

USING A  
SIMPLE

SPREADSHEET  
TO  
IMPROVE

INTRA-OFFICE  
COMMUNICATION



PATIENT FLOW

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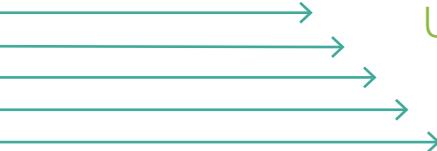
DOES YOUR PATIENT FLOW SUFFER BECAUSE COMMUNICATION  
BETWEEN FRONT AND BACK OFFICES IS AWKWARD?  
HERE'S A SOLUTION TO THE PROBLEM – FOR FREE.

**T**he day started 15 minutes ago; do you know where your first patient is? You may have heard through a lengthy game of “he said/she said” that the patient is held up in registration. What about your second and third patients: Are they here? You could walk down the hall to the waiting room area or send a medical assistant to find out. If your impatience is getting the best of you, there’s the option of picking up the phone and calling the front desk to ask who has arrived and who has not.

This was the daily scenario at Southeast Health Center until a few months ago. It’s a familiar story for many primary care practices: the perennial problem of poor intra-office communication. Staff and providers are isolated

from one another. Practice flow is chaotic. Care teams are left frustrated. Worst of all, appointment time goes unused, affecting revenue generation, patient access and physician quality of work life.

Some practices have created the role of “flow facilitator” for a designated staff person. This employee relays messages from the receptionist to the nursing area and back. She lets the providers know which room their patient is in and passes on information about last-minute cancellations or late patients. This system can run smoothly but requires budgeting time and salary for the purpose. Major waiting room renovations, installation of nonverbal communication systems (for instance, signal-light systems) and a full-scale electronic health



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record (EHR) are all potential solutions, though in many cases not practicable due to exorbitant costs. As a community health center, we needed to accept the status quo or explore a more radical solution.

We ended up solving the problem for free. This article describes an innovation that costs not one cent and can be implemented for any clinic or practice with multiple computers and access to the Internet. Using a free, web-based, shared spreadsheet application (Google Docs), we transformed patient flow at Southeast Health Center.

### Southeast Health Center

Southeast Health Center is a safety net clinic operated by San Francisco's Department of Public Health. Like most clinics for the underserved, Southeast specializes in providing primary care with limited resources. The clinic has three full-time-equivalent providers and a low staff-to-provider ratio. Each exam room is outfitted with a computer that provides access to a hospital-based EHR. The EHR is used for lab results and appointment look-up but is difficult to use for much else, although it is evolving.

Southeast formerly relied on a system of text paging, overhead paging, phone calls

and walking from one end of the clinic to the other to communicate when patients were ready for rooming, exam and discharge. This resulted in the scenario illustrated in the article's opening paragraph; communication was unidirectional, often broke down and left many out of the loop.

### The "check-in tracker"

The "check-in tracker" is the name we gave to an Internet-hosted, shared spreadsheet that can be accessed from every computer in the clinic (see "The check-in tracker in action," on the facing page). Today, when a patient checks in at the front desk for an 8:15 a.m. appointment with Dr. Mark, for example, the clerk types "a" for *arrived* in the cell corresponding with that appointment slot. The cell automatically turns from yellow to orange. (A spreadsheet feature commonly called "conditional formatting" – and called "change color with rules" in Google Docs – automates the cell color.) The medical assistant sees the change on a computer in the nursing area and heads up front to take vital signs and room the patient. Once she rooms the patient, she types the room number into the spreadsheet, automatically changing the cell to green. If the physician's 8:50 a.m. patient arrives at 9:15 a.m., the front-desk clerk types "L 9:15" in the 8:50 cell to indicate the late time of arrival; the cell turns to magenta. The physician sees this change from the provider room in the back and can type "X," turning the cell gray, if seeing the patient would be impossible or "OK" if the patient can still be fit in. When a patient visit concludes, a "d" (for *discharged*) typed into the cell turns it blue. Patients are identified by their scheduled appointment times, so there is no need for patient names on the document.

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By using a free, web-based, shared spreadsheet, the authors improved intra-office communication and patient flow.

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The application allows multiple users to log into and edit a single spreadsheet.

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By typing a single letter into a spreadsheet cell, a staff member can inform all staff of the arrival or rooming of a patient.

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### About the Authors

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## THE CHECK-IN TRACKER IN ACTION

The staff of Southeast Health Center starts each half-day session with all cells in each provider's column blank and yellow. They communicate about patient appointment status by typing letter codes (such as "a" for "arrived") into the appropriate cells. Each cell changes color automatically according to the letter typed in, and all staff members logged into the spreadsheet can see the changes immediately. For a working copy of the spreadsheet, see <http://bit.ly/CheckInTracker>. You will need a Google account to access it. To create a Google account, go to <http://www.google.com/accounts>.

Monday Morning							
Appt time	Dr. Mark	Dr. Katie	Dr. Dan	Judy RN	Key		
7:55	d	d	x		a=patient has arrived		
8:15	d	d	r-29	d	l=patient has arrived late		
8:35	r-25	d	r-27	r-7	x=patient too late to be seen		
8:50	L 9:15	a	a		r=patient roomed		
9:10	a	a			d=patient discharged		
9:20	a	a	a				
9:30							
9:45							
10:05							
10:25							
10:45							
11:05							

The spreadsheet application can change the color of a cell depending on what is typed into the cell.

The colors make it easy to see when the schedule has been updated.

Staff members logged into computers throughout the practice can see changes made to the schedule spreadsheet instantly.

### Web-based, shared spreadsheets

To understand how we have been able to implement this change, it is important to know the basics of web-based, shared spreadsheet applications. In recent years, dozens of such applications have sprouted all over the Internet. One of these applications is Google Docs (<http://www.google.com/google-d-s/spreadsheets/>). Using Google Docs, one person can create a spreadsheet directly on the Internet and "invite" others to view and edit the same document. Multiple people can be logged onto the same spreadsheet at the same time and make edits simultaneously. The application allows for real-time updating. As soon as one person makes a change to the file, everyone else logged in to the spreadsheet will be able to see the change.

In order to run Google Docs and other web-based, shared spreadsheet applications, the computer needs only a web browser and access to the Internet. At Southeast Health Center, we have computers with these capa-

bilities at the front desk, the discharge and nursing areas, the provider work room and exam rooms to register patients, schedule appointments and look up patients' lab results. With these resources, we were able to take advantage of this easy-to-use technology to improve how the clinic functions.

### Big results from a simple change

As a result of this innovation, everyone in the clinic can see which patients have arrived, which have been roomed and which have left the clinic. The "check-in tracker" provides total transparency of the flow of patients through the clinic. Changes made to the spreadsheet from separate computers appear in real time, so the spreadsheet also serves as an accountability tool; any hold-up in patient flow is immediately recognized by the charge nurse, and the barrier can be addressed and resolved.

Providers have been very satisfied with the



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new system. They have remarked that “All my patients were roomed on time,” “I actually started and ended on time today,” and “I know exactly when my patients arrive, and whether or not I have time to see them.”

Intra-office communication does not have to be a barrier to efficient patient flow. Staff

need not be frustrated by fragmentation and isolation. Instead of hiring additional employees or buying expensive information systems, using the “check-in tracker” helps solve a perennial clinic problem for free. 

Send comments to [fpmedit@aafp.org](mailto:fpmedit@aafp.org).



### QUESTIONS AND ANSWERS ABOUT THE CHECK-IN TRACKER

#### How long did it take to train staff to use this system?

First, one of the authors (DM) spent about an hour training and discussing the new idea with the front-desk person. Next, he went around the clinic in the course of a week, introducing the system to each staff member individually. Each introduction took only a few minutes. On the first official day of the new system, he spent the morning sitting with the front-desk receptionist and checking at the nurse station to make sure that everyone understood what was going on. After that morning, the clinic was up and running on its own.

#### How do you handle provider schedules that change from day to day?

Southeast Health Center has 10 templates, one for each half-day of clinic. So, generally, the Monday morning template is the same each week, as is the Thursday afternoon template and so on. If there are changes (if a provider is out sick, for instance) the front-desk person can change the name listed at the top of the column.

#### Is one spreadsheet reused, or do you have to set up the spreadsheet anew each day?

At the end of each day, the front-desk receptionist cleans up the spreadsheet so that it will be ready for the next week. It's as simple as highlighting each tinted column and clicking delete.

#### Do you have to reinvite staff to view the spreadsheet every day, and if so how long does that take to set up on all the computers each day?

The Google Docs homepage is accessed from an icon on the desktop of every computer at the beginning of each day. Every computer needs to log into the common Southeast Health Center account. Because the passwords are saved on the computer, generally the staff need only double click on the desktop icon and then choose the correct template for the current half-day session. This process takes only a few seconds per computer.

#### What kind of mistakes do people make with the system?

Occasionally, someone in the back office might accidentally hit the keyboard and erase or add information. When this happens, the front-desk person usually notices right away and fixes it. Otherwise the medical assistant will discover the mistake fairly quickly – for instance, if she calls for a patient who is not actually in the waiting room.

#### Have any miscommunications occurred with the system – for instance, when people don't update the spreadsheet when they should?

Generally it is pretty rare. The front-desk person is the unofficial supervisor of the system and notices when things aren't moving as fast as they should.



The spreadsheet application is free and requires only a web browser and Internet access.



Staff and providers quickly learned to use the spreadsheet.



Using the spreadsheet has improved patient flow and reduced delays and provider frustration.