Systems Concept for Patient Management

*Richard C. Haines, Jr.**

In this article, the author provides guidance relating to the flow of patients, staffing, and communications issues that can greatly enhance the productivity and profitability of a medical practice. These suggestions can improve the satisfaction level not only of patients but also of providers and their entire staffs.

The author cites the example of an orthopedic practice, but the guidance can be broadly applied to all venues of medical practice.

Key words: Medical practice; medical practice management; medical practice staffing.

Editor's Note: *The author specialize in medical office planning and design. Over many decades, his firm has served hundreds of medical practices, large and small. He shares the distillation of their concepts of practice methodology to guide physicians and managers to reassess their own modes of operation.*

A medical practice essentially represents an assemblage of systems. These systems check patients in, move patients from one service to another, get diagnostic information on patients, and research patients' problems. The list could be endless. The medical office facility is merely the means to keep the weather from interfering with the smooth operation of the systems, a practice tool that should be invested in, just like exam tables, x-ray machines, and cast saws. When done right the smooth operating systems allow everyone's job to be done more easily, and everyone has the opportunity to achieve higher levels of productivity and patient service.

Therefore, an understanding of the systems that drive the practice and have an elemental impact on its performance is critical.

There are three major systems in a practice: flow systems, staffing systems, and communication systems. In addition to understanding these systems, one has to have a hierarchical concept of the relative importance of different systems. Then, decisions can be made about which systems should have priority over others.

In the creation of a system of interrelated functions, at least one of those functions will emerge as the critical *constraint* to production. Constraint in this context is neither bad nor good. It is just the function that governs the production rate capacity of the complete system. In the practice of medicine, this primary constraint is access to clinical medical judgment, the physician. Many people in the medical office perform important functions, but those functions occur because of, and at the rate supported by, those making clinical medical judgments.

CASE STUDY

XYZ Ortho needs to view itself as a "business." This does not have to be in the commercial sense, as in selling a product, but in the sense of dispensing a scarce commodity: access to a doctor's intellect, judgment, and skill. So the essence of the "business opportunity" can be defined as the ability to optimize the individual doctors. Often, this optimization does not occur.

The medical office can be viewed as a machine. It consists of a series of discrete activities that happen in a consistent and predictable order. Items (patients) come in the front, are acted on (by staff), and are sent out the back (by the doctor). To help the office achieve a smooth-running character, the volume of activity at all the different links needs to be understood so they can be integrated.

Patient throughput can be arranged as shown in Figure 1. What this means is that the entire organization for operation of the medical practice should be organized around the doctors' productivity capabilities. Staffing for patient throughput is a function of the volumes of pa-

*President, Medical Design International, 2100 East Exchange Place, Suite 400, Tucker, GA 30084; phone: 770-939-7950; fax: 770-939-7522; e-mail: www.mdiatlanta.com.

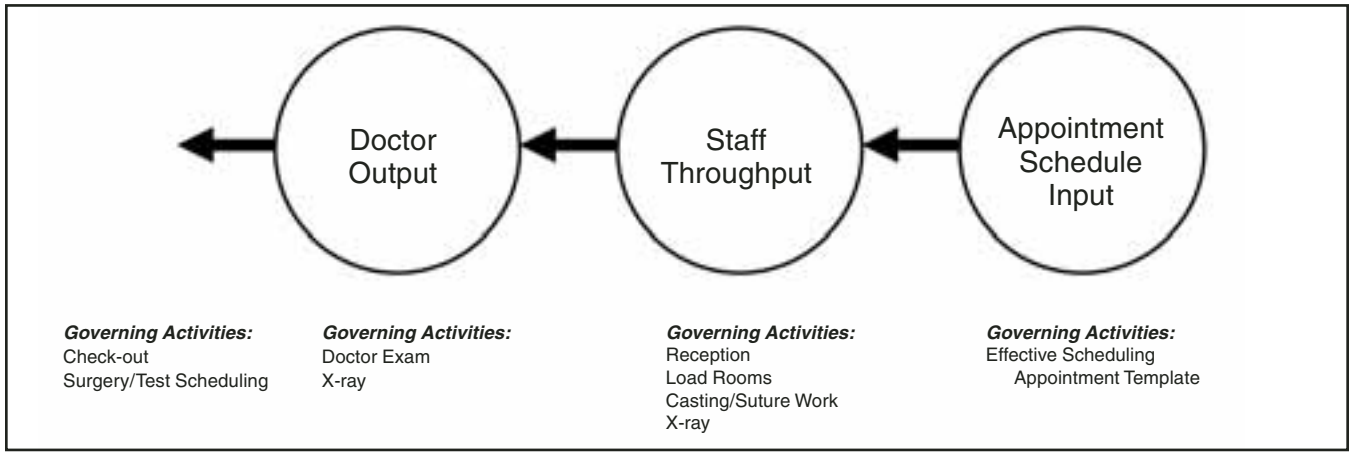

Figure 1. Medical Office Productivity Flow

tients that the doctors can reasonably manage in a given period of time. Finally, input into the office is a function of the appointment schedule. If the appointment schedule (input) is not linked to the doctor's productivity (output), then there are bound to be mismatches—causing the waiting room to overflow.

. . . the entire organization for operation of the medical practice should be organized around the doctors' productivity capabilities.

Let's discuss each of these interrelated activities.

DOCTOR OUTPUT

Doctors should be able to go from patient exam to patient exam. The doctors are responsible for the overall result, so the more efficiently the doctors can do this, the more effective they can be, the more care can be given, and the more revenue can be generated. Therefore, anytime a gap occurs, the doctor is the one left to fill the gap. In XYZ Ortho, the gaps range from the doctor searching for forms, filling in forms, and removing sutures to searching for information in the charts.

. . . an individual doctor's patient throughput capacity can be increased nearly 25 percent by going from dictating to scribing.

The doctors at XYZ Ortho already do a very good job going from patient to patient. This is greatly enhanced by the utilization of scribes (either court reporters or stenographers). The doctors can stay on task and stay focused on the patient. When the doctors are done with their patient exams, they are done. They do not have to "carry around" the memory that they have to follow up the time in the exam room with other activities related to that patient. They can "forget" the encounter.

The data shows that in at least one case, an individual doctor's patient throughput capacity can be increased nearly 25 percent by going from dictating to scribing.

This brings up another issue. The scribe gives doctors the opportunity to focus completely on their patients. The doctors get to spend the majority of their clinic days practicing medicine—not doing the grunt work that goes along with it. This is a significant quality of life issue.

This does not mean everything is perfect. The doctor's specific patient management team consists of the doctor and a scribe. They are "joined at the hip," going from patient to patient. But what happens when a cast needs to come off or go on, sutures need to be removed, or x-ray needs to be notified to take a film? If the doctor or scribe has to go look for the hall nurse (or the RN as a backup) for help, this detracts from the doctor's effectiveness.

The scribe gives doctors the opportunity to focus completely on their patients.

Recommendation: Use scribes throughout the practice and implement communication systems so the doctor and scribe are not away from their exam rooms trying to find people or get goods.

OFFICE FUNCTIONS AND PROCEDURES

X-ray. Note that x-ray is listed in Figure 1 as both a throughput and an output activity. This is because some patients are x-rayed before they get to the doctor (throughput), whereas others are x-rayed mid-exam (output). In either case, if x-ray cannot keep up, the doctor's productivity suffers.

Test and surgery scheduling. Scheduling for tests and surgery is shown as a post-exam activity in Figure 1.

At XYZ Ortho, the doctor's RN handles surgery scheduling, and test scheduling is handled by insurance/pre-cert. These activities happen parenthetically to the normal flow of patients through the office, so the staff's inability to counsel a patient in a timely manner should not impact an individual doctor's productivity (i.e., the exam room should not be held with a patient waiting for the RN to schedule surgery). The rate of patient discharge from the doctor's service (i.e., the exam room) may not be the same as the rate at which test and surgery scheduling can accept those patients (i.e., a patient is ready to be scheduled, but the RN is already busy).

Recommendation: Provide a counseling office and some chairs near to the person who is doing the surgery scheduling so patients can be pooled. Test scheduling requires specific staff to handle these patients, although not necessarily in a private room.

[Check-out] should be a "cash-and-carry" work center.

Check-out. Check-out is shown in Figure 1 as a post-exam activity, currently done by the doctor's receptionist. Check-out activities typically consist of making a reappointment or collecting cash. This should be a "cash-and-carry" work center. Any situation that will be time consuming should be done somewhere else. (Who wants to wait behind someone with a big problem when all you want to do is pay your co-pay and go?) This is especially important with patients with sensitive financial issues. Right now they may be confronted in the crowded waiting room.

Recommendation: Check-out people should be separate from the receptionists in the waiting room. Any patients with time-consuming or sensitive issues should be taken aside to a nearby private counseling room. The check-out people should handle only on-site patients. Patients calling for appointments should be handled by staff dedicated to scheduling appointments. It is important to retain a specific phone appointment clerk to make a particular doctor's appointments as much as possible.

STAFF THROUGHPUT

Staff members need to be able to do their jobs at least at the same rate (preferably higher) as the doctors. They can do it ahead of the doctor and have the patient "pooled" to wait for the doctor. (This is why doctors have waiting rooms, sub-waiting spaces, and more than one exam room.) In a given hour, the throughput staff and output staff will need to manage about the same number of patients.

There are different staff at different points in the XYZ Ortho patient throughput process:

Reception. Each doctor has his or her own receptionist. They check the patient in and out. Some doctors see more patients per hour than others, so some receptionists may have to process 10 patients an hour, while others process six. Furthermore, the concept of combining both check-in and check-out functions with a single receptionist forces patients to check-out in the waiting room. This has never been a good solution for check-out, and is even worse now with HIPAA.

Staff members need to be able to do their jobs at least at the same rate as the doctors . . .

This receptionist also takes phone appointments, so when a patient walks up, there is a fair chance that the receptionist is on the phone (not very good PR). The receptionist is not a means to bond the patient to the doctor's practice.

Recommendation: Staff should handle check-in separately from check-out. Allow the staffs at each position to be sized to handle the entire patient load for the clinic. Move the phones away from the check-in and check-out desks.

Loading exam rooms. This is done by the float nurse, serving all the doctors seeing patients at one time. Sometimes the receptionist helps out, but a receptionist who has to leave the reception desk then cannot greet patients upon arrival or departure. The number-one job of the float nurse is to keep the exam rooms full of patients waiting to be seen by the doctor. The float nurse can also do other short tasks that will not interfere with this primary function. If the float nurse is called upon to remove sutures, for example, the exam rooms are abandoned, the doctor is no longer supported, and productive capacity is diminished.

Recommendation: As will be seen when the concept of staff capabilities is discussed later, the person loading exam rooms needs to be different from the person taking off or putting on casts and removing sutures. The float nurse can perform less time-consuming tasks, such as getting a sample for the patient or an orthotic for the doctor to give to the patient.

Casting/Suture removal. At XYZ Ortho, this is done by the float nurse or the doctor's RN, which entails a hunt by the doctor or scribe to find the float nurse and verbally transmit the order—a waste of time. While the float nurse is taking the cast off, no one is loading rooms for the doctors.

Recommendation: Staff the casting function with different people from the ones loading rooms. Establish an electronic communication system to alert the cast tech without the doctor or scribe leaving the direct exam room area.

X-ray. XYZ Ortho has three x-ray techs to process patients through one x-ray room. The techs retrieve patients from the waiting room and x-ray them, and then

put them back in the waiting room. They sub-wait patients in the two dressing rooms. One of the x-ray techs reported that while wearing a pedometer, she walked seven miles in one day while processing patients. (Note that nothing gets done while walking, so the time spent walking those seven miles is wasted to the practice.)

Recommendation: There needs to be a buffer zone (i.e., sub-wait seats) between x-ray and the waiting room and the exam rooms. This way, patients will not get confused as to where they are in the queue. The staff will have more control over the patient flow into the exam rooms and they will walk less.

APPOINTMENT SCHEDULE INPUT

The smooth flow of patients through a doctor's clinic day is a never-ending struggle. The governing document to control this is the appointment schedule. It dictates when, what type, and how many patients should come in. If the staff has no idea how many patients the doctors can reasonably see in a given time, then the appointment schedule is little more than a spreadsheet with names. This is especially evident when a doctor is double- and triple-booked. Furthermore, if a doctor habitually runs late, this causes all sorts of additional problems. The appointment book brings the patients in on time, but if the doctor is not there to unload the waiting room on schedule, the waiting room overflows, as does the parking lot. The office falls behind, and then the staff gets stressed. If the delay is unavoidable, reschedule patients or discuss the options with them.

A doctor's patient-per-hour rate (and coordinated to the appointment schedule) is typically determined while using a scribe. If the scribe does not show up for work on a particular day, the doctor's rate of hourly production can fall 10 percent or more. Meanwhile, the appointment schedule is still bringing patients in at the predetermined rate—a disconnect.

Also, one doctor is dedicated as the on-call doctor. This doctor is typically booked a full schedule, and then unscheduled work-ins are added. Under the best of circumstances there are no work-ins and the doctor sees patients on time. As soon as a work-in shows up, things begin to fall apart.

Recommendation: On an annual basis, each doctor's typical hourly patient output should be quantified. This then needs to be coordinated to the appointment schedule. (Patients should be brought into the practice slightly faster than the doctor can see them. This way there is always a pool of patients waiting for the doctor.) So if the doctor's typical rate of patient management is six patients per hour, perhaps the appointment schedule should be set up to bring in seven. The office should have a backup scribe to pinch-hit when a doctor's regular scribe is out.

The existing work-in demand for the office, by day of the week and time of the year, needs to be determined. Then blanks should be left in the on-call doctor's schedule in anticipation of those work-ins.

STAFFING ISSUES

An efficient staff is an important part of a productive medical practice. They are in the practice to help doctors get their jobs done and help patients get seen. For this to be successful, staff members have a right to expect:

- Adequate space and equipment to do the job expected.
- Adequate systems to support those tasks.
- Adequate numbers to accomplish the tasks in the time expected.

Providing a positive work environment for the staff is essential for a viable office, but it is easy for conflicts of expectations to creep into the daily workflow.

Every staff member must have a primary focus that takes precedence over all other duties. In the following job descriptions at XYZ Ortho, this means:

Receptionist. Greets the patient. Gets the patient ready to go back to the clinic. No phones. Currently, multiple activities can pull the receptionist away from the primary focus.

Float nurse. Gets the patient into the exam room, ready for the doctor. No long, time-consuming tasks. If the float nurse is to remove casts and sutures (someone other than the doctor needs to do this), then the float nurse should not be used to load doctors' exam rooms.

X-ray tech. Returns the patient to the exam room for the doctor to finish the exam. Typically the exam room should not be held for the patient who has gone to x-ray. (At XYZ Ortho, if two patients are ordered to x-ray and one is being scheduled for surgery, the doctor is down to working out of one exam room.) With a sub-wait at x-ray, the x-ray staff and the float nurse can stage patients into and out of the exam rooms efficiently. Furthermore, this sub-wait allows the x-ray techs to spend more time taking x-rays, rather than walking around.

Check-out. Greets the patient, collects the cash, and/or makes the reappointment. No phones.

Stat vs. Nonstat Functions

It is easy to create a job performance expectation that has inherent conflicts for successful performance. This happens at XYZ Ortho. For example:

- If one staff member is given two stat functions, such as loading the exam rooms and taking off a cast, then the staff member is bound to fail at one of the tasks.
- If one staff member is given a stat function and is responsible for a long function as well, such as scheduling surgery and removing sutures, then the staff member is bound to fail at one of the tasks.

Realign your job descriptions so staff members can succeed at their primary focus.

Time Wasters

At the end of the day, the job gets done, but if time is being unnecessarily wasted, it needs to be reclaimed. This allows the staff to be more available to help the patients and doctors. XYZ Ortho needs to rely more on electronic communication and less on the sneaker network. The following ideas can avoid time-wasting activities:

- Everyone needs a place to call "home" (where is the float nurse's home?) and there should be a phone in that location.
- Light signal systems should be used to keep the doctors on track, so they can go to their next patients without seeking the nurse to ask for direction or going back to their offices to check the sheet.
- Light signal systems should also be used to let staff (float nurse, RN, x-ray) know when and where they are needed.
- Check-off order forms should be used to instruct the staff member (float nurse, RN, x-ray) about what is needed without talking to the doctor.
- Electronic medical records (EMR) can supply some of this capability. Just make sure you are not so fascinated by the technology that you create more work for others. EMR is a tool, not a panacea.

Finally, recognize that different rates of production govern the time allotment to a particular staff member's job, and remember that any particular staff member has only 60 minutes an hour in which to work. So if the job requires 80 minutes of work per hour, then you need to staff that spot with 1⅓ people. Let us define what governs a particular staff member's production rate:

- **Hourly**. Hourly staffers work at the rate required by the doctors' production. (In actuality, they should have the ability to produce slightly more work per hour than the doctor. That way, they can stay ahead of the doctor.) If their hourly work is lower than the doctor's, then the doctor's production also falls. Staff members who should be allocated based on the doctor's production rate include receptionists, room loaders, cast/suture removers, and x-ray techs.
- **Half-day**. These staffers work at the rate required by the half-day session volume. Patients may have to wait a little for this staff member's availability. Such staff includes surgery and test schedulers, and check-out clerks.
- **Weekly.** These staffers work at the rate required by the weekly volume of patients going through the practice. Such staff includes insurance handlers, billers, and precert clerks.

Look at the clinic's expectations on time required for each person's performance. Eliminate waste so each staff member has more time available to serve the practice. Then make sure that only an hour's worth of work is expected in an hour. (Many practices set up systems that require more than an hour's work from an individual and then wonder why they do not get the job done.)

The Care Team

In developing the concept of managing patients through the office, the doctors at XYZ Ortho have created a team concept. The typical team consists of:

- 1 doctor
- 1 scribe
- 1 RN/surgical tech
- 1 receptionist
- ⅓ insurance person
- ⅓ Worker's comp person
- ⅓ file-room person

This team concept is important not only from the office staff's point of view but the patient's as well. This has the potential to bond the patient to the practice not just through the doctor, but also through staff. This is especially important in high-volume surgical practices. While the doctor may spend little time with the patient, the team has the opportunity to meet all the patient's expectations of time and attention from the office. It also has the potential to get the right staff person to the patient at the right time to deliver the right message. Such differentiation can get some tasks, such as patient education, off the doctor and onto a staff member. In observing the patient flow at XYZ Ortho, we have concluded that this team is more for the doctor's use than the patient's. Our observations include:

- The receptionist has very little time and contact to bond. She is already pulled in too many directions. She has to work through glass.
- The doctor has the time and opportunity to bond.
- The scribe does not appear to bond with the patient. The scribe is a nonintrusive, transparent presence in the exam room, taking the progress notes.
- The RN can bond. RNs may help in the cast room (although this needs to be rethought). They also schedule surgery, take patient phone calls, do prescription refills, and help in surgery. Giving the patient a specific, familiar person to call with questions is a practice asset (although perhaps an expensive one).
- Business office staff have a little opportunity to bond with patients, primarily those with payment or insurance problems. Giving the patient a specific, familiar person to call with questions is a practice asset.

RN Functions

A special word about the RNs is in order. At XYZ Ortho, the RN has 10 half-days of production available. Of those 10, approximately four are spent in surgery with the doctor (in few of the practices we have observed do the doctors take an office staff member to surgery with them;

usually the hospital provides the staff). The RN providing continuity and assistance to the doctor is a nice quality of practice life at XYZ Ortho.

Of the six half-days the RN is in the office, his or her tasks include triaging phone calls and doing prescription refills. (In most other practices, such triaging/refills occurs in a central triage center. At XYZ Ortho, triaging/refills may be delayed if the RN is in surgery or occupied with another patient in the office.) In other offices, casting and suture removal are done by cast techs or medical assistants; surgery is scheduled by surgery schedulers.

In other practices these staffers do not bond the patient to the practice (although we have worked with practices where the bonding did occur through the surgery scheduler, who was not an RN). It appears that XYZ Ortho needs the doctor's nurse as an RN 40 percent of the time (in surgery); the rest of the RN's time is spent in the office. Part of the office time is spent triaging phone calls and doing prescription refills, tasks for which an RN is recommended. For the remainder of the office time, the RN should be viewed as a regular staff person, and their excess capability/cost above a regular staff person is a perk for the doctor affecting quality of life.

COMMUNICATION SYSTEMS

The communication systems are what bind the practice together and allow it to benefit from good staffing and spatial arrangement concepts. The idea behind good communication systems is to eliminate the need for walking or verbal communication, whether it is face to face or by telephone. The transferring of information should be done to allow both the doctors and the staff to continue to work at their own pace.

We suggest several communication concepts:

Chart pulling. Pull the charts for that day's patients and place them at the nurse's station. When the patient arrives, print the patient's encounter form to a printer located in the MA station. This notifies the clinical staff which patient has arrived without anyone leaving the work area. Otherwise, the staff must walk around the corner to see if the next patient is ready to be seen. This trip is made many times throughout the day, pulling the staff away form the doctor.

Light signaling systems. These systems allow the clinical staff to communicate with the physician seeing patients, without the staff having to stand outside the exam door or the physician having to search for the staff. We recommend two types of light signal communication systems:

- **Staff notification light signal system**. If orders need to be given, the physician checks what is needed on the patient's encounter form, activates the staff's signaling light, leaves the chart and the encounter form in the chart rack outside the room, and goes to the next patient. The light signal system can also notify the doctor of a phone call so the staff does not have to interrupt an exam. Different types of flashes can indicate that the phone call is from another doctor or possibly the doctor's spouse. This also eliminates the need for the staff to track down the doctor or use overhead paging.
- **Room sequencing light signal system (RSLSS)**. When the doctor exits one exam room, it is in everyone's interest for him or her to get to the next patient, in priority, as quickly as possible. An RSLSS system consists of a button outside of each exam room controlling a light signal. As the doctor exits an exam room, he or she turns the RSLSS light off there, and the light at the next room in sequence begins to flash. The doctor then goes to that room, gets the chart, and starts managing that patient encounter. The clinical staff had put this patient in sequence by activating the RSLSS button as the staff exited the exam room after taking the patient there. Many of the systems now allow the float nurse to override the priority of the next patient in order to move returning x-ray patients (or an emergency) to the top of the queue.

Electronic medical records. As EMR gets more sophisticated, they support many of these communication functions. For example, pulling charts and moving them throughout the clinic becomes a thing of the past (as are lost charts). Some EMR systems let doctors signal staff that something needs to be done; they can also tell you which patient is next. You need to think through what will be best for your practice, however. Total reliance on EMR means that medical assistants have to continually hover around their computers to look for instructions; they cannot handle things on the fly as they move among the patients. You and your staff may be best served by a combination of EMR and the more traditional communication systems.

CONCLUSION

These guidelines are intended to provide a framework for practices to review their office methodology. Applications will vary according to practitioners' styles and constraints of finances, space and personnel availability.

Although the example cited here involves an orthopedic practice, the principles enunciated are applicable to a wide variety of generalists and specialists. ■