

Improving New Patient Access in Ambulatory Pediatric Subspecialties

by

Erika Garrison

BS in Kinesiology, College of William and Mary, 2013

Submitted to the Graduate Faculty of the
Department of Health Policy and Management
Graduate School of Public Health in partial fulfillment
of the requirements for the degree of
Master of Health Administration

University of Pittsburgh

2020

UNIVERSITY OF PITTSBURGH

GRADUATE SCHOOL OF PUBLIC HEALTH

This essay is submitted

by

Erika Garrison

on

May 15, 2020

and approved by

Mark S Roberts, MD, MPP, Professor and Chair, Health Policy and
Management, Graduate School of Public Health, University of Pittsburgh

Caroline Kolman, MBA Industrial Engineering Lecturer, Swanson School of
Engineering, University of Pittsburgh

Seth Young, BS, Business Process Analyst, Children's Hospital, Pittsburgh,
Pennsylvania

Copyright © by Erika Garrison

2020

Improving New Patient Access in Ambulatory Pediatric Subspecialties

Erika Garrison, MBA, MHA

University of Pittsburgh, 2020

Abstract

The ability to access healthcare is challenging for many individuals and is further limited when seeking access to subspecialty care. Public health is in part driven by timely access to care, the ability to access clinical services is critical for the health of the population. Timely access to care is an imperative, but its exceedingly critical for the pediatric population during their formative years. UPMC Children's Hospital of Pittsburgh identified a gap in access to care for new patients. To address this, a hospital wide initiative was constructed in partnership with executive leadership, clinicians, and quality improvement staff to address access to care in the ambulatory setting. This essay will contextualize the public health significance of access to healthcare and further detail the procedures implemented by UPMC Children's Hospital of Pittsburgh. The goal of the initiative is to limit use of capital expenditure and focus on scheduling procedures and standardize clinic flow to increase the percentage of new patients who are able to schedule an appointment within two weeks.

Table of Contents

1.0 Introduction.....	1
1.1 Rationale for Targeted Issue	1
1.2 UPMC Organizational Overview	2
2.0 Literature Review	4
3.0 Hypothesis and Expected Outcomes	6
4.0 Design Methodology and Data.....	7
4.1 Guidelines and Standards Document	8
4.2 Electronic Medical Record Scheduling and Contact Center.....	9
4.3 Clinician Engagement	15
4.4 Data Captured	17
4.5 Rapid Improvement Event	18
4.6 Reporting Structure and Long-Term Engagement.....	19
5.0 Findings and Results.....	20
6.0 Analysis	24
7.0 Discussion.....	26
8.0 Conclusions, Recommendations and Public Health Implications	28
Bibliography	29

List of Figures

Figure 1 Standard Template	10
Figure 2 Misaligned Template	12
Figure 3 Best Practice Template.....	13
Figure 4 New Patient Access within 14 Days: Pilot Divisions.....	21
Figure 5 UPMC Children's Hospital: Average Days to Schedule New Patients.....	22
Figure 6 Access to Care 3 Months	23

1.0 Introduction

1.1 Rationale for Targeted Issue

The World Health Organization defines social determinants of health as the conditions in which people are born, grow, live, work and age ("About social determinants of health", 2017). The distribution of resources and demographic factors further limit these determinants at varying levels. One large contributor to health outcomes is access to healthcare. The barriers of accessing health services include unmet health needs, delays in receiving appropriate care, inability to get preventive service, financial burdens, and preventable hospitalizations ("About social determinants of health", 2017).

In conjunction with the high-level public health concerns, as well as industry changes and challenges, access to adequate healthcare is both a national and organizational level priority. The issue of access to care has multiple facets and barriers. The strategic approach can vary widely among institutions, but with the mounting financial pressure and uncertainty of revenue streams and reimbursement for healthcare providers, the approaches are limited from a financial capital perspective.

This essay aims to detail an initiative at UPMC Children's Hospital of Pittsburgh that sought to address timely access to care in pediatric subspecialties. More specifically, addressing the limited availability of new patient appointments contributed to long wait times and delayed care for the pediatric population.

1.2 UPMC Organizational Overview

The University of Pittsburgh Medical Center (UPMC) is one of the largest academic medical centers in the United States ("UPMC Facts & Stats: Health Care Provider & Insurer-Pittsburgh, Pa."). As an integrated delivery and finance system, UPMC has the mission to "Serve [our] community by providing outstanding patient care and to shape tomorrow's health system through clinical and technological innovation, research, and education" ("Mission, Vision, and Values"). Though it is based out of Pittsburgh, UPMC maintains and operates 40 academic, community and specialty hospitals across 3 states, and is the largest non-governmental employer in the state of Pennsylvania.

UPMC operates in four main categories including the Insurance Services Division (ISD), Health Services Division (HSD), International and Enterprises. UPMC Children's Hospital of Pittsburgh (CHP), operates within the HSD. The Children's hospital shares the same values as UPMC with the added vision of being the world leader in Children's health ("Vision, Mission, & Values: Children's Hospital Pittsburgh").

From its original inception over 120 years ago the UPMC Children's Hospital of Pittsburgh has grown into a top-ranking institution providing pediatric subspecialty care as well as emergency, inpatient, and surgical services. The Children's hospital has 313 licensed beds dedicated to acute, emergency, rehabilitative, and critical care.

The ambulatory services have a large presence in the western Pennsylvania region. In addition to the care provided at the main hospital, CHP also has satellite campuses for outpatient visits, procedures, and surgical interventions. In fiscal year 2018, CHP provided care for over 1 million outpatient visits (About UPMC Children's Hospital of Pittsburgh). There are over 25

varying subspecialties within CHP, that make up ambulatory services. Each subspecialty, referred to as a division, varies in volume and services provided.

2.0 Literature Review

Limited research has been done on the how to effectively reduce wait times for available appointments in pediatric subspecialty care. Many access studies and reports summarize the impact of primary care physicians and preventative medicine. Though there are clear commonalities for accessing care in a primary setting and an acute setting there are nuances and differences in care delivery such as referrals, scope of practice limiting provider supply, and acuity.

In a study to comparing primary care physician (PCP) satisfaction with referrals to specialty care, perceived supply, and barriers to care; most PCPs were satisfied with the quality of the care. The study did provide evidence for concern around wait times to receive an appointment, and the availability of medical and surgical specialties. The concern varied based on service, but 49% of nonrural PCPs reported dissatisfaction with wait times for appointments (Pletcher, et al., 2010). This study provides evidence that concern regarding access to care is not only true for patients, but for the referring care team as well.

The assessment of lack of access to care and supply of pediatric subspecialties is in part a result of the utilization and perceived need for care. Children in counties with the lowest supply of pediatric subspecialists had lower perceived need as well as lower utilization. The supply of subspecialists was defined by the number of pediatric subspecialists per 100,000 children. The utilization was captured through parental self-reporting on the number of visits over the previous year. The outcomes were not associated with differences in disease burden in children or families (Ray, Bogen, Bertolet, Forrest, & Mehrotra, 2014).

Only one project has attempted to increase access in pediatric subspecialties through similar methods of scheduling and clinical contribution. The Children's Hospital at Montefiore in

Bronx, New York is an urban academic hospital with faculty-based practice. The initiative sought to increase the number of appointment slots, protect new appointments from conversion to return appointments, and mandating a specified number of new patients per session. Nearly a year after the implementation, the division of pediatric endocrinology and diabetes saw a decrease in appointment scheduling wait time from 11.4 to 1.7 weeks. The initiative was also able to maintain this improved access with increases in visit volume and an increase in the ratio of new patients compared to return patients. The defined metric of success was the number of weeks to the third available appointment. This methodology was standard through all ambulatory practices. The metric was supplemented with other measures of success such as, total monthly visit volume, total volume per provider, and no-show rate for the endocrinology practice. This intervention was statistically significant and proved successful for the group. The recommended strategies are generalizable, however there are many variables within the intervention and practice that may not apply if implemented elsewhere. The single-site study may affect the ability to generalize across broader geographic areas. The physician satisfaction was not measured and may hinder the success as well as limit percent increase in new patient seen per provider. The approach in this essay parallels the strategy implemented by UPMC Children's Hospital of Pittsburgh by limiting utilization of capital resources and standardizing scheduling and clinical effort (Heptulla, Choi, & Belamarich, 2013).

3.0 Hypothesis and Expected Outcomes

The limited research in improving new patient access for subspecialty appointments did not provide well examined evidence to anticipate expected outcomes in access improvement. The goal of this initiative was to improve new patients access for scheduling an appointment within 14 days. The hypothesis was, if processes surrounding scheduling, as well as standardization of clinic sessions and clinical effort were corrected and streamlined, then there would be an increase the number of new patients seen within 14 days. The expectation was that the collective medical subspecialties would improve to a minimum of 50% of patients seen within two weeks. In conjunction with the increasing number of patients seen promptly was the expectation that patient satisfaction would improve, more specifically around the CGCAHPS survey domain of access to care.

4.0 Design Methodology and Data

The initiative to improve new patient access within the ambulatory subspecialties began with a targeted selection of divisions. A division is defined as the group of clinical providers as well as administrative management and support staff that are dedicated to a subspecialty. The initial scope of the initiative was focused on targeting divisions with large volume and limited access within 14 days. This cohort of divisions, referred to as the pilot group, was comprised of the following five subspecialties: Otolaryngology, Pulmonology, Endocrinology, Gastroenterology, and Neurology.

Each pilot division was supported with a coach to guide the division stakeholders through the access initiative and act as a liaison between the division and executive steering committee. The coaches had a background in quality project management and process improvement that proved beneficial through the duration of the initiative. The coach designated to the division was responsible for hosting weekly meetings and assisting the division in change management as well as auditing the electronic medical record (EMR) and scheduling protocols for accountability.

Though the traditional and initial thought of hiring additional staff or constructing new space is often considered, the strategy of this project was to improve processes and eliminate waste without large capital investment. It was evident that certain processes were not well aligned and limited capacity for new patients. The first processes addressed surrounded scheduling and the use of the corporate contact center. Upon standardization and synthesizing of EPIC tools and scheduling protocols, the next step was to address clinical effort of physicians and advanced practice providers to establish standards on clinical sessions.

4.1 Guidelines and Standards Document

The foundation of the initiative was establishing standard guidelines that were applicable across different divisions. A ‘Standards Document’ was created by the executive steering committee, comprised of executive leadership within Children’s Hospital as well as the corporate entity responsible for quality across the UPMC system. The standards document established clear definitions and guidelines for clinical full time equivalent (cFTE) activities, standard sessions, clinic hours, template availability and template design. Though there is natural variation between divisions based on the clinical nature of their specialty, the standards document was established as a guideline that would be invariable between any specialty that was defined as in-scope for this initiative. The document established formal accountability and required that any exceptions be approved through the executive steering committee with vice president approval.

The standards document was established with consideration of establishing equity within and across divisions, addressing operational challenges such as clinic flow, and establishing a foundation for strategic growth and innovation in the future. The first component of the standards document, definition of cFTE activities, established equity in provider contribution within a division. Though much of access is considered to be driven by physicians and advanced practice providers, there are other operational challenges such as space utilization and staffing of medical assistants, registration, and nursing that are critical to the flow of clinic. These challenges were addressed in the standardization of clinic session start times and durations. The strategic vision for CHP relies on a streamlined foundation of these components to allow for volume growth as well as the ability to cater to patient preferences of online scheduling and the general need for adequate access to care.

4.2 Electronic Medical Record Scheduling and Contact Center

A key factor of success throughout this project was to include the various stakeholders. Due to the large structure of UPMC not all stakeholders were internal Children's Hospital employees. It was critical that the contact center, the corporate entity responsible for answering phone calls and scheduling through the EMR platform, was included. The contact center is a corporate entity, and a subset of the analysts are responsible for answering calls specific to the pediatric population. The contact center staff is not physically located within Children's and is not clinically trained.

The first step in this process was education and level-setting between Children's staff and the contact center. The administrative and clinical leaders were educated on the basic tools currently utilized by the contact center to allow for better understanding when eliminating unused tools and streamlining applications. The template is the foundation of a session. Within a template are block types and visit types. The block type denotes the duration of a slot and what the slot is reserved for while the visit types specify the type of visit a patient may be requesting. The visit type may be broad in nature, such as a standard 'New' or 'Return' visit, but they may also be very specific and based on clinical diagnosis. For example, the division of Neurology may have a 'White Matter' visit type, and only patients with that reason for visit can be scheduled at that time and date specified in the schedule. However, the specificity of that visit type and the low volume of patients that meet that diagnosis criteria is limited; therefore, that specified time in the template may go unfilled and is wasted capacity. The more generic the visit type and block type, the less limiting, and therefore easier for the contact center to fill that slot.

Many errors resulted during the scheduling process because durations were misaligned between the visit type and the block type within the template. As seen in Figure 1 there is a difference in duration between a new and return visit types and block types.

EXAMPLE TEMPLATE: Standard		
Time	Block Type Visit Type	Duration
8:00	Return BLOCK Type Return VISIT Type	30min
8:30	New BLOCK Type New VISIT Type	1hr
9:00		
9:30	Return BLOCK Type Return VISIT Type	30min
10:00	Return BLOCK Type Sick VISIT Type	30min
10:30	New BLOCK Type Diagnosis X VISIT Type	1hr
11:00		
11:30	Return BLOCK Type Return VISIT Type	30min
12:00		

Figure 1 Standard Template

Within the contact center, an analyst is only able to schedule a patient if the duration of the visit type is equivalent to a block type. The errors that arise are typically a result of visit types placed in block types that are not equal in duration. In ‘Appendix – Example template: misaligned’ there are two types of errors demonstrated. The first error occurs when a new visit type is forced into a return block type. In this instance a contact center analyst would not be able to place this visit type into the block type at 8:00, the outcome would force the analyst to schedule at a later date to find a block type that has a matching length of time. The second type of error results when a return visit is placed in a new block type. This error results in two unfavorable outcomes. Though the return visit will fit within the new block type because its duration is shorter, the new block type will split into two 30-minute new block types. When another analyst attempts to find a time for a patient, they will not be able to fill the split block with a new patient because a 1-hour new visit type will not align with a newly created 30-minute new block type.

EXAMPLE TEMPLATE: Misaligned		
Time	Block Type Visit Type	Duration
8:00	Return BLOCK Type	30min
8:30	New VISIT Type	1hr
9:00	New BLOCK Type	1hr
9:30	Return BLOCK Type	30min
10:00	Return BLOCK Type	30min
10:30	Return VISIT Type	1hr
11:00	New BLOCK Type	1hr
11:30	Return BLOCK Type	30min
12:00		

Figure 2 Misaligned Template

The best practice in designing and establishing visit types, block types, and templates is to have components that are flexible with the fewest limitations possible. This can be achieved when the number of block types and visit types are reduced. A blank block type will allow varying types

of visits to be scheduled. The Appendix item ‘Example Template: Best Practice’, showcases a template that has new and return block types and visit types that are equivalent in duration. This allows for flexibility in scheduling and reduces the chance of scheduling errors. In comparing the Figure 3 and Figure 1, the same number of patients can be seen with the same combination of new and return patients with a less complicated scheduling processes.







EXAMPLE TEMPLATE: Best Practice		
Time	Block Type Visit Type	Duration
8:00	Blank BLOCK Type  Return VISIT Type	40min
8:40	Blank BLOCK Type  New VISIT Type	40min
9:20	Blank BLOCK Type  Return VISIT Type	40min
10:00	Blank BLOCK Type  Return VISIT Type	40min
10:40	Blank BLOCK Type  New VISIT Type	40min
11:20	Blank BLOCK Type  Return VISIT Type	40min
12:00		

Figure 3 Best Practice Template

Once the standards surrounding visit types and lengths are solidified and congruent throughout the division, they are further scrutinized to ensure that the summation of the slots comprise a standard session. A standard session is defined as the summation of visits that are equal to 4 hours. In the figures above the visits are in durations that can be multiplied to equal the time of 4 hours, this became a challenge for divisions that had varied visit and block lengths that could not be combined to create 4 hours. Certain divisions had visits at 45-minute interspersed between visits that were 20 minutes. Filling a standard session proved difficult when the sessions were not combined to be divisible into an even 4 hours.

The next rule within the standards document was the start and end time of a clinic session. A full day is divided into an AM and PM session, at 4 hours each to equal an 8-hour day. The AM session is required to begin between 7:30 and 8:30 am. The PM session is required to start between 12:00 and 1:00pm. There are multiple reasons for establishing the session guidelines in this matter. The first reason is to establish a regular staffing model within the clinic area, including registration, medical assistants, and nursing to staff in regular intervals. It is also addressing the shared space model within the ambulatory suite. Divisions share exam rooms and space throughout the day. If a certain division only has a morning session, they will need to relinquish their clinic space to the complementary division that is scheduling for the afternoon session. Without the strict guidelines there would be overlapping schedules that would not allow for adequate space for the exam rooms.

One unique consideration made for the start and stop times was the varied geographic spread of CHP's ambulatory clinics. The main location for the divisions resides in the city limits of Pittsburgh, however there are satellite locations in the surrounding suburbs, and outreach locations upwards of 200 miles away from the main location. Satellite locations in the suburbs of the city were required to abide by the standard start and end times for a session. However, outreach

locations were given a secondary set of guidelines, and were allowed to start a specified later time, to accommodate provider travel time.

4.3 Clinician Engagement

The scheduling simplification and standardization could not be addressed without the input of the clinical leaders. Though best practice is to streamline the duration of the visit and block lengths, the nature of the visit and clinical complexity needs to be accounted for. Clinical Directors were vital to the assessment of visit types and durations. Not only are there differences between subspecialties, but within a subspecialty there can be variation. Within a division there may be sub-sub specialization, procedural, or multi-specialty visits. Coordination with other specialists or services such as social work, behavioral health, audiology, or physical and occupational therapy need to be considered. Each pilot division assessed the duration of visits to ensure that visit types were consistent between providers and accounted for the clinical time needed with each patient. The expectation was that providers of similar practice scope should have equivalent visit lengths for similar visit types.

The final guideline of the access initiative standards document was the assessment and calculation of clinical full-time equivalent (cFTE) activities. In an effort to define and establish common ruling on the definition of cFTE, the article by Elaine Gallagher and Dean Rapoza in the *Journal of Pediatrics* stated:

“In general, the calculation of faculty clinical effort is universal: total billable clinical effort divided by total effort. It is understood that institutions have different expectations for total effort. It is also understood that particular specialties within a given

institution have different expectations for total effort. For this survey, members should use their institution's accepted standard for each full-time position. For example, a physician who spends thirty hours per week, on average, on billable clinical activities and typically works sixty hours per week would be considered a 0.5 CFTE." (Gallagher & Rapoza, 2010)

Though cFTE was generally understood, contracted, and scheduled accordingly within CHP, it was not previously explicit in its relation to a scheduled session. The standards document established the ratio of 0.1cFTE to be equal to 1 session. As stated previously the sessions were given guidelines as well to create uniformity and equity throughout the ambulatory services. Though the focus of the initiative is on ambulatory services; inpatient, procedural, and interpretation of diagnostics was still accounted for within cFTE activity. In the academic setting there are varied levels of contracted cFTE among faculty. A research focused faculty member may have a 0.1 cFTE and would be expected to have one clinic session per week. A provider in the context of this initiative would typically have a cFTE no greater than 0.8 to accommodate for administrative time, research, and other responsibilities.

Alignment with this guideline varied across divisions as well as individual providers. There were individuals on both sides of the standard, some working above and some below their contracted clinical effort. Right sizing each physician across the pilot divisions had outcomes that affected space required and pre-established schedules. Within certain divisions it resulted in individuals adding numerous sessions and further improved the availability to see new patients.

Another facet of clinical engagement is the physicians' operation in conjunction with the advanced practice providers (APPs). APPs include nurse anesthetists, nurse practitioners, nurse-midwives, and physician assistants ("Advanced Practice Providers"). Through programs within UPMC Children's Hospital of Pittsburgh, APPs have the opportunity to gain training to

concentrate in certain specialties. Each division utilizes APPs differently but is expected to effectively utilize APPs at the top of license. The APPs are also expected to have schedules that are independent of the attending physicians' schedules as to not duplicate efforts. However, they are not inherently required to have appointment durations equivalent to a physician, as outlined in the standards document.

4.4 Data Captured

The overarching goal of this initiative was to improve the percent of new patients within 14 days. There were many metrics and audits captured throughout the duration of the project. A QlikView dashboard was established and utilized to capture new patients scheduled within a variable number of days, volumes, no show and cancellation rates as well as number of visit types used. The flexibility of the dashboard allowed for more extensive analytics, because data could be further divided by visit type, specific location, or individual provider.

The audits completed by the project coaches, were more manual in nature and involved inspection of the EMR scheduling practices. The audits were able to identify errors in communication between the CHP staff and the contact center responsible for scheduling the majority of patients. Coaches were expected to audit and report to both the clinical divisional leadership as well as executive leadership on findings or barriers found to further correct the process.

4.5 Rapid Improvement Event

The pilot divisions are responsible for a large proportion of CHP's patient volume but could not drive access across all the medical practices. The remaining 20 divisions that were not participants in the pilot division roll-out would now be involved in a rapid improvement event to accomplish the same goals in a shorter timeline. The goal of the rapid improvement event was to increase the collective divisions new patient access from the current state of 38% to a minimum 50% of new patients seen within 14 days.

The structure of the project timeline was drastically different from the original pilot divisions. The coaches were now responsible for multiple divisions at one time. The rapid improvement event brought together all clinical and administrative leaders from the remaining divisions and condensed the education and scheduling standardization into an 8-hour session. The contact center staff presented educational material similar to the pilot divisions, and the coaches were responsible for engaging with leaders to enact the scheduling updates by the end of the session. At the conclusion of the event, division leaders were responsible for reporting to rapid improvement event attendees the changes made in metrics of percent reduction in block and visit types, number of updates to providers listed as available for scheduling. Executive champions were present throughout the event and at the conclusion of the reports introduced the second phase of the access initiative to the non-pilot group. Similar to the pilot group, but again on a condensed timeline, the coaches were responsible for navigating the change management of clinical effort and standardization of sessions and templates. The original pilot divisions were still involved in continual improvement and acted as successful advocates and champions of the access initiative.

4.6 Reporting Structure and Long-Term Engagement

The timeline for the 5 pilot divisions began in February of 2019 with weekly meetings lasting through early August of 2019. The non-pilot divisions were held accountable to the same goal of achieving 50% new patient access on a timeline that began in late August of 2019, with weekly meeting lasting through December. Though the magnitude of 20 divisions enacting change in half the time needed for the pilot divisions, the non-pilot divisions started with markedly better access and in certain cases had new patient access above 80% of patients seen in 14 days. Arguably the divisions that exceeded the access goal could have been excused from the initiative, the standardization, equity, and accountability of the guidelines was essential for hospital wide success.

At the conclusion of 2019 the reporting structure and engagement of coaches changed, and the most intensive portion of the initiative concluded. The coaches were no longer responsible for weekly meetings, but the divisions were now required to report out on specified metrics, advances made in access, as well as innovative strategies on a quarterly basis. The purpose of quarterly meetings was not only to encourage accountability, but to share best practices across divisions. Executive leadership is present at each report out and provides support, resources, and accountability.

5.0 Findings and Results

The access initiative succeeded in its goal across the pilot and non-pilot divisions averaging over 50% of new patients scheduled within 14 days. The goal of the first phase including the pilot division was to increase the average percent of new patients seen in 14 days from its current state of 26% to 50%. The anticipated completion date was June 30, 2019, approximately 5 months from the from the project kick off. The graph below showcases the statistically significant outcomes. The upper and lower control limits are calculated as two standard deviations above and below the mean. As seen in the graph below, the average percent of new patients seen within 14 days was 28% from January through June, indicating the results were far below the goal. However, the impact of the changes began to manifest in the following weeks, with the new average for the following 6 months being 51% across the pilot divisions. The aggressive goal was not reached within the anticipated timeline, but by September of that same year the pilot divisions reached the goal of 50% or more patients. The new mean is 6.62 standard deviations from the mean of the of the first 6 months.

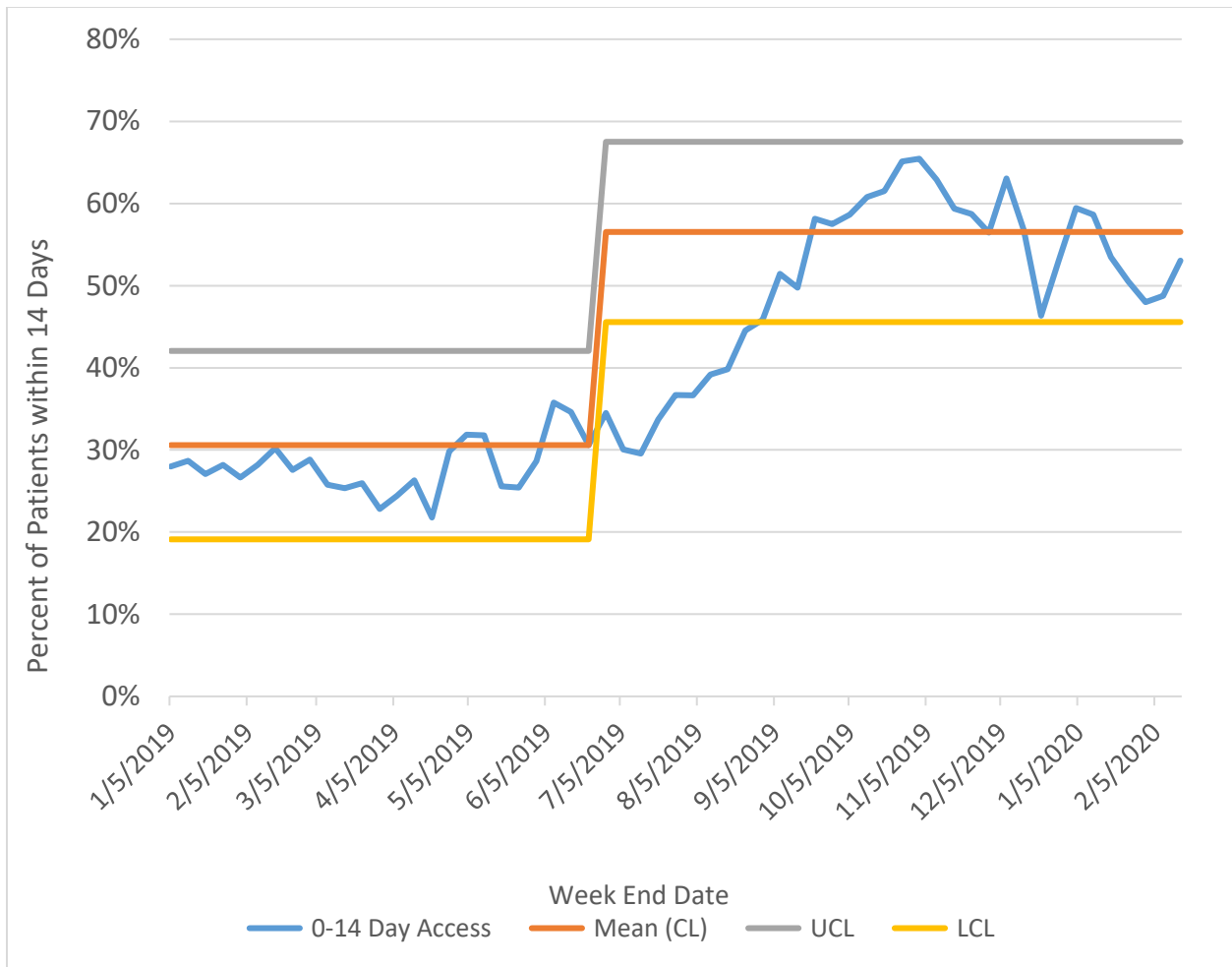


Figure 4 New Patient Access within 14 Days: Pilot Divisions

In late fall of 2019, the highest point of access was reached at 65% of patients. This peak in access further led to the discussion of the threshold of improvement. As data is continually captured there is an anticipation that a plateau will be reached. The expectation that 100% of patients will be seen in 14 weeks is impractical due to clinical necessity and patient preference. With consideration of the aforementioned factors, other metrics were also captured to measure success in patient perception. The first additional metric captured was the number of days to next available appointment. The divisions are held accountable for meeting the metric of 14-day access; however, consideration should be made when patients select to schedule in a timeframe greater than 14 days.

For example, the next available appointment may be within 3 days, however a parent or patient may opt to schedule at a later date to accommodate work, school, travel, or a myriad of other reasons. This additional metric also allowed divisions to identify if the access if access is being impacted by patient preference. By the conclusion of 2019 the access initiative reduced number of days until next available appointment by 15 days, to average 20 days across pilot divisions.

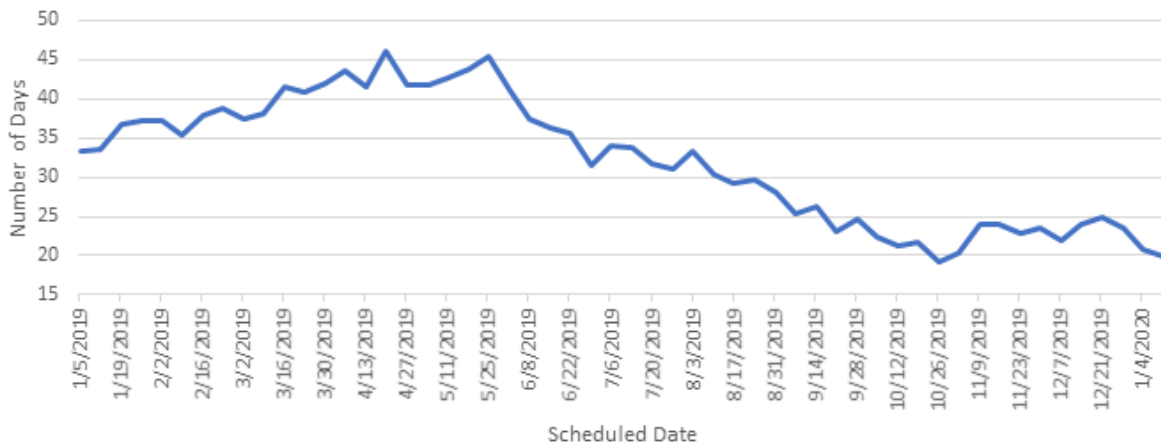


Figure 5 UPMC Children's Hospital: Average Days to Schedule New Patients

The second additional metric captured was patient survey answers received through the Clinician & Group Consumer Assessment of Healthcare Providers and Systems (CGCAHPS) standard survey developed by the Agency for Healthcare Research and Quality (AHRQ) ("CGCAHPS FAQ", 2018). The survey asks varying questions regarding the patients' overall experience, provider communication and recommendation, ancillary staff quality, and access. The survey produces numerical outputs to assess, top box score and percentile rank. Top box score indicates the percentage of respondents who gave the highest possible score or answered 'always' or 'yes'. For the survey question "Did you receive an appointment as soon as you felt you needed?" only answers of 'yes' would contribute to the top box score, all other answers of 'no' receive a

score of 0. The second numerical output is the percentile ranking score, this number provides the national percentile ranking for that question or grouping of questions, based on the top box score.

Prior to the access initiative, patient family advisory boards as well as focus groups were asked what their expectations were surrounding timeliness of appointments. The general consensus was 2 weeks, resulting in the benchmark established for 14 days access. The CGCAHPS survey allowed for further analysis on the patient’s perception of their wait from scheduling to appointment date.

The graph below represents the overall access to care for a patient over the last 3 months. The questions that contribute to this score include perception of timeliness of appointment, answering phones during and after clinic hours, as well as receipt of test results.

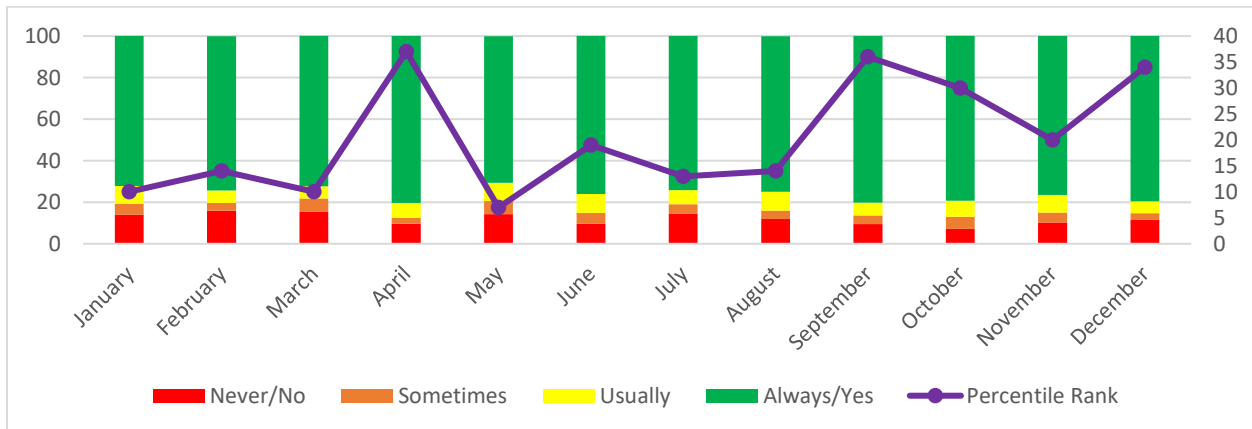


Figure 6 Access to Care 3 Months

It is difficult to attribute the increase in scores to the access project alone, however there is a notable increase in patient experience scores that follows a similar timeline of improvement in access. There is a correlation factor of 0.6 between the monthly average of new patient access percentage and patient experience access scores, but again this does not conclude causality.

6.0 Analysis

The overall outcome of the initiative is positive, with statistically significant improvements. The quantitative measure of success was on par with expectations; however, the timeline was longer than projected. The delay in results was in part due to the implementation timeline that the scheduled changes required. Throughout the initiative scheduling was not interrupted, and every effort was made to not affect currently scheduled patients. As a result of the initial poor access, patients were scheduled months ahead in the schedule. Once a template change was agreed upon within the division, it would not be implemented immediately, it was updated later in the calendar year to avoid rescheduling patients. For example, if a division determined in March that the visit length would change from 45 to 30 minutes, but patients were scheduled through the month of June, the 30-minute appointments would not be implemented until July. In instances where the template was adjusted and affected a patient appointment, patients were notified of updates or possibly contacted to reschedule.

The scores received from the CGCAHPS survey, are valuable and provide insight into patient perception. However, the correlation seen between improved access and patient experience scores is not overwhelming strong. One assumption is that based on the percentile rank, the initiative has not improved Children's ambulatory practice access to a level to exceed or meet patient and family expectations. The correlation between the national ranking and the raw top box score is inconsistent. Previous internal analysis of patient experience scores has indicated an extreme negative skew in the distribution. Over the course of 2019 the patients reported top box scores that exceed 75% satisfaction with access to care. The scope and individual scores of

institutions and practices factored into the percentile rank is propriety, therefore the comparative nature of the score provides inconclusive and ambiguous interpretation.

The strategy behind this initiative was to reach standardized and streamlined practice in scheduling and accounting of clinical effort without incurring large financial costs. The implementations of the scheduling procedures did not bare costs directly or infrastructural changes, however it did have secondary effect. As providers added more patients and visits in a standard schedule, the need for capacity had to be considered. Building physical exam rooms or clinic areas was not deemed necessary, but special consideration for adjustments in the number of rooms needed per day per specialty was carried out through an internal space utilization committee. As best practice was achieved in scheduling and a plateau was reached in access, divisions were able to surmise that additional faculty and staff was needed to continue to improve access. The standards guideline was an excellent source of justification to request a new hire. Divisions were now equipped with evidence that each provider was working to contracted capacity, scheduling errors and inconsistencies were not hindering patients, the next defensible step was to add clinical staff to continue growth and availability. Costs were not incurred due to explicit instruction within the standards documents, but as a result of successful process improvement and capacity management.

7.0 Discussion

The access initiative provided a foundation of best practice guidelines to improve patient's ability to see their care provider as quickly as possible. Each division faced unique challenges and was encouraged to strategize innovative ways to address the specific population's needs and challenges. The division of neurology, one of the pilot divisions, was able to identify and justify a need for a walk-in clinic. Patients were able to arrive at the clinic during specified hours, without an appointment time and were able to see a neurology clinician. The walk-in clinic was justified through a cost-based analysis, identified need based on patient diagnosis and volumes. The model was built with the standards document guidelines in mind and provided an innovative solution.

Another strategy imposed more broadly was the addition of evening and weekend clinic sessions. Thorough analysis allowed leadership to identify divisions that could potentially benefit from adding additional clinic at less traditional hours. To propose the addition of these extra hours the division was required to meet all standards document guidelines, have justifiable volume, as well as be within a determined percentage range of access.

One challenge that was pervasive throughout all medical subspecialties was the high rate of no-shows and late cancellations. A patient, that without notice, does not attend their scheduled appointment is considered a no-show. A patient that requests to cancel their appointment within 24 hours of its scheduled time is considered a late cancellation. In both instances, it is extremely difficult to fill that time with another visit and is considered lost capacity. Unique strategies were adopted by various divisions to address these concerns. One strategy was to contact patients within a specified timeframe to confirm if they still plan on attending and reschedule for a later date if otherwise. Another strategy was double-booking at one point in the schedule. Based on the data

captured by each division there was a strong likelihood that one, if not several patients, would be a no-show or late cancellation. The double-booking strategy was not recommended or implemented in most instances due to the poor patient experience that would result if all patients did arrive for their appointment, in-turn causing clinic flow issues and long wait times.

The mandatory report outs proved to be a great forum for leaders and divisions to discuss various strategies to continue to improve access. Clinicians and administrators were able to have open dialogue about ideas they had with peers who have considered or implemented similar solutions. Another benefit of the report out was the executive presence. The persistent engagement and support of leadership allowed for identified barriers to be escalated and addressed in the forum that resulted in quick resolution.

8.0 Conclusions, Recommendations and Public Health Implications

The access initiative success was realized through additional new patients, innovative solutions for consumer-focused care, at increased patient satisfaction. The scale of the access initiative continued to grow as more divisions were onboarded. Though the impact is large, it is difficult to assign causation. Many changes were implemented simultaneously, and the sum total of the guidelines may have been more impactful as a collective change rather than singular piece process changes.

The validation process for many changes made throughout the initiative is time intensive and manual. The next phase of the access initiative is to further delve into each of the guidelines to identify the origination of errors, how to identify them, and the standards for consistent updates. Sub-committees were established to create a best practice guide to protocolize each facet of the guideline. Continual management of EMR templates and logic is critical for maintenance of high levels of access. In reflection, starting with deep analysis of each component may have had better outcomes in sustainability and adherence rather than a largely scoped initiative. Once a guide is established it allow newly onboarded staff to be well educated in access tools and provide a structure for consistent improvement.

For internal purposes, metrics of success are critical, yet at times difficult to accurately capture. As the healthcare industry begins to change from volume to value, the calculation and tracking of cFTE may need adjustment. In similar form, the standard for adequate access to care may change. Telemedicine capabilities are increasingly accessible and may change expectations of how soon a patient should be able to consult a care provider. The benefit of lean and standard procedures allows for flexibility in agility to accommodate industry change.

Bibliography

- About social determinants of health. (2017, September 25). Retrieved from https://www.who.int/social_determinants/sdh_definition/en/
- About UPMC Children's Hospital of Pittsburgh. (n.d.). Retrieved from <https://www.chp.edu/about>
- Advanced Practice Providers. (n.d.). Retrieved from <https://www.upmc.com/healthcare-professionals/education/advance-practice-providers>
- CGCAHPS FAQ. (2018, October 15). Retrieved from <https://www.pressganey.com/resources/program-summary/cgcahps-faq>
- Gallagher, E., & Rapoza, D. (2010). Issues and Solutions in Accurately Measuring Clinical Full-Time Equivalents. *The Journal of Pediatrics*, *157*(5). doi: 10.1016/j.jpeds.2010.07.030
- Heptulla, R. A., Choi, S. J., & Belamarich, P. F. (2013). A Quality Improvement Intervention to Increase Access to Pediatric Subspecialty Practice. *Pediatrics*, *131*(2). doi: 10.1542/peds.2012-1463
- Mission, Vision, and Values. (n.d.). Retrieved from <https://www.upmc.com/about/why-upmc/mission>
- Pletcher, B. A., Rimsza, M. E., Cull, W. L., Shipman, S. A., Shugerman, R. P., & Oconnor, K. G. (2010). Primary Care Pediatricians Satisfaction with Subspecialty Care, Perceived Supply, and Barriers to Care. *The Journal of Pediatrics*, *156*(6). doi: 10.1016/j.jpeds.2009.12.032
- Ray, K. N., Bogen, D. L., Bertolet, M., Forrest, C. B., & Mehrotra, A. (2014). Supply and Utilization of Pediatric Subspecialists in the United States. *Pediatrics*, *133*(6), 1061–1069. doi: 10.1542/peds.2013-3466
- UPMC Facts & Stats: Health Care Provider & Insurer-Pittsburgh, Pa. (n.d.). Retrieved from <https://www.upmc.com/about/facts>
- Vision, Mission, & Values: Children's Hospital Pittsburgh. (n.d.). Retrieved from <https://www.chp.edu/about/vision-mission-values>