identified (see Table 2). The barriers identified through the analysis of the interviews were: a poorly defined vision; a lack of support such as tools, resources, and staffing; a skills and knowledge deficit of diet office staff; the implementation timeline; the software programming; equipment issues including a lack food preparation equipment and technology equipment issues; employee emotional barriers; the functionality of the software program; issues with the standardized menu programmed in the software and specific barriers due to previous departmental operations.

Identified facilitators to the implementation of the software were: recognized leadership, a commitment to the hospital patients by the foodservice department staff; instances of motivating the employees through cheerleading, providing inspiration; the engagement of registered dietitians in the process; awareness of the departmental staff that the process was going to be challenging; employee characteristics; the ability of the diet office staff to learn; and tools and resources provided to help with the process.

Communication

Effective communication during a large project or change is a necessary component to make the transition less stressful for employees of the department and results in a more accepted and successful implementation (Van den Heubel, Demerouti, Bakker, & Schaufeli, 2013; Gregoire, 2013). When interviewed, most participants indicated both positive and negative aspects related to the communication provided. Having a vision and a true picture of the implementation process is cornerstone for successful change management (Davidoff, 2008). DO3 expressed a need for a vision stating, "Hey, give me the big picture so I can share my big picture with everyone." Participants were asked why they thought the software was implemented. Answers ranged from patient safety, improved working conditions, to cost savings. The range of answers

illustrated the lack of a cohesive plan or vision or, at minimum, the lack of communication regarding the plan or vision. The FSDs were under pressure to lead this change and continue to perform the daily functions of the foodservice department uninterrupted. FSD3 explained "The reality of it is you have to answer to whole levels of people, first and foremost your patients. Second your nurses. So it was that immense pressure that was put, and then your CEO's asking 'what the hell's going on in dietary'." A well-defined vision with expected outcomes can help the department leadership teams answer the questions being asked of them by their employees and stakeholders.

Table 2: Identified Barriers and Facilitators to Software Implementation

Themes		Themes	
Barriers	**Illustrative Quotations[1]**	**Facilitators**	**Illustrative Quotations[1]**
Poorly Defined Vision	"you're talking about… registered dietitians who know a lot about food, who know a lot about how tray service…But I feel like we had no clue, really, what it was gonna be like until the moment that it happened." (RD8) "[needed] somebody driving the bus that had been through it before [implementing the software]…I mean they didn't have the whole picture." (FSD1)	Leadership	"Director tried to make me as comfortable as possible" (DC11) "I was super happy that we had already planned on it [staying to help the diet office] ourselves" (FSD3)
Lack of support, tools, resources, staffing	"What are renal's supposed to get this meal?...if we had…a diet manual that had all of the, must have all of the basic diets and what exactly they're supposed to get at each meal each day. We did not have that." (DC2) "They didn't fix it quick enough for us…I don't know how many hospitals went online all at the same time, but she said there's one person at [division to] handle it." (DC6)	Commitment to patients	"taking care of people [patients] and makin' sure that they're happy" (DC2)
Skills, Knowledge	"We had a diet office staff that just couldn't cut it anymore and they've worked in the diet office for years." (DO3) "You have some people in our kitchen who are not the strongest when it comes to literacy." (RD5) "The biggest challenge in the diet office are their [diet clerks] clinical knowledge of the diets." (RD5)	Cheerleading	"make everybody comfortable and say 'Look, we can do this! It's not a big deal.'" (DO2)
Implementation Timeline	"Well, we didn't, it wasn't going live with [hospital software] until four days before we went live so I couldn't test the [software] to see what it was doing." (RD5)	Registered Dietitian Engagement	"when this system went into play, I was workin' on the line. I was washin dishes. I was answering the phone. I was callin' the patients, taking orders from my desk." (RD8)
Software Build	"Don't try to take somebody else's menu and try to go live…We serve different stuff." (FSD1) "At one point…it [software) was just addin' rolls or slices of bread to the diabetic cause that was the first thing it found." (RD4) "this menu is a bit more liberal, it seems, so that's been kinda hard for us just because we knew this person couldn't have this thing before and now the software says, 'oh, it's ok if it fits and everything else." (DO2)	Awareness	"I was really excited. I thought that it was great. But I knew that there would be some struggles…"(DO2)
Equipment Barriers	"I have old eyes…so I've gotta…and the diet office supervisor fixed it where I can see closer, the screen is bigger." (DC8) "The grilled chicken on a bun. Oh, that's the disaster because we have no grill here, so we have a chicken breast that's been cooked in the oven that looks terrible." (FSD1)	Managing	"I did have help [from the supervisors], like a little…more of a week that someone was with me." (DC8)

[1]The table consists of unedited comments from study participants.

Table 2: Identified Barriers and Facilitators to Software Implementation (Continued)

Themes Barriers	Illustrative Quotations[1]	Themes Facilitators	Illustrative Quotations[1]
Emotional Barriers	"I was like, "Oh my God, I'm never gonna get this.' But as I was doin' it…actually doin' it, it just came natural." (DC5) "I was so nervous. I was just nervous, I wasn't gonna get the hang of it." (DC11) "As much as we hated circling, doing everything by hand, we know that worked. Just kinda everyone's like 'OK, we'll trust in your program,' was probably the hardest thing for most people." (DC6)	Employee Characteristics	"a certain percentage of 'em [employees]…were super excited because they got it. And those are my real high performers. They knew that it would overall improve our patient care. So, you know, for the folks who had their head where I would prefer all of us to be…they were excited"(FSD3) "If you don't hop on board, you're gonna get left behind." (DC4)
Software Function	"You can have bacon for breakfast, but if you want a bacon burger for lunch, it doesn't let you offer it… We have patients that want breakfast for lunch which is doable…we can't put it in." (DC3)	Ability to Learn	"Once you get it, you got it." (DC11) "One of our diet clerks that is our strongest that understood the system best 'cause she just kinda had the mind where 'Oh, this is what it's thinkin' this is why I need to change it.'" (RD5)
Menu	"I understand that [using a standard menu], but there are aspects that we just aren't able to do in our facility." (DO2) "We had somethings that were just like 'Why is this on this menu?' We still have some kinks that we still work through daily. Just odd things that show up on menus." (DO2)	Tools/Resources	"She [software trainer] gave us like sheets to say you do this. Where you get started in the computer." (DC8)
Departmental Barriers	"Take something [diet office software] that worked well and change it…to me, I didn't see the point." (RD7) "If we had [the software] folks here for another week maybe, it woulda been a much more effective, much more calm startup." (FSD4)		

[1]The table consists of unedited comments from study participants.

Motivational communication was noted during several interviews. The leaders of the departments often acted as cheerleaders and provided motivational words to their employees. FSD3 stated, "Publically, I was a cheerleader because, for better or worse, it is what we were changing to and it is better to get behind it and push it instead of have it run you over." FSD4 motivated by being available, "I tried to answer all their questions. Tried to calm any fears." DC6 motivated fellow diet clerks by stating, "AHHH, We're gonna do this for a couple of weeks. It's gonna be hectic but we'll get through it". FSD3 explained that a Clinical Dietitian provided motivation to him by acknowledging that "[clinical dietitian's name] was basically my safety blanket. Like anything I don't know, she…was just there to say, 'You won't look like a fool. It's OK.'"

A void that was noted by several of the FSDs was that their input was not solicited by the hospital division leaders. FSD4 stated, "If we coulda had some input on that [the software data build] it woulda helped." And FSD3 indicated, "It's better to know that you've been heard." These statements indicated the directors wanted to be heard, have their ideas considered, and to provide input to this project that was going to significantly impact their departments.

Participants thought that there was enough communication regarding the forewarning of the change to the software. RD4 explained "…the communication was fine, you know, as far as what was gonna happen and how it was gonna happen." RD2 elaborated "we had plenty of foreknowledge...that it was coming." However, many participants believed they were not adequately informed about the details and where the software was in functionality related to the programming of the software at the division level. DO2 illustrated this in her comment, "We copied the (division) menus. No one actually sat down and said, 'OK, this is what we're gonna do." RD5 agreed that the communication on how to customize the software was for the individual site not clear "It's like they didn't communicate like, 'This is a room service menu so don't keep all of these,' so I was goin' and deleting all these things, and then like, 'OK, well, we need a salad option, we need a… (communication regarding) using the program kinda was a little muddled."

Ford et al. (2008) found that information or aspects of the change that may have negative impact, must be handled transparently and directly. In many interviews, participants discussed the issues with the software build of the data and that the program was not finished prior to implementation. The need for the users of the software to know where the software was in the data build became evident during the interviews. The end users because they were unaware of the issues with the completeness of the software build had added stress and there was pushback from the sites to division regarding the software. FSD3 explained, "If I know something isn't perfect right off the bat, that's ok. I can deal with it. But if there's no warning shot, and it's just boom, this lands in your lap, that causes problems."

Several of the participants discussed the need for a more defined implementation process and tools to help improve the process. DO3 wanted more visuals and outlines of the expectations of the implementation. She stated "I would've done more like visuals to say 'This is the expectations today. This is the expectations we're gonna be doing the next day. And this is the next." DO2 agreed and stated she would have liked to have had a step by step plan; "This is how it's gonna be done. And it shoulda been laid out step by step."

Training

In the interviews with the participants regarding training, the webinars were often noted as ineffective. RD8 illustrated this, "It was good to have those conferences calls [webinars], but a lotta what you learned on the conference calls, you couldn't process it at first because you didn't even have any basis for knowing what they were telling you at the moment." FSD4 adds, "We did a lot of online training sessions. I think if we had known more information and understood more, had better explanations about stuff, about creating all these modules and stuff, I think if we'd had some more information on that, it woulda helped too."

The training was perceived as fragmented and difficult to assimilate. DO3 quoted, "They explained very small bits and pieces of the program, and never really gave a big picture overview." The FSD4 explained, "The training we got was good, looking back on it, but when we were getting the training we weren't sure how we were gonna apply all of it." At the end of the training FSD4 commented on the confusion felt by him and his staff. "It was just like 'ok, this is a training. We're done. I don't even know what I'm doing yet so…" FSD2 stated "there was a lotta stuff I felt like they coulda told us prior to [implementation day]. So it was like a hit and miss situation."

Being sensitive to the audience was an aspect of the webinar trainings that appeared to be an issue. When undergoing a change, communicating messages with sensitivity to the receivers is essential for effective communication (Gregoire, 2013). Several interview participants indicated that the webinars were not developed for those receiving the web-based training. FSD5 elaborated, "I still felt like the webinars were more sales pitches than 'this is how it's really gonna work.'"

The face-to-face training was seen as beneficial by almost all interview participants. This was the preferred method of the training offered and was seen as very helpful. Participants recommended the training be extended, ranging from adding one additional day to extending training to a work week. The participants also wanted training to include more problem solving and covering unusual situations. DO2 explained, "I just wish we would've had more time with the trainer. I think that would've been very beneficial." FSD2 added "Once you have a good week of trainin', then test everybody to see what they know." DC11 believed she didn't have access to the software trainer for long enough, "We really didn't get to ask as many questions that we needed answered…it just felt like a rush job." FSD3 stated, "They had not enough practical time with someone standing there to troubleshoot questions." Momoh, Roy, and Shehab (2010) noted poor or incomplete training was noted as a barrier to effective change and that appears to be illustrated in this study given the webinar training, and to some extent the overall training process, was perceived to cause issues and hinder the implementation process.

CONCLUSIONS AND APPLICATIONS

This study investigated the effect of the implementation of specialized hospital foodservice software on hospital foodservice departments. Automation was perceived by most of the research participants to be a positive change for the departments; however, there were issues and concerns regarding the current use of the software as well as the implementation process itself.

One theme that became evident was the need for leadership and a vision. The perspective of who should provide that leadership was influenced by whether the employee was a frontline employee or an employee with supervisory responsibilities. The hospital foodservice department directors, some clinical dietitians, and diet office supervisors looked to the division foodservice director and division clinical analyst, to provide leadership and guidance. Diet office clerks looked to their immediate supervisors. As Davidoff (2008) indicated, a strong purpose and vision is the beginning of successful change. Clear and concise communication of the vision becomes the starting point for implementing change in hospital foodservice. Educators of future foodservice professionals need to discuss the purpose of a well-defined vision and illustrate the impact a poorly defined vision can have toward implementing innovation.

Communicating the process and expectations is as important as who is delivering the message. Employees looked for guidance from their direct supervisors, so providing the information and giving the tools to supervisors to communicate the process is essential. Though one diet clerk pressed the point that too much information could have resulted in the diet clerks having more fear, being transparent and upfront with information related to the implementation is important. Remembering the audience who is receiving the information and what is pertinent to them would be beneficial. When educating future foodservice leaders, it would be important to discuss and simulate the process of releasing information to employees to provide the information needed, but not to overwhelm or increase stress or fear.

The directors, dietitians, and diet office supervisors emphasized the need for a systematic plan and the need for the "big picture" of what this implementation was going to provide, do, and how it would change the diet offices and departmental operations. Though this was a software change in the diet office, it was noted that the software impacted patient trayline operations as well as food preparation.

For large projects, tools and processes need to be in place to help those implementing the change to recognize progress as well as provide a method to help those involved in the implementation to keep up with the processes scheduled and those that have been completed. Since the software company is the expert in the implementation of their software, many of the tools should be developed and provided to the users of the software by the software company. In negotiations with the software company, a foodservice professional should actively seek detail regarding the training methods, materials, and tools available to facilitate the implementation process. Educating how to manage the process of implementing change including developing and analyzing tools to assist in the process are skills needed by those involved.

Another result was the noted need for directors and leaders of the departments to have input into what was going on and the software build. The directors wanted to know how the data was built and wished for a more collaborative approach toward the setup of the system. Foodservice leaders must be confident to stop a process they believe is not beneficial or does not reflect the needs of their department.

All five of the sites were unique including the knowledge of the staff and the equipment available in each department. It became apparent

that each site had unique challenges related to overall staff knowledge and computer skills as well as available equipment. Site 1 had challenges in preparing some menu items because they did not have a grill or steam kettle. Sites 2, 3, 4, and 5 all indicated that the lack of computer skills of some of the DCs was a barrier that had to be overcome. Sites 3 and 5 both indicated the nutritional knowledge base of the diet clerks had to be elevated due to the automation of the diet office, thus the skill level of the diet clerk position changed.

One challenge with a universal implementation is providing a product that works for many different environments. Communicating what processes are part of the change that can be modified and what areas that cannot be modified is important to define prior to implementation. Educating the management skills that allow individuals to see the whole picture of a large project and learning to foresee potential issues will help a project move forward.

This study had limitations. The study took place in five for-profit hospitals undergoing a mandatory implementation of specialized software. The hospitals belonged to one corporate division within a healthcare corporation. This stdy did not include non-profit hospitals or foodservice departments going through an implementation of the software in which the decision to implement was made at the hospital level. The study followed one type of software implementation, there are other software programs available for the automation of diet offices. Thus the findings may not be generalizable to all hospital foodservice software implementations.

The in-depth investigation into the implementation of specialized hospital foodservice software into hospital foodservice departments is unique. As mobile devices, software upgrades, additional software platforms, and innovative equipment in foodservice operations becomes more common place, recognizing and managing the process of implementing these changes is a needed skill set of foodservice professionals. The lessons learned through this case study can be used to educate current and future leaders.

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