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Implementation of Oncology Standardized Scheduling Bundle
Impacting Staff Productivity and Patient Satisfaction

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Abstract

BACKGROUND: Patients having timely access to healthcare services is the entryway to quality of care and patient safety. Timely access is essential in cancer treatment and often requires complex scheduling requiring multiple, highly coordinated, time sensitive appointments. To facilitate optimal clinical care, timely appointment scheduling must be patient-centered. With the heavy scheduling workload growing at the the Cancer Network at Froedtert & the Medical College of Wisconsin and recognition of timely scheduling as a quality indicator, the need to examine the workflow and improve the process became apparent.

METHODS: The goal of the quality improvement project was to provide patients with individualized and timely scheduling of appointments. The development and implementation of a standardized oncology scheduling bundle began with a SWOT analysis and the use of Donebedian Model to organize the improvement process. A scheduling bundle that included consistent scheduling practices and staff education to drive patient satisfaction scores and scheduling staff productivity metrics was developed. As well, a productivity dashboard was developed.

RESULTS: The implementation of a standardized oncology scheduling bundle showed positive results with both quantitative and qualitative metrics. There was positive shift in average scheduling staff productivity and staff turnover decreased pre and post implementation. Additionally, there was positive changes in feedback from patients, staff, and physicians.

CONCLUSION: With the implementation of the standardized oncology scheduling bundle, patients are receiving timely, optimal, individualized clinical care. Additionally, there is now a standardized process for scheduling staff creating efficient and effective workflows.

Keywords: scheduling staff, oncology patients, oncology scheduling, scheduling appointments, ambulatory departments, quality improvement, patient satisfaction, and staff turnover.

Implementation of Oncology Standardized Scheduling Bundle Impacting Staff Productivity and Patient Satisfaction

Introduction

Problem Description

Patients having timely access to healthcare services is the entryway to quality of care and patient safety. Timely access is essential in cancer treatment and often requires complex scheduling requiring multiple, highly coordinated, time sensitive appointments. More importantly, delayed or missed cancer treatment appointments may affect a patient's clinical outcome, life expectancy, and lead to patient dissatisfaction (Ma, et al., 2016, Hanna et al., 2020). For each appointment, patients may need to take time off work, coordinate a ride to and from the clinic, coordinate a support person, or take time to mentally prepare themselves. Treatment delays due to systematic level disruptions in scheduling could cause a decrease in patient satisfaction and increase of mortality with oncology patients (Hanna, et al., 2020). To facilitate optimal clinical care, timely appointment scheduling must be patient-centered.

The Cancer Network at Froedtert and Medical College of Wisconsin (F & MCW) consists of five total cancer centers that include four community sites and one main academic center at Froedtert Hospital (FH). FH is a robust academic hospital with a level one trauma center and quaternary care center located in Milwaukee, Wisconsin. At FH, the Cancer Center consists of seven clinics, a dedicated clinical lab, Day Hospital which provides cancer infusion care, and Radiation Oncology. All areas have scheduling personnel and this work includes checking patients in for their appointments. Each of the four community sites have a combination of cancer clinics, radiation oncology, clinical lab and infusion area. In fiscal year 2022 the Cancer Network had 354,854 outpatient arrived visits. In addition to these patient check ins, the

scheduling staff are also involved in imaging scheduling and rescheduling needs. With the heavy scheduling workload growing at the Cancer Network and recognition of timely scheduling as a quality indicator, the need to examine the workflow and improve the process became apparent.

Improving the patient scheduling process is an important step to improve patient satisfaction, enhance quality of care and contribute to patient safety (Sussman, 2021). To understand the challenges of scheduling within the Cancer Network at F & MCW, a SWOT (strength, weakness, opportunity, and threat) assessment was conducted. A SWOT analysis is used to analyze and evaluate internal and external positions assisting in strategic decision making or identification of projects needing to be completed. The strengths and weaknesses tend to be the internal factors while opportunity and threat focus on the external factors (Benzaghta et al., 2021). The results of the SWOT assessment of the Cancer Network scheduling process is in Appendix B.

First, three main strengths of the Cancer Network current scheduling bundle were found. These included engaged scheduling staff who recognized the inefficiencies and patient frustration with the current system and were committed to improving the current scheduling process. Next, there was strong executive leadership supporting change to the current scheduling process. Lastly, the SWOT analysis supported an overall positive patient experience within the Cancer Network with scores above the 75th percentile. The primary weakness of the Cancer Network is the lack of a standardized scheduling bundle. This is outlined as the primary weakness because the lack of a standardized scheduling bundle causes a downstream effect to overall patient care within the Cancer Network. The current scheduling bundle starts when the oncology provider (Physician or APP, Advanced Practice Provider) enters an order in the patient's EPIC (Electronic Health Care Record used at Froedtert). Then the order drops to a work queue within EPIC for the scheduling staff to appropriately schedule the appointment including

the scheduling of infusions. More orders are being placed by providers than the scheduling staff are able to schedule in one day. This delay in scheduling then can create the situation where patients are then scheduled less than a week before their next treatment or appointment. This creates a burden for patients as they spend days not knowing their next confirmed treatment appointment causing patient dissatisfaction. Furthermore, delays in scheduling may delay care that may cause negative consequences for time sensitive oncology treatment plans causing patient dissatisfaction.

There is also staff dissatisfaction caused by the lack of a standardized scheduling process. With high-volume scheduling challenges, staff report feeling stressed and fearful of losing their job because of the workload and patient dissatisfaction. The staff dissatisfaction is leading to an increase in turnover of scheduling staff. The SWOT assessment uncovered scheduling personnel's concerns about the alignment of scarce resources in the scheduling process. More specifically, the scheduling staff reported the lack of a consistent education training plan for their role. This missing training creates a situation where individual schedulers develop their own unique processes that may create unintentional delays and lower staff productivity. Overall, there were multiple weaknesses identified from the SWOT assessment that have the potential to interfere with efficient oncology patient scheduling resulting in suboptimal clinical care for patients.

The SWOT assessment also identified opportunities for the Cancer Network to build on current positive scheduling practices. The positive scheduling practices included the use of provider scheduling templates and electronic health record that has allowed for modifications that help with scheduling. For the purpose of this project, the process improvement work focused on addressing the weaknesses and did not enhance or adapt the identified strengths. Lastly, the

threats to the Cancer Network current scheduling practices included patient dissatisfaction with the scheduling process leading patients to leave the organization to seek care at other healthcare organizations. Furthermore, more threats may emerge if the current weaknesses are not addressed. Therefore, this improvement project will focus on implementing a standardized scheduling bundle for the Cancer Network that addresses staff and patient needs with the goal of increasing satisfaction, decreasing scheduling turnover, and minimizing delays in scheduling and coordinating clinical care.

Available Knowledge

There is compelling patient dissatisfaction regarding the current scheduling process. Patient dissatisfaction was evident because of the multiple patient complaints received by clinic leadership. Patient comments include: “There is not a consistent method to scheduling my weekly treatments”, “There is a lack of understanding of my needs”, “Scheduling an appointment is not easy or convenient here. Why?” and “No one schedules the same, different people, different rules”. (Personal interview, anonymous, January 13, 2022).

In addition to individual patient feedback, the Cancer Network’s Press Ganey© showed dissatisfaction. Press Ganey© sends the Cancer Network patients a satisfaction survey after their appointment is completed. The patient satisfaction surveys ask subset of questions of the patient experience throughout the visit. In this survey, there is a subset of questions that specifically focuses on the scheduling process by asking patients to respond to statements addressing:

- 1.) Ease of scheduling patients
- 2.) Ease of contacting
- 3.) Ability to get desired appointment

The responses from the patient satisfaction survey related to the scheduling process for the Cancer Network had gradually decreased over a four month period. The most significant decrease was in November 2021 from 75th percentile to the 50th percentile. Due to this downward trend and daily patient complaints regarding the inefficiencies of patient scheduling across the Cancer Network, the patient scheduling process needed to be addressed.

Not only are patients dissatisfied with the lack of a standardized scheduling bundle, interviews with providers in the Cancer Network have outlined a definite scheduling problem. Providers have stated in meetings, “(I am) spending hours scheduling my patient’s appointments after clinic because the schedulers cannot make these appointments in a timely fashion. (I am) listening to my patients complain about not being able to schedule convenient appointments. This scheduling problem has created a delay in treatment for patients” (Personal interview, anonymous, November 18th, 2021).

Next, lack of a standardized scheduling bundle has negatively impacted the staff productivity. Scheduling staff productivity data was assessed from September 2021- December 2021. Productivity was measured using the total number of orders in each work queue within EPIC compared to the number of orders each scheduling personnel completed within this specific timeframe calculating a percentage for each scheduling staff. The analysis showed a range of results with a 43% difference in productivity with scheduling personnel throughout the Cancer Network. These scheduling staff productivity differences shows there is an opportunity to develop a standardized scheduling bundle to close the gap in scheduling staff productivity.

Finally, staff satisfaction has been affected by the lack of alignment of scheduling practices and resources. A staff member who schedules was conversing about why she was voluntarily resigning, “There is not any consistency or organization with scheduling patients. Scheduling

staff are many times guessing on what should be scheduled or when. We many times do not have the proper on-going education needed to schedule patients”. (Personal interview, anonymous, November 24, 2021). Ninety-day scheduling voluntary staff turnover for Cancer Network scheduling staff has increased over a four month time frame from September 2021 to December 2021. According to Society of Human Resource Management, (SHRM) average on boarding of new staff costs an organization approximately \$4000.00/ per employee. The higher staff turnover, the more likely there is a negative financial impact on the organization. Additionally, overtime and productivity negatively impact an organization due to scheduling inefficiencies. Specifically, for the Cancer Network, overtime has cost the organization approximately \$2000.00 per week for approximately four months. Clearly, staff dissatisfaction had a negative financial impact. As for clinical outcomes, it is unlikely that these were compromised because patients did self-correct their appointment times by reaching out to their providers or clinic leadership as not to miss or delay appointment or treatment times. Once a patient expressed a concern, leadership or providers were able to reschedule the appointment to meet the therapeutic needs of the patient.

To summarize, the old scheduling process was causing patient, staff and provider dissatisfaction. This quality improvement project was conducted to create a standardized scheduling bundle to provide patients with timely, individualized, optimal clinical care, and create an efficient and effective scheduling process that would enhance work and retain staff.

Literature Review

A literature review focused on two aspects of the project. The first work of the literature review was to identify a conceptual structure that would help provide a way to view the problem and propose solutions. The second part of the literature review was to review the available knowledge related to the concepts acting as barriers and facilitators to timely scheduling. These include scheduling staff, oncology patients, oncology scheduling, scheduling appointments, ambulatory departments, patient satisfaction, clinical outcomes and staff turnover.

First to structure the improvement process, clinical microsystems thinking was used (Nelson, Batalden & Godfrey, 2007) According to clinical microsystems as described by Nelson, Batalden and Godfrey, health care systems processes always need to work for patients and families and also for all professionals caring for patients and families. When the health care system does not work one-hundred percent of the time, improvements need to be studied and completed. Microsystems of clinical areas are smaller frontlines areas in which are building blocks for the larger macrosystem or whole organization. The microsystems of an organization need to work very well together in order for the macrosystem to be successful in delivering quality of care to all patients (Nelson et al, 2007). Characteristics of successful microsystems include: leadership and organizational support, clinical staff teamwork, education, training and interdependence, process improvement, and patient, community and market focus (Nelson et al, 2007). The role of leadership support of a microsystem is to provide constancy of purpose, provide advocacy for microsystem, establish clear expectations, and maintain a positive environment. The successful characteristics stated above are used to support the development of a standardized oncology network scheduling paradigm. In the current scheduling workflow, many of these characteristics were missing. The missing characteristics included: staff focus, education and training, and patient focus.

Next a literature review was completed beginning with a search of PubMed and CINAHL databases using the following terms: scheduling staff, oncology patients, oncology scheduling, scheduling appointments, ambulatory departments, quality improvement, patient satisfaction, and staff turnover. Initially, fifty-two articles were found using search terms oncology patients, scheduling appointments and patient satisfaction. After closer evaluation, there were two articles closely related to the scheduling challenges identified at F & MCW. Next, a search was completed using scheduling staff, oncology and staff turnover. Out of seven related articles, one article was related to the scheduling challenges identified at F & MCW. There was one systematic review that examined cancer mortality related to treatment delay (Hanna et al, 2020). The delay variable was measured in 4-week blocks and there were very small but statistically significant increases in hazard ratios for surgical, systemic treatment and radiation therapy for seven cancers when treatment was delayed more than four weeks. Hanna et al (2020) recommend that efforts focus on minimizing system level cancer treatment delays to improve overall population level survival outcomes.

One qualitative study specifically examined the patient experience of scheduling (Quintanilha et.al, 2020) This study focused on patient perceptions with their experience scheduling clinic appointments conducted at a Canadian pediatric ambulatory clinic. There were twelve focus groups consisting of parents, administrative professionals, and clinicians. Three opportunities for improvement were outlined in the study. These include:

- Increase the skills and knowledge of the administrative professionals (ie. scheduling staff) as many of the personnel were not trained on the scheduling system which created scheduling inefficiencies.

- Address the lack of scheduling guideline standardization creating insufficient or inaccurate communication regarding patient appointments leading to patient dissatisfaction.
- Address the lack of communication between the administrative professionals and the clinicians creating staff dissatisfaction as the administrative professionals had to call several offices to schedule appointments due to a lack of provider standardized guidelines.

This study supports the improvement work outlined in this project that aims to standardize the scheduling process through new processes including new standards, staff training, and leadership support.

The second relevant study was related to access for outpatient follow up visits (Creps & Lotfi, 2017). According to these authors, the need for increased hospital space requires shortened length of stay and this increases demand for timely outpatient clinic follow up to avoid readmissions or emergency room visits. One tactic to assist with inpatient capacity constraints is decreasing length of stay in the hospital which will increase demand for outpatient clinic follow up appointments as patients will need to be followed more closely in the outpatient setting to avoid readmissions or emergency room visits (Creps & Lotfi, 2017). This study, completed at a large university hospital, found that patient no shows, defined as patients not showing up to appointments and not cancelling appointments in advance, led to a decrease in productivity for providers and staff. Due to the decrease in productivity there was a significant financial impact. Patient no show historical data was analyzed to assess when overbooking of patient appointments would be appropriate. Purposeful overbooking of patient appointments was implemented to compensate for the decrease in productivity caused by no shows. Limitations of

the intervention included patient satisfaction with wait times and provider overtime due to the overbooking. (Crepes & Lotfi, 2017). Within the Cancer Network, patient no shows have not been identified as a challenge. However this could become relevant if patients continue to not be scheduled at times that align with their schedule availability. Provider and staff productivity, increase of outpatient volume and scheduling affect the patient's access and can have a financial impact on the organization.

The third relevant study was a quality improvement project completed at a Texas hospital to improve access to care for lung cancer patients (Gilbert et.al 2021). A multidisciplinary team including medical, radiation and surgical oncologist, nurse navigator, scheduler, imaging personnel was created to improve coordination of care for lung cancer patients. The nurse navigator led the rest of the team to assist with timely access to care. The intervention resulted in a twenty-six percent decrease in days from consultation to treatment for lung cancer patient (Gilbert et.al, 2021). In relation to the scheduling opportunities at F & MCW, development of a standardized scheduling bundle will create bi-directional communication with scheduling personnel, providers, and patients to complete timely, individualized, and optimal clinical care.

In summary, the literature review supports development of a standardized scheduling bundle is a crucial component for overall success of patient scheduling to not have a negative impact on patient's and staff satisfaction. There are specific characteristics needed to implement a successful QI project. Additionally, lack of scheduling guidelines does affect patient and staff satisfaction. Lastly, oncology scheduling is complex needing enhanced communication with multi-disciplinary teams including providers, patients, and staff members.

Rationale

The theoretical framework to best support this QI project is the Donabedian Model. Donabedian's model (1988), describes three categories in which information is used to draw conclusion on quality of care- structure, process and outcome. Structure is where patient care takes place including material environments, human resources, and organizational make up. Donabedian believed the structure should facilitate quality and safe care to the patient (Blayney, 2013). Process includes the patient's steps taken to seek care and the clinician's activities to diagnose, recommend, and evaluate treatment. Process is the action needed to provide patients with quality safe care (Donabedian, 1988). Finally, outcome is the effects of care on the patient's health status including improvements in patients' knowledge, behavior, and satisfaction. Outcome is the results of the process. When using Donabedian's Model, outcomes need to be measurable and appropriate (Blayney, 2013).

Donabedian's Model was chosen for this QI project as it provides a framework to organize the scheduling challenges within the Cancer Network clinic and is congruent with the clinical microsystem lens. Additionally, the model was used to evaluate the quality of care and patient and staff satisfaction identified as outcomes to the implemented scheduling bundle. When the Donabedian's Model was applied to this QI project (Appendix C):

- Structure is the oncology clinic where scheduling happens, the scheduling staff, the patients and clinicians affected by the scheduling inefficiencies, the electronic health record, and more;
- Process is the current and future standardized scheduling bundle, the real time check out workflow for patients in clinic, workflow consistency (or a lack there-of), alignment of scheduling staff skill mix, method for assigning daily tasks for scheduling staff, and the patient ease of scheduling appointments.

- Outcome includes patient satisfaction measures, time from appointment requests to appointment scheduled, number of patient complaints, scheduling staff satisfaction, turnover and hours of overtime completed.

Donabedian's Quality of Care Model expresses that the structure directly influences the process this will have an effect on the results. The results will also have an influence on the structure.

The model is an iterative ongoing process.

Specific Aims

The specific aim of this QI project was to develop and implement a standardized scheduling bundle for the Cancer Network clinics. All components of the scheduling microsystem were evaluated to determine the specific aim of the interventions. Those components included a focus on staff education and training, staff and patient satisfaction, process improvement and information technology which were outlined by Nelson (et al, 2007) as successful characteristics of a microsystem. The standardized scheduling bundle includes multiple components , including the implementation of consistent real time check-out for all patients, alignment of scheduling resources and staff, consistent staff education and onboarding, development of staff productivity metrics and related dashboard to provide details on scheduling staff accountability. As noted earlier, the Cancer Network Press Ganey© patient satisfaction surveys, patients were not provided with timely and individualized care due to the scheduling challenges within the Cancer Network. The goal of this QI project was to provide patients with individualized and timely scheduling of appointments having consistent scheduling practices and staff education to drive the patient satisfaction scores and productivity metrics. The overall question to be evaluated upon completion of this QI project is: Does the implementation of a

network wide standardized scheduling paradigm impact patient satisfaction and staff productivity within a high volume Cancer Network Clinics?

Methods

Context

Throughout the Cancer Network there are fifty-seven full time equivalent (FTE) scheduling staff. The scheduling staff are located at five different locations within Froedtert Health. The scheduling staff in the Cancer Network include scheduling coordinators (SC), established patient coordinators (EPC) and lead established patient coordinators (EPC leads). The SC are responsible for basic scheduling functions such as checking patients in and out of their appointments, completing paperwork for future appointments, and scheduling routine or single appointments within their assigned clinic. Additionally, the four community sites do not have SC working. The EPC's are responsible for scheduling patient appointments and infusion visits for their assigned site, but do not have the ability to scheduler appointments across network locations. The lead EPC are responsible for creating SC/EPC assignments each day, following up throughout the day on work queue progress, scheduling patient appointments and infusions, and assisting clinic leaders on implementing new scheduling procedures and processes.

Intervention

The SWOT assessment conducted for this project highlighted weaknesses with the current scheduling process within the Cancer Network. The highlighted weaknesses assisted with development of the interventions that were implemented. The interventions for this QI project included:

- Development and implementation of the standardized scheduling bundle for Cancer Network clinics
- Creation of a Quality Assurance and Education Specialist job position
- The completion of a pre/post scheduling personell staff survey on staff job satisfaction (Appendix D)
- Development and implementation of a staff productivity dashboard

Specific team members involved with the interventions included this author, Cancer Network clinic EPCs, Clinic managers and directors, Cancer Network Executive director, Cancer Network Vice President (VP), Advanced Practice Providers (APPs), and Physicians. Front-line team members were involved throughout this project assisting this author in creating the best practice standardized scheduling bundle and providing feedback throughout the implementation process. Cancer Network leaders were given bi-monthly project updates to aid in consistent and transparent updates and collaboration opportunities. Cancer Network executive director collaborated with this author on a weekly basis before and during the implementation period of the QI project and the Cancer Network VP served as an organizational mentor aiding in challenging project assumptions. The Physicians and APPs provided feedback regarding the current scheduling bundle and the newly implemented standardized scheduling paradigm. Other team members involved include organizational data analysts and Human Resources.

Study of the Intervention

Implementation of the new standardized scheduling bundle was done in consecutive steps over a period of four months starting in June 2022 ending September 2022. The SWOT assessment and interviews with EPCs, identified there is inconsistency with onboarding, continued education, and overall scheduling practices with all scheduling staff. First, a new job role to the Cancer Network was introduced. The Quality Assurance Educational Specialist role was reviewed, assessed, and modified to align Cancer Network needs. The Quality Assurance Educational Specialist will be hired to close the gap with inconsistencies. Job functions of this role are:

- Observes and analyzes individual clinic and work unit workflow processes related to scheduling and registration.
- Identifies, recommends, and educates staff on opportunities to enhance scheduling workflow.
- Participates in problem solving for any scheduling issues identified throughout the network.
- Collaborates with clinic leadership and other departments to create solutions.
- Develops, implements, and maintains training/education materials using adult learning principals to train and educate new and existing staff.
- Monitors quality reports implementing process changes as needed in collaboration with leadership and various teams as appropriate.
- Participates in go- live upgrades, unexpected/excepted downtimes that may include being on-call at various times.
- Monitors all scheduling staff on customer service skills providing them with constructive feedback when applicable.

The Quality Assurance and Educational Specialist role was posted for candidates to apply in June. This role is important to assist with many areas of scheduling within the Cancer Network. The role will be filled as soon as possible.

Next, this author presented a brief power point reviewing overall project metrics, along with project scope (Appendix E). There was a strong consensus from all Cancer Network managers, that a standardized scheduling bundle needed to be developed and implemented. After approval was obtained from the Cancer Network managers, consensus from the EPCs was the next intervention. An anonymous electronic survey was sent in May to all Cancer Network EPCs to introduce the QI project, gain engagement, and identify EPC feedback on their overall job responsibilities, satisfaction, and onboarding. Nineteen out of thirty- four surveys, or 56%, of the surveys were completed. An anonymous survey was chosen as an intervention due to the initial EPC interviews identified barriers with current scheduling inconsistencies. However, the survey responses did not provide any specific barriers to education, onboarding, or confusions on the scheduling process. Further clinic observations need to be completed to identify where the inconsistencies identified were happening.

Clinic Observations

In preparation for clinic observations, data collection was completed first. Collaboration with the organizational data analyst and executive director was needed to accurately pull baseline order entry data for each EPCs. Analysis of baseline data showed there was a 43% variability in the range of orders entered by the highest performing EPC to the lowest performing EPC. To further assess baseline performance, the amount of productive EPC hours was assessed and used to create the first iterations of a productive metric, defined as the the amount of orders entered compared to the worked hours of EPC. This initial baseline data was then shared with all of the

Cancer Network clinic managers for feedback and validation. The Cancer Network managers agreed the data was accurate based on the individual EPC performance.

Next, a plan to complete clinic observations of the current scheduling processes was approved by all clinic managers. Various EPCs were observed during a two-week period, including those with some of the higher productivity results and those with lower productivity findings. A standard guide was utilized for all observations to collect data (Appendix G). The EPC observations and interviews, quantitative and qualitative data was collected identifying best practices to create a standardized scheduling bundle.

During the observations, multiple examples of scheduling best practices and workflow opportunities were identified. The observations clearly identified a variation of scheduling practices throughout the Cancer Network clinics. Three clinics out of eight clinics observed, identified best practices when scheduling patients. The three clinics will be referenced as best practice clinics. The other five clinics will be referenced as non best practice clinics (Appendix A). Qualitative and quantitative data was used to create the standardized scheduling bundle to be implemented.

Creation of Current State & Future State Process Maps

After the observations were completed, a process map was created to outline current steps taken throughout the Cancer Network clinics. A process map is a visual flowchart or diagram to identify steps in a process (Nelson et al., 2007). Two process maps were created to visualize the gaps in the current process and this was shared with the multi-disciplinary teams involved. The first process map (Appendix G) shows the best practice clinics (Definition Appendix A) original scheduling process. The highlighted red areas show where there is a breakdown in the process

needing attention. The main scheduling barrier identified occurred when the patients left after their clinic appointment without scheduling a follow up appointment. When this happened, EPCs had to call patients creating scheduling delays if patient was not readily available. This delay also left the order sitting in the work queue leading to the opportunity for the appointment request to be overlooked or lost to follow up for a period of time.

During the observations and interviews with EPCs, there were frustrations with EPCs not knowing what their expectations were on a day-to-day basis. This frustration turned into a loss of productive work time due to questioning what needed to be completed. The first best practice identified was to make specific EPC assignments four weeks in advance. This eliminated the need for EPCs to “guess” or “assume” what they were to work on daily. Next, a scheduling practice was identified by the EPC in clinic that consistently had the most orders scheduled in each baseline assessment. This EPC’s practice was that if a patient left without scheduling a follow up appointment, the EPC would review the patient’s history of previous scheduled appointment days and times. The EPC would then contact the patient and attempt to schedule the appointment over the phone. If the patient did not answer, the EPC would schedule the appointments based off the historic day and times the patient had leave a detailed message explaining the new scheduled appointment. This process was observed as being efficient, effective, and a patient and staff satisfier. There was not a need for the patient to call back unless the appointment time was not convenient. When further interviewed, this EPC stated she has been practicing this process for over a year and she had not had patient complaints for scheduling the appointment without first talking to the patient. The overall process in the best practice clinics was successful as the appointments for patients were scheduled timely, within at least a

month of the needed appointment. In some cases, scheduling of orders were completed on a daily basis real time.

In contrast, the five remaining clinics had a different scheduling process indicating a need for improved workflow (Appendix H). First, these clinics did not have an assignment identified ahead of the EPC shift. The assignments were made real time each morning, which made it challenging for EPCs to start work when they punched in as the assignments were not sent out until five minutes before or after the shift start. EPCs were many times moved from one assignment to another day to day, which made follow through on work from the day before challenging. Another challenge was the overall inconsistencies of scheduling practices between the more than fifteen scheduling staff working side-by-side in these various clinics. When all of the clinic observations were completed, a preliminary future-state scheduling model was created using the collective best practices identified.

Pilot of the Best Practice Intervention

To implement the best practice scheduling model, a two-step pilot was devised. The first part would be to pilot EPC assignments starting August 1, 2022 for the clinics that did not have an existing four-week assignment process already implemented (Appendix I). The template from the best practice clinic was used to recreate four-week assignments individualized to each remaining clinic.

The second step of the pilot was implementation of a standardized scheduling bundle for all Cancer Network clinics utilizing the best practices identified during observations (Appendix J). This started September 1 ending September 30, 2022. First, the EPCs had education on the scheduling bundle. Throughout the month of September, weekly check ins on the implemented

bundle were completed. During the check ins with scheduling staff, changes to the scheduling bundle were not made, clarifications were presented to all scheduling staff. After the ending period of September 30, the scheduling bundle intervention continued until all metrics were analyzed. Once metrics were analyzed, changes to the bundle would be changed if necessary.

Measures

Quantative and qualitative data were measured for the implementation of scheduling bundle. Baseline data was collected from September to December 2021. Post implementation data was collected for August and September 2022. The following metrics were analyzed:

- Patient satisfaction focusing on scheduling process survey questions from Press Ganey©
- Staff satisfaction by administering a pre and post survey using a Likert scale
- Scheduling staff 90-day voluntary turnover
- Time to patient appointments are next available appointments
- Individual staff productivity for EPCs throughout the Cancer Network
- Interviews and feedback pre and post implementation from staff and patients

As noted above, the patient satisfaction scheduling process questions were measured through Press Ganey©. The next metric was a scheduling staff survey developed to identify training and education opportunities. This Likert survey was sent through an electronic platform. The ninety-day voluntary scheduling staff turnover provided a higher-level metric to understand how satisfied the scheduling staff are with their roles. This metric provides an anonymous, valid, and reliable measure of the intervention. Then, how timely appointments are scheduled will be compared pre and post intervention. This metric is important as orders that are scheduled within a few days or week of the actual appointment, can cause a delay of treatment. Additionally,

scheduling a patient appointment for only a few days to a week in advance caused patient dissatisfaction. The last quantitative metric is EPC productivity. EPC productivity is determined by taking the total number of appointments scheduled divided by the productive hours each EPC.

Analysis

This QI project has qualitative and quantitative data to analyze. The quantitative data includes the metrics of ninety-day scheduling staff turnover, EPC productivity, and orders scheduled within EPIC. The ninety-day scheduling staff turnover is quantitative data because it is a set number determined by the staff reason for termination, in which this number cannot be altered within F & MCW computerized Human Resources. Next, the number of days orders are scheduled out provided quantitative data because this is the date orders are scheduled out until providing patient, provider and staff satisfaction. EPC productivity is also an exact number of orders scheduled for each EPC within EPIC compared to the total number hours the EPC has worked. This number cannot be altered manually as this is within EPIC. Quantitative data represents the exact data, which does not consider individual feelings or interpretations (McLeod, 2019).

On the other hand, qualitative data analyzes metrics including individual interpretations, observations, and information that cannot be measured (McLeod, 2019). The qualitative data in this QI project being analyzed includes the scheduling staff pre and post intervention survey and the analysis of the observations completed for the gap analysis. Analyzing quantitative and qualitative data for this QI project provides different perspectives of performance outcomes.

Ethical Considerations

For this QI project, while this author was introduced and explained as a student during all observations and interviews. However the author remained a clinic manager in the clinic. Due to being a clinic manager within the clinics where this QI was implemented, there may have been staff that believed they could not provide honest feedback. To assist with this conflict of interest, this author collaborated with all clinic managers and EPC leads.

Results

The results of the QI project are reported in Appendix K. The baseline period data was collected September 2021- December 2021. All of the results are an average of the baseline period. Within this time period there were:

- 2661 total orders scheduled
- 606.58 Scheduling Staff Productive hours
- 4.39 Productivity for Scheduling staff orders entered per hour
- 82.6% patient satisfaction score for the three questions related to scheduling of appointments:
 - Ease of scheduling patients
 - Ease of contacting
 - Ability to get desired appointment
- 84.9% Voluntary Scheduling Staff 90- day turnover
- Scheduling of patient appointments was three days to one week of the appointment time.
- Staff survey did not have any concerns regarding education, training, or available resources.

The post implementation period was August to September 2022. The post intervention data is listed in averages for the post implementation period. Within this period results were:

- 1691 total orders scheduled
- 298.17 Scheduling Staff Productive hours
- 5.67 Productivity for Scheduling staff orders entered per hour
- 80.9% patient satisfaction score for the three questions related to scheduling of appointments:
 - Ease of scheduling patients
 - Ease of contacting
 - Ability to get desired appointment
- 29.6% Voluntary Scheduling Staff 90-day turnover
- Scheduling of patient appointments was three to six months of the appointment time.
- Staff survey did not have any changes from the baseline regarding education, training, or available resources.

The qualitative results changed from the baseline period to the post implementation period. The qualitative baseline results showed dissatisfaction with patients, physicians and staff. Clinic leaders in the non-best practice clinics were receiving approximately two to five patient complaints a day. Additionally, physicians and staff were dissatisfied with the scheduling practices. Staff were also dissatisfied with not having specific assignments or expectations for the day. The post implementation period qualitative results showed there were less than two patient complaints a week. Lastly, physician complaints have decreased to less than one concern a week. These qualitative results showed the implementation of the scheduling bundle resulted in positive results.

Summary

In summary, oncology patient appointment scheduling can be a source of patient and staff dissatisfaction with significant financial and clinical implications. A structured process to uncover problems as well as best practices led to the development of a bundle of interventions that has led to measurable improvement in scheduling for patients and staff.

Interpretation of Results

When comparing the baseline data to the post implementation data, there were positive changes in all of the quantitative metrics, except for two. The total number of appointments scheduled increased from the baseline data to the post implementation period, whereas the scheduling staff productive average hours remained the same in the baseline and post implementation period. The comparison of these two metrics showed that an average of appointments were scheduled when the average productive hours stayed the same. Approximately, 761 more appointments were scheduled in the same average amount of productive hours.

The next metric measured was the EPC productivity. This productivity was measured by taking the number of patient appointments scheduled by each EPC divided by the number of productive hours of each EPC during the baseline and post implementation period. This calculation displayed a number for each EPC of appointments scheduled per hour of work. The sample size was 28 which is higher than 15 and an acceptable sample size to detect a change from baseline to post implementation. The EPC productivity mean, range and standard deviation was calculated and graphed into a bell curve (Appendix L). There is a positive shift in the bell curve meaning the average of the appointments scheduled per hour increased from the baseline

data to the post implementation period. The standard deviation also increased from baseline to post implementation period. This means the range of productivity hours was wider in the post implementation period.

The 90-day voluntary EPC turnover decreased by 50% from the baseline period to the post intervention period. This decrease was significant achievement as there is positive financial implications to having a decrease in turnover for an organization. Additionally, in the post implementation period there was not any premium overtime hours paid to any of the EPC within the Cancer Center at a cost savings of approximately \$2000.00 per week.

The next metric was the time the patient appointment was scheduled compared to when the appointment was to be scheduled. The baseline data showed patient appointments were being scheduled within three days to one week before the appointment was needed. Patients were dissatisfied with having uncertain appointment times with little time to adjust schedules resulting in possible treatment delays. After implementation of the scheduling bundle, patient appointments were made either real time when the patient check out of the their current appointment or within two days of the appointment being ordered. This meant patients were being scheduled for their next appointment three to six months in advance of their next appointment. Patients were then able to get the appointment time they desired and avoid any further rescheduling needs.

Patient satisfaction scores actually decreased from post implementation period compared to the baseline period. There is uncertainty on why this occurred as other quantitative and qualitative data showed positive results. Lastly, the staff survey results remained unchanged from baseline period and the post implementation period. Because of both of these results, the qualitative data was important to review. Patients, physicians, and staff were more satisfied with

implemented scheduling bundle. This was noted through follow up interviews and feedback through the month of September when the scheduling bundle was implementation.

Limitations

As with all short-term improvement projects, there are limitations. One of the limitations addressed in this QI project are physician templates. There is not a standard physician or provider template used. Each physician has individualized templates. This becomes confusing for schedulers to schedule physician appointments. Another limitation which directly affected implementation of the scheduling bundle was the unplanned leave of absences and sick time occurred by the scheduling staff. Unplanned absences of scheduling staff was a challenge for this QI project as there was staffing shortages during the implementation time.

Conclusion

Overall, implementation of the standardized oncology scheduling bundle increased staff productivity, EPC turnover and time to schedule appointments through real time check out. Additionally, staff, patient and physician feedback was positive post implementation. Future work for this QI project includes production of a quarterly productivity tracker for clinic leaders. EPC will be notified of their quarterly productivity providing them with real time feedback to professionally improve their efficiency. As well, the role of the quality assurance education specialist will also be instrumental to the long-term success of the scheduling bundle by providing ongoing education and training to sustain the improvement.

Funding

There was not any funding for the QI project.

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Appendix A- Definitions

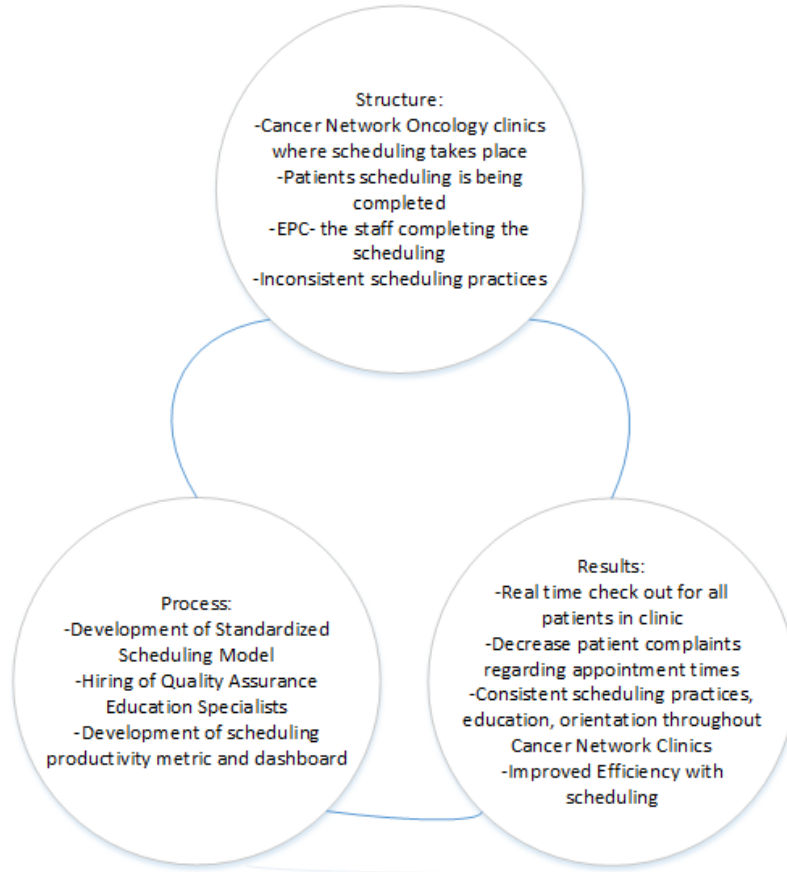
Best Practice Clinics (Community Site Clinics / Grace Clinic on FMLH Campus)	Clinics who exhibited best practices through observations
Underachieving Clinics	Clinics who did not exhibit consistent or standard scheduling practices through observations
Oncology Providers	Includes Oncology Physicians and Advanced Practice Providers
Current Scheduling Paradigm	Current scheduling process observed
Best Practice Paradigm	Scheduling process implemented for QI project

Appendix B – SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Engaged Scheduling staff • Best practice clinics • Strong Executive leadership support • Top quartile patient satisfaction scores in all but scheduling questions 	<ul style="list-style-type: none"> • Physicians/APP/Nurses completing scheduling tasks • Increase patient complaints • Decrease patient satisfaction • Increase staff turnover • Variability of scheduling staff mix • Variability in onboarding new staff and continued education for current staff • Lack of staff productivity metric • Rescheduling of patient appointments • Financial impact on overtime, turnover, and productivity
Opportunities	Threats
<ul style="list-style-type: none"> • Provider templates • EPIC modifications 	<ul style="list-style-type: none"> • Patient’s seeking oncology care at competing organizations due to the dissatisfaction in the current scheduling paradigm.

Appendix C Donabedian Quality of Care Model specific to Scheduling Challenges within Cancer Network

Donabedian's Quality of Care Model



Appendix D- Scheduling Staff Survey Pre/Post Implementation
Survey to Cancer Center Schedulers regarding current Scheduling Paradigm

Please answer the following statements based on your experience by circling strongly agree, agree, neutral, disagree, or strongly disagree.

1.) My work unit works well together.

Strongly agree ----Agree----Neutral ---- Disagree----Strongly disagree

2.) I get the training I need to do a good job.

Strongly agree ----Agree----Neutral ---- Disagree----Strongly disagree

3.) I like the work I do.

Strongly agree ----Agree----Neutral ---- Disagree----Strongly disagree

4.) I get the tools and resources to provide patients with the best care they deserve.

Strongly agree ----Agree----Neutral ---- Disagree----Strongly disagree

5.) My job responsibilities are clear.

Strongly agree ----Agree----Neutral ---- Disagree----Strongly disagree

If you answered “neutral” to any statements or would like to comment on your experience, please do so below.

Appendix E- In Scope/ Out of Scope for QI Project

<u>In Scope</u>	<u>Out of Scope</u>
<ul style="list-style-type: none"> - Scheduling Coordinators/ EPC/EPC Leads -Medical Oncology – all sites -Surgical Oncology- all sites -Radiation Oncology -Community Clinic only -Hematology Oncology- all sites -Provider ordering process - 90 day voluntary turnover metrics - Patient satisfaction scheduling process questions – 3 Questions - Staff pre/Post Survey - Space - Onboarding training - Continuous Learning/Education - Skill Mix - Use of EPIC - Radiology MSS relationship - Scheduler/EPC/EPC lead productivity 	<ul style="list-style-type: none"> -Radiation Oncology -FMLH -Benign Hematology/ Sickle Cell -Lab -Infusion/Day Hospital -Fundamental changes to EPIC -New Patient Coordinators -Involuntary Terminations

Appendix F Cancer Network Clinic observations

Site	Real Time check out (Y/N)	Skill Mix	Work queue start	Work queue end	Defer/Scheduled through	Schedule through WQ or Appt desk	Comments
FMLH - Courage	Y	1 SC 2 EPC 1 GYN Scheduler in clinic	32	All touched	-Scheduled through October Defer standing orders once schedule 2 out - May defer others always- May defer others always call patient first.	WQ	- Wayfinding -Do not schedule CT surgery -do not schedule GYN procedures -Delete any orders over 1 year old when in apt desk -Do not transfer to MSS – call to schedule patients - MRI – long wait the other tests “are not bad” -Defer standing orders once schedule 2 out - May defer others always call patient first.
FMLH- Faith	N	2 SC 1 EPC 1 EPC lead SC to EPC promotion after 6 mo to 1 year experience	140-200	150-250	1-2 weeks –try not to defer anything unless patient preference	WQ	-consistent phone interruptions -having to consistently clarify orders due to not having appt times -20-30 min to schedule one infusion -cannot change round up or round down infusion times until 2 days before appt.- then have to

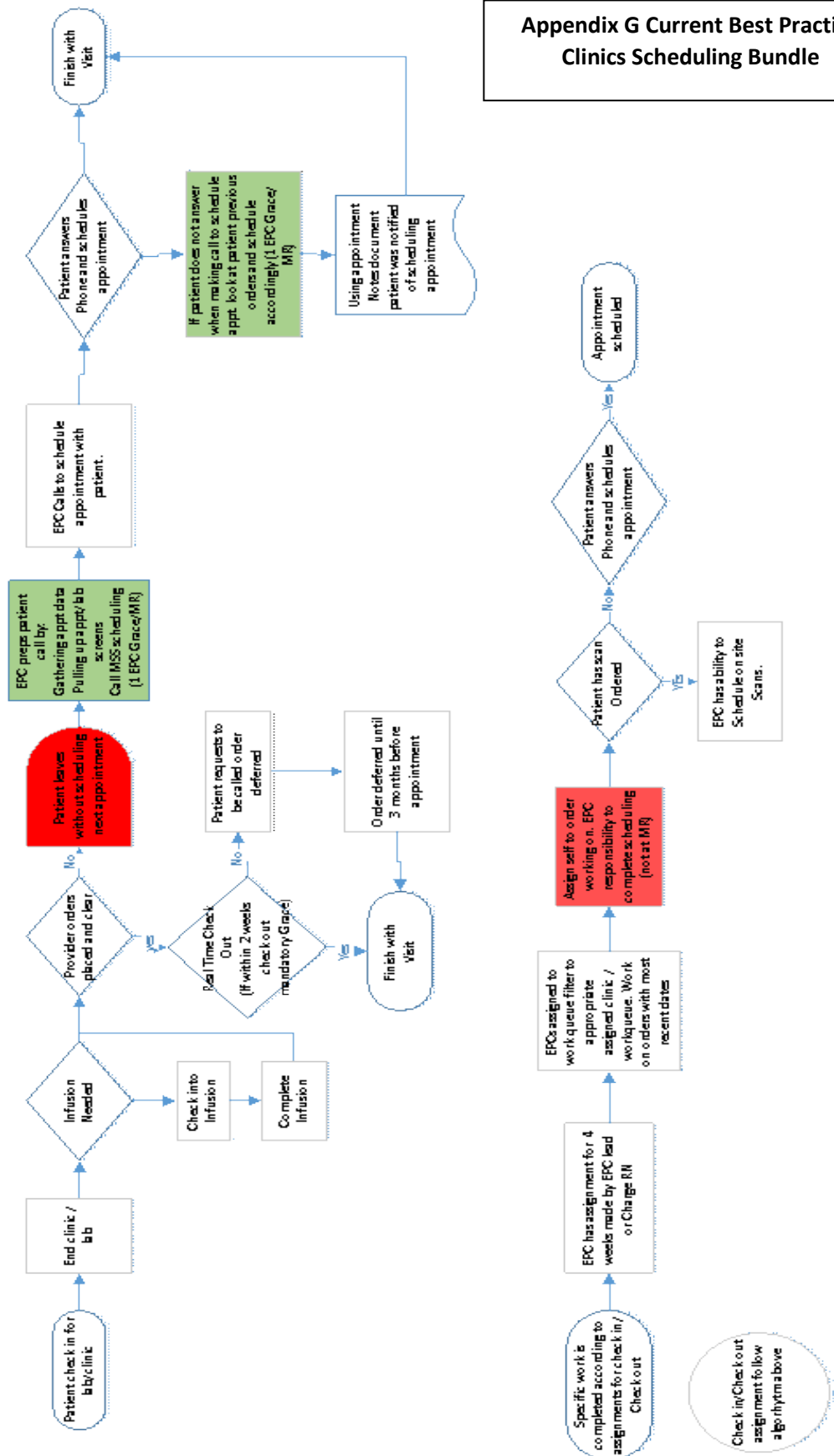
							<p>call Stacy to verify it is ok</p> <p>-Only send single scans to MSS</p> <p>-Do not forward orders to MSS as “never gets done”, just gets deferred, rather sit on phone for 30 min. do it myself”</p> <p>-No deferrals</p>
FMLH-Hope	N	1 SC 3- EPC	80-100	80-100	Defer not consistent	WQ	<p>-Hold times with MSS >20 min for MRI/CT scans</p> <p>-Patients don’t return calls once leave clinic</p> <p>-never get ahead – frustrating</p>
FMLH-Life	Try	3 EPC 1 SC	unknown	Unknown	Scheduled through September -Defer not clear	WQ	<p>checking voicemail</p> <p>-MSS waiting on hold get patient on line then schedule</p> <p>-Uses apt notes</p> <p>-approx 45 min inefficient time spent looking at staffing, socializing with any person</p>
Site	Real Time check out (Y/N)	Skill Mix	Work queue start	Work queue end	Defer/Scheduled through	Schedule through WQ or Appt desk	Comments
FMLH-Breast	Most of the time	4 EPC	150+	150+	-Scheduled through August -Uses Deferral guidelines not clear	WQ	<p>-lots of questions on standardization of work flow</p> <p>-Breast imaging scheduling barrier</p> <p>-reschedules</p>

							<ul style="list-style-type: none"> -Call MSS do not transfer -NPC orders in work queue barrier -Do not work on staff messages, my charts, patient request -Confusing templates -no rules or guidelines for templates /provider schedules. -Screening mammogram orders expire 1 yr and 1 day... can this be changed? -Modified orders not cancelled, fills up work queue -Patient get a list of scheduling options? -No show clarification -past request date but not expired clarification
FMLH-Grace	Y	5 EPC Specific assignments	Many	Many	No deferrals/ as assigned	WQ	<ul style="list-style-type: none"> Assign all orders to each other -Call MSS to schedule do not transfer to MSS Wait times
MR	Y	2 EPC sometimes 3	Varies - 15	Varies - 15	No deferrals	WQ	<ul style="list-style-type: none"> -Wayfinding -do not assign to self -Ada does all work queue when she is at MR

							<ul style="list-style-type: none"> -Check in and out for dr. lab and infusion -Wristbands for procedures and infusions -Med list printed for all drs. -Use appt desk notes -Coordination of appt can be challenging.
Site	Real Time check out (Y/N)	Skill Mix	Work queue start	Work queue end	Defer/Scheduled through	Schedule through WQ or Appt desk	Comments
DTS	Not consistent	3 EPC	Under 20	Under 20	No deferrals	WQ	<ul style="list-style-type: none"> -Always taught to work in in basket consistently keep orders down. -Phone calls -Prepping for next day - only print off med sheets if other paperwork - Rad onc check in/out -Send to MSS to schedule if 14 days or longer
FMF	Y	5 EPC	25	5	Only defer if no answer on 1 year follow up phone calls or patient preference	WQ	<ul style="list-style-type: none"> -Dr. Narra adds, deletes, modifies patient orders consistently (his patient orders become a "secret handshake to know what to do"

							<ul style="list-style-type: none"> -Dr. Alqwasmi puts in one request and puts all orders under scheduling instructions -OPCC scheduling -Schedules for Radiology exams to be done at FMF(nothing offsite) -Uses appt. notes -Assign self -Providers use scheduling instructions
FWB	Y	4 EPC 1 Scheduling Coordinator to answer phones, check in, basic scheduling of labs, dr. appts, no infusion	25	Varies goal is 0	Only defer if no answer on 1 year follow up phone calls or patient preference	WQ	<ul style="list-style-type: none"> -do not give med list -All forms given in patient room by techs -Increase of volumes -Armband all patients except nursing visit patients -Check out does all pre registration when scheduling appt to make easier on check in

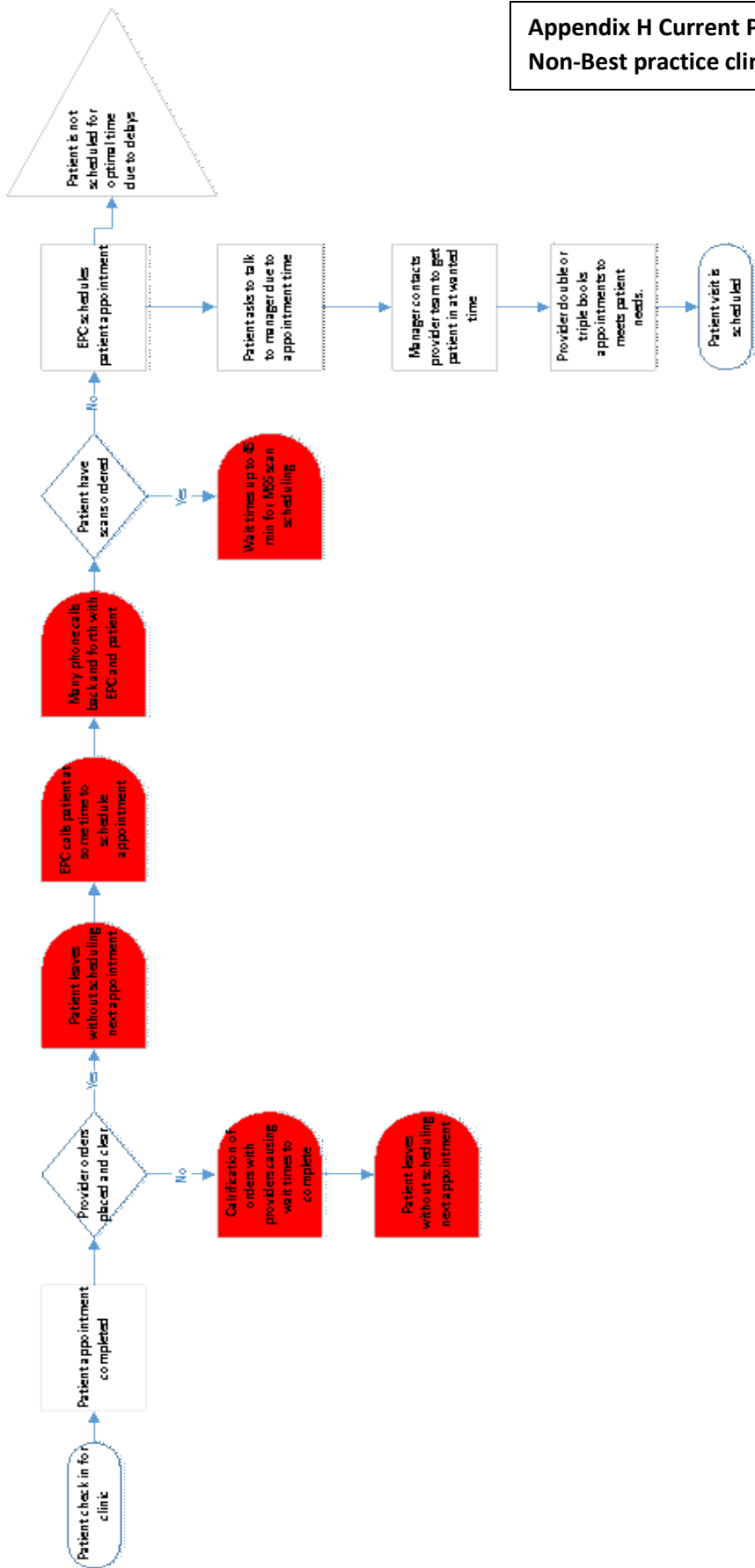
Appendix G Current Best Practice Clinics Scheduling Bundle



Cancer Network Clinics

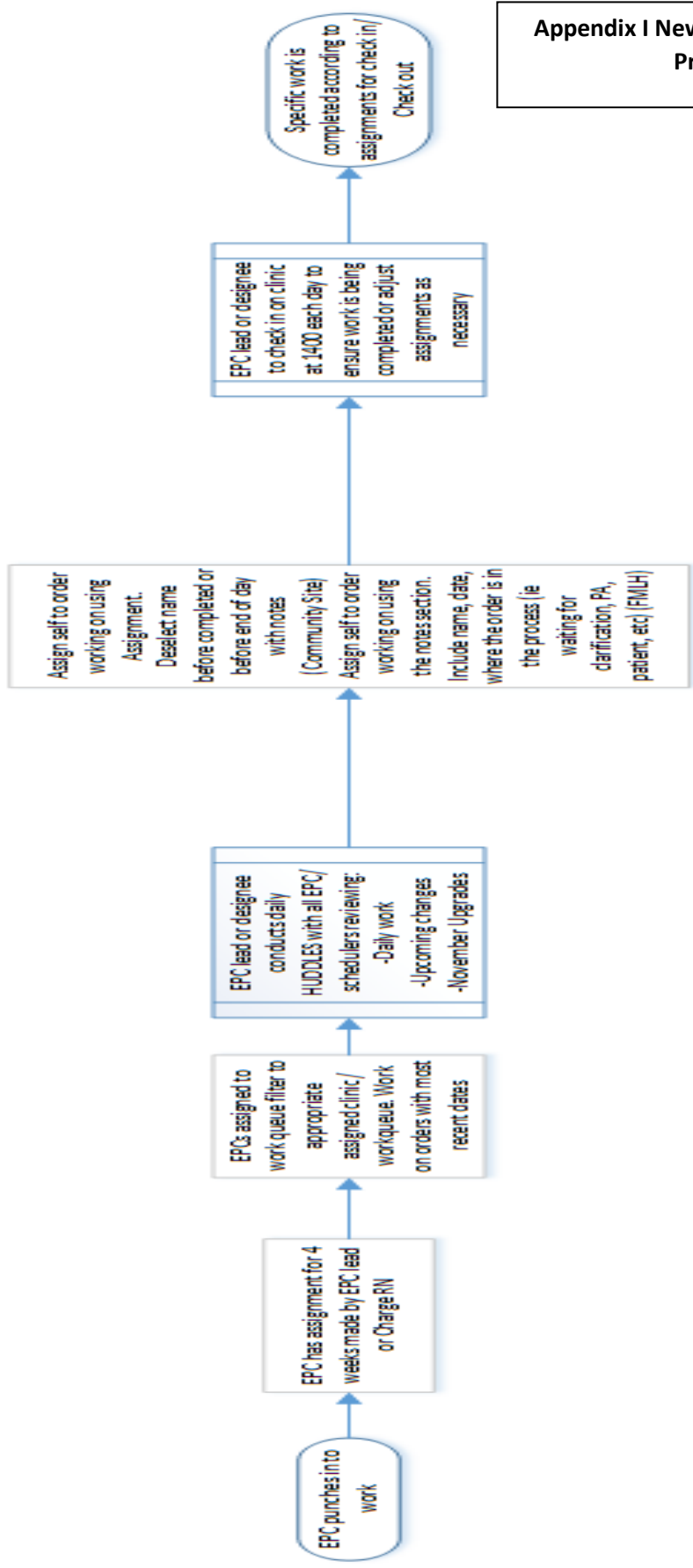
- Moorland Reserve
- Froedtert West Bend
- Froedtert Menomonee Falls
- Drexel Town Square
- Grace Clinic

Appendix H Current Process flow for Non-Best practice clinics



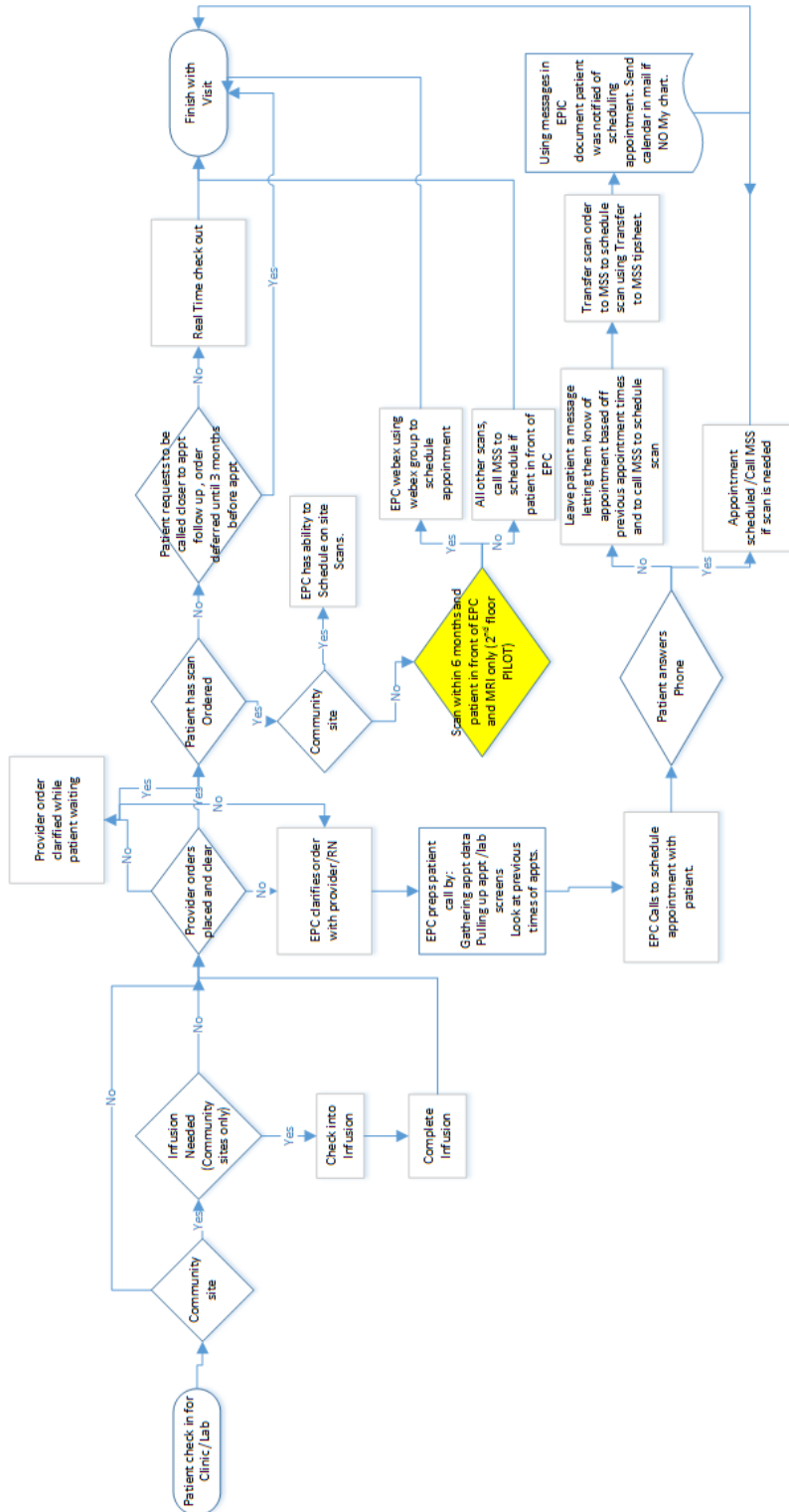
Cancer Network Clinics
 Breast Care Center
 Life Clinic
 Faith Clinic
 Hope Clinic
 Courage Clinic

Appendix I New Daily Assignment Process



Appendix J Standardized Best Practice Scheduling Bundle

8/29/22



Appendix K Quantative Data

Displayed as Monthly Averages	Baseline Data September-December 2021	Post Intervention Data August-September 2022
Total number of orders	2661	1691
Total Productive Hours	606.58	298.17
Productivity	4.39	5.67
Patient Satisfaction	82.6%	80.9%
Staff 90 Day Turnover	84.9%	29.6%
Appointment Schedule Time	3 days to 1 week	3-6 months
Scheduling Staff Survey	No Change	No Change

Appendix L Graph Baseline/Post intervention Productivity

