Evaluations of Patients’ Appointment Duration by Type in an Ophthalmology Practice

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Evaluations of Patients’ Appointment Duration by Type in an Ophthalmology Practice

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the Requirements for the degree of Master of Public Health in the University of Kentucky

College of Public Health

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November 29, 2016

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Abstract

Objective: The Affordable Care Act expanded health care coverage and provided more access to physicians, resulting in potentially longer wait times. Large portions of ophthalmology patients are on Medicare. Two thirds of the expansion populations were Hispanic or African Americans, which have higher rates of eye disease. Another contributing factor leading to the increase for eye care is the surge of baby boomers. More specifically, these are individuals reaching sixty-five and are beginning to utilize Medicare. Access to care has increased but the capacity of the practice has not. An important goal, therefore, is to maximize efficiency of current resources.

Methods: Empirical research to analyze existing data of arrival time, service time, patient types and the flow of patients between June 1 – August 31, 2016. The data was collected using a practice management system, “Nextech.”

Results: A total of 823 patient appointments were evaluated. The weighted average of appointments was 77 minutes. Four patient types exceeded that amount. According to data recorded, appointment slots should be reevaluated to account for the longer average.

Conclusions: Every health care organization should know how to choose the most appropriate method of appointment scheduling based on patient needs. Examination of patient scheduling is an important tool for efficient outpatient department management.
Introduction

The Affordable Care Act (ACA) has influenced the health care landscape in many ways; this includes greater coverage, higher cost sharing, narrow networks, value-based purchasing and new payment models. Expanded coverage brought millions of previously uninsured people insurance in 2014 through Medicaid or through subsidies in the new health insurance exchanges. Not only have these new patients potentially delayed treatment, but as a group they are also inherently more likely to have eye disease than others their age. Two thirds of the expansion groups were Hispanic or African American, and studies have shown that Hispanics have higher rates of diabetic retinopathy and other eye diseases\(^1\) while the African American population has a higher incidence of glaucoma\(^2\). There is also a continued surge in older patients who will be seeking eye care under Medicare, as millions of baby boomers reach the age of 65. Another part of ACA, requires all insurance plans to reimburse individuals or small groups for comprehensive eye exams for children. In recent years, the public and healthcare administrators have placed a strong emphasis on quality of care.

Overcrowding of health care facilities and inefficient patient flow affect quality of care, timeliness of care and patient satisfaction. Patient satisfaction scores may be considered as a measure of care quality. The patients’ perception of how long they waited has been associated with satisfaction scores. To improve patient appointment time, the goal is to figure out the number of patients per day based on appointment type. In a typical practice, patient waiting time and time spent with the physician are controlled to some
degree. The amount of daily clinic hours per physician is a fixed asset which is portioned out by patient demand or volume. On average, the more time a specific physician spends with an individual patient, the longer the patients have to wait to see that physician.

Ophthalmology is provided primarily as an outpatient service. The patient population is largely healthy but elderly. This study was based on an ophthalmology practice that is located in central Kentucky. The practice consisted of one physician and 5 staff members. The practice provided outpatient, surgical and tertiary services for eye disease and its related structures. The eye center was a well-established full-service eye care practice. This practice offers a full range of services; Couple examples involve comprehensive eye exams for the entire family and comprehensive eye surgery, including cataract surgery with multifocal and toric intraocular lens implants. Other surgical services performed were cosmetic eyelid surgery and glaucoma surgery.

Long waiting time is common across healthcare providers and is a main contributor to patient dissatisfaction. This study used survey research to examine the impact of changing clinic scheduling on patient satisfaction. Through modifications in clinical processes, as well as education lectures for the staff to enhance patients’ services, the waiting time was reduced from 92 ± 10 minutes to 42 ± 5 minutes with significant improvement in patients' satisfaction with minimal costs.

Studies show a positive correlation between the patient experiences and desirable clinical outcomes and conversely, an association between low patient satisfaction scores and complaints and risk management issues. This study also explained that listening,
thoroughness and provider time were the three most important attributes patients associate with provider quality of care. Thoroughness, listening, punctuality and clear instruction were the key drivers that moved patients’ overall perceptions of provider quality of care from “very good” to excellent.”

In the context of healthcare, patient satisfaction is an individual’s evaluation of his or her experience in receiving health care in a specific setting. Limited cross-sectional studies show a positive relationship between patient satisfaction and adherence to medications (7-11). Likewise, adherence to medications clearly impacts clinical outcomes. (12-13).

Satisfaction also has been associated with patient switching behavior in regards to provider and insurance plans. (14-15). Future more, studies using national CAHPS Hospital survey data show a significant albeit modest correlation between patient satisfaction and objective clinical performance measures. (16-17)

**Methods**

The study was conducted at a well-established ophthalmology clinic located in central Kentucky. The clinic had twelve appointment types, described in Table 1. Observation was used to examine patient flow. Descriptive statistics and frequency analysis were used to examine appointment type and duration; this study was based on observational data of patients seen between June 1 and August 31, 2016. The patient service times between the arrival and the departure time were recorded. Each patient was considered marked “in” once they signed in at the reception desk. This information was pulled from Nextech, which is a practice management system that most ophthalmology practices use.
### Table 1

<table>
<thead>
<tr>
<th>Follow Up</th>
<th>One-day &amp; Two week cataract follow up.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Exam, New Patient</td>
<td>First time visiting our clinic. Scheduled by the patient.</td>
</tr>
<tr>
<td>Eye Exam, Established Patient</td>
<td>Patient who has visited the practice in the past three years.</td>
</tr>
<tr>
<td>Diagnostic Testing</td>
<td>Patients who return for visual fields and optical coherence tomography (OCT)</td>
</tr>
<tr>
<td>Disability Exam</td>
<td>Appointments scheduled by The Disability Determination Services.</td>
</tr>
<tr>
<td>Glaucoma Interim</td>
<td>Glaucoma patients are expected to be seen every four, six or 12 month intervals.</td>
</tr>
<tr>
<td>Diabetic Exam</td>
<td>Primary Care Physicians schedule these appointments. (New patient)</td>
</tr>
<tr>
<td>Contact Lens Fitting</td>
<td></td>
</tr>
<tr>
<td>Glasses Problem</td>
<td>The order prescription does not meet their needs effectively.</td>
</tr>
<tr>
<td>Glasses Purchase</td>
<td></td>
</tr>
<tr>
<td>Eye Exam, Child</td>
<td>Includes both new vs. established patients. Typically, school eye exams.</td>
</tr>
<tr>
<td>A-Scan</td>
<td>A preoperative exam prior to cataract surgery.</td>
</tr>
</tbody>
</table>

**Results**

Patient flow analysis is a simple improvement tool to identify patient flow patterns. This can be very useful in resource-limited settings such as a small private outpatient clinic. Flow mapping provides a qualitative perspective, and cycle time measurement provides quantitative data on time throughout the patient’s visit. Patient flow mapping involves when a patient walks into the office and detailing each particular step throughout the entire visit. Figure 1 shows a good representation of day-to-day routine. Cycle time measurements build on flow mapping and involve the time associated with the patient visit. Total cycle time is defined as the number of minutes between when a patient arrives at the practice and when he or she leaves.
Figure 2 displays the baseline characteristics of the study sample. There were a total of 823 appointments in a three-month period. The majority were Established appointments (61%) & New Patient (19%) exams, followed by diagnostic testing (4%), Children exams
(3%), Follow up (3%), and Glaucoma interim (3%). The remaining types were below 3% of total appointment types.

![Appointment Type, n=823](image)

Figure 2

Figure 3 shows the average appointment duration based on type. Disability exams (112 minutes) consume the most time on average compared to other appointment types. Glasses purchase (13) and Contact fittings take the least amount of time.
Median and mean duration times were calculated for each appointment type in figure 4.

The most standard appointment type is a diabetic exam, which averages at 93 minutes per exam and has the lowest range of varying times. Established exam tend to vary the most with a range of 154 and an average of 90 minutes.
Figure 5 shows a normal workweek schedule. The goal of each week is to schedule between 90-99 patient appointments. There are 1,428 active minutes per week with minutes varying depending on end of day appointments or procedures.

<table>
<thead>
<tr>
<th>Current Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Tuesday</td>
</tr>
<tr>
<td>Wednesday</td>
</tr>
<tr>
<td>Thursday</td>
</tr>
<tr>
<td>Friday</td>
</tr>
<tr>
<td>Total Patients</td>
</tr>
<tr>
<td>Total Active Minutes</td>
</tr>
</tbody>
</table>

According to figure 3, the total weighted average per appointment is 77 minutes. New patient, children, disability and diabetic exams tend to exceed the total weighted average. To schedule efficiently, we as a practice should increase the appointment slot for these patients. Instead of 15-minute slots, increase these patients to 30-minute slots each time.
Figure 6-8 are histograms of the grouped frequency distribution shown in Figure 2. New patient and established exams vary the most among the appointment types. Figure 8 shows the frequency of contact fittings. These appointments are the most constant but also vary the third most behind established and new patient exams.
Discussion

Healthcare facilities face the challenge of providing high-quality care while struggling with large patient volumes and process inefficiencies. Optimizing a patient schedule is trade-off between patient wait, clinical idle time and running over the schedule at the end of the day. We have identified potential problems that can be changed to improve patient appointment time. By minimizing undue waiting and ensuring timely transition among staff, practices can make patients feel well cared for and maximize daily patient load. By studying patient flow, providers are able to increase efficiency and uncover hidden capacity and as a result, improve patients’ overall happiness and health while increasing revenue.

The Affordable Care Act reduced the uninsured rate for low-income groups and people of color. The ACA significantly increased coverage options for low and moderate-income populations. Under the ACA, Medicaid coverage is extended to low-income adults with incomes up to 138% of the federal poverty level in the 32 states that have implemented the Medicaid expansion to date and tax credits are available to middle income individuals who purchased insurance. Since these coverage provisions took effect in 2014, uninsured
rates for the nonelderly population have decreased, falling from 17% in 2013 to 11% in 2015.\textsuperscript{21} Access to care has increased but the capacity of the practice has not.

**Recommendations**

Based on the data collected, limiting the number of appointment types can and will benefit the patient duration time. The practice must limit disabilities to two per day, once in the morning and one in the afternoon. Children exams should be conducted in the earliest time slots. New patient exams should not be scheduled consecutively.

**Limitations**

This study did not address the issue of physician productivity. Human error is another limitation that cannot be explained when marking patients in and out of the clinic.
Citations


