Optimizing Space in Medical Practices

Design for meaningful and efficient patient visits

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How will this module help me design physical space for improved patient encounters?

1. Quick and cost-effective techniques to optimize the layout of your clinic's examination rooms and team areas
2. Answers to common questions about space design
3. Case studies that show how practices have successfully implemented interior design ideas
Introduction

The design of a practice influences the relationship between physicians and patients. You can take simple design steps to enhance workflow efficiency and patient safety, as well as patient and team interactions and satisfaction.1 R2 R3 R4 R5 R6 R7 R8

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We were inconveniencing our patients and creating unnecessary work for ourselves. Focusing on better wayfinding for patients and grouping like services together in the clinic revealed incredible opportunities for us to better deliver a more efficient, patient-centered experience.

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Morris Gagliardi, MD, MBA Associate Medical Director Gouverneur Health, New York, NY

Five steps for optimizing your physical space

1. Develop team stations that enhance interactions
2. Place furnishings to encourage patient engagement
3. Add positive distractions to alleviate patient anxiety
4. Reconfigure rooms to feel spacious and welcoming
5. Connect with patients while incorporating technology
Well-designed team stations or **pods** can improve efficiency and strengthen culture

For example, placing exam rooms close to the team's work area minimizes the space that must be travelled between tasks and improves visibility to the exam rooms. Creating opportunities for team members to naturally interact improves collegiality and may result in better patient outcomes and lower health care costs. 

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**Q&A**

We don't have a central work space and can't afford a major remodel. Do you have any suggestions?

Some practices have been able to convert a centrally located exam room or office into a team space with minimal remodeling. One clinic created two spaces for MA-provider co-location by converting an MAs' station at one end of the hallway and a providers' station at the other.

What is the ideal layout of a team station?

An ideal space is quiet and yet still supports communication. For example, glass partitions allow teammates to see each other while conserving privacy and minimizing noise. In addition, many practices have found that co-locating the physician with the other team members increases opportunities to communicate in person, resulting in less messaging, more prompt completion of work and a stronger, more cohesive culture. Access to daylight and outside views will lift providers' moods and alertness.

What are the benefits of having a team station?

The care team works more closely with physicians, enabling nurses and medical assistants (MAs) to function more effectively and efficiently and for the team to “gel” as a unit. Team stations that are within visual and physical proximity to examination rooms also help the team develop “situational awareness” (e.g., seeing which rooms are ready to be used, where a call light is on) that helps them manage patient flow throughout the day.

What about noise from dictation or telephone conversations?

Some practices have created a library-like atmosphere in the co-located space to maintain patient privacy and a quiet work environment. This can be accomplished by doing the following:

- Team members speak in quiet voices
- Dictation is done in the exam room with the patient or in sound-absorbing carrels
- Wall and floor materials are chosen to specifically reduce ambient noise

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Place furnishings to encourage patient engagement

The arrangement, shapes and types of desks, examination tables and chairs can all work together to encourage productive interactions and eye contact. The patient can sit in a chair to speak with the physician or MA instead of spending the entire visit on the examination table. Computers can be mounted to the wall on a swivel arm or the team can use laptops, so they are free to shift their position and face the patient.

**Pod:** the typical clinic pod consists of three to four examination rooms, a team station and a supply area. **Self-rooming:**

Patients are assigned an examination or consultation space upon entering a clinic and then go to that space without waiting in a designated waiting area.
Q&A

What are the best desk shapes for encouraging patient engagement?

A moderately sized circular or semi-circular desktop allows the physician and patient shared access to the computer screen while still providing the ability to turn to one another for face-to-face discussion. Moreover, physicians and patients can easily adjust their seating so they can choose to be side-by-side or across from each other. Desktops should be wide enough that a patient sitting across from a physician can choose to keep the physician's face from dominating the view, easily modify personal space boundaries and share sensitive information without feeling awkward or embarrassed.

Aside from the desk, does the shape of other furnishings matter?

Rounded, curvilinear chairs, tables and objects are calming and preferred over angular furnishings. These also are safer for children and the elderly and in case of falls.

Does posture and seating height influence the patient encounter?

Patients are more likely to comprehend information and be satisfied with their visit when their physicians sit at eye-level, lean forward (showing engagement) and make eye contact. Looking down at the patient, leaning backward into a power position or frequent touching of the patient can make the patient feel uncomfortable.

Add positive distractions to alleviate patient anxiety

Patients will take in your clinic's surroundings, gathering clues about the quality of care they will receive. This will influence their confidence in the practice and their experience throughout their clinic visit. Being in the physician's waiting area and examining room is stressful for many people. Waiting can contribute to patient anxiety and dissatisfaction. Moreover, an anxious patient comprehends and retains less information from the encounter. Positive distractions divert attention away from these stressors and create a positive mood.

What are some positive distractions that create a feeling of calm and confidence?

Window views of natural settings and artwork featuring realistic images of natural landscapes have been shown to reduce patients' stress as well as pain. These views and images should be in direct view of the patient while they are waiting and sized so that patients can make out details from where they are seated. Other positive distractions are magazines, informational material or a flat screen set to a patient education loop. Plants in the waiting room can also ease patient anxiety and create a more natural, comfortable environment.

What type of artwork provides the best positive distractions?

Realistic images of landscapes with high visual depth, healthy flowers and foliage during warm weather, low hills, sweeping views of mountains, calm water surfaces and positive relationships between people are best. Avoid abstract artwork as it can increase anxiety.

Positive distraction: A design feature that effortlessly holds the attention of the patient and produces positive feelings while preventing fear and anxiety.
Is television an effective positive distraction?

Televisions can exacerbate the stress of waiting. Patients typically cannot control the programming and program intervals cause patients to be more aware of the actual time that has elapsed.

Reconfigure rooms to feel spacious and welcoming

You do not need to tear down walls or build new rooms to make an examination space seem more spacious. Rearranging the location of the examination table, chairs and desk can make a small room feel much more open and comfortable. Brightening up a consultation table with additional lighting, softening harsh overhead lighting or rearranging the furniture can make a smaller consultation space seem more spacious and comfortable to patients.

- Place examination tables at an angle to free up wall space for more chairs along the wall
- Use light, warm colored paint on the walls and natural, soft artwork
- Consolidate the amount of “stuf?” in the room, such as materials and supplies on countertops or instruments that are left behind after another patient’s procedure
- Organize the patient education material on the wall, only including what is necessary and up to date
- Create an effective electronic health record (EHR) solution, such as using a semi-circular desk or laptop. Placing the computer on a desktop or counter that faces a wall will force the physician to face the wall instead of the patient, making the space and experience less positive and engaging

Q&A

What are the benefits of having spacious examination rooms?

In large, open examination spaces, patients tend to feel less anxious, more comfortable, make more eye contact with the physician and are more likely to disclose sensitive information. This response may be related to the actual size of the space, the increased brightness of the space, the ability to see more of the surroundings, increased freedom of movement and perceived freedom. The more comfortable a patient is in the exam room, the more productive the visit will be.

Connect with patients while incorporating technology

Increased eye contact during visits and sharing the computer screen with a patient can positively influence patient engagement and adherence. Mobile or easily shared technology such as laptops, tablets and large monitors can help physicians involve patients in discussing information with them.

Q&A

What else can we do to facilitate the in-room connection between the patient and physician?

Many practices have started using a team documentation process, where a nurse, MA or documentation specialist helps with record keeping. In some practices, the nurse sits shoulder-to-shoulder
with the physician at the shared desk. In others, the assistant stands at a rolling computer station. The key in each configuration is the ability of each person to participate and to read the visual cues of one another.

 AMA Pearls

Learn from small changes

One strategy might be to introduce a specific type of computer or desk in an exam room and evaluate how patient encounters in that space compare to others. Some practices conduct time and motion observations to identify bottlenecks and opportunities for improvement.

“Make the most out of your practice's space. A few simple design steps can improve workflow and care

#STEPSforward”

Conclusion

The physical space in a clinical practice can impact how the people within that space interact. Thoughtful space-optimization solutions can improve efficiency, engagement and satisfaction for patients and providers alike.

STEPS in Practice

1 How’s it working in Boston, MA?

At the Beth Israel Deaconess Medical Center Obstetrics and Gynecology Department, form did not follow function. The department, which is located away from the clinic, had traditional offices, narrow hallways and closed doors. The space did not reflect the department’s collaborative culture. The staff looked to Google and Apple for space designs that inspired function and collaboration and hired an architect to model opportunities. The department also collected data on the current usage of rooms and offices within the department. The data showed that one third of the office space was rarely used.
In the new space design, physician offices in the clinic space were eliminated. All walls were torn down to create an inviting co-located space for all members of the team. To build a team culture and address privacy needs, team rooms were created within steps of each desk in the open workspace, complete with electronic booking pads to efficiently address patient scheduling during conversations. The glass doors encompassing the team rooms were glazed over to provide visual and auditory privacy. The department was designed so that staff walk through all the common areas in order to access the workspace, organically creating opportunities for interaction. This schematic helped the department achieve its goal to improve access between front-line staff and clinical leaders.

The Obstetrics and Gynecology Department found that the renovation made it easier to recruit staff with the correct cultural fit. Hope Ricciotti, MD, Department Chair, shares advice for any practice considering practice redesign:

1. Consider your workflow
2. Have an architect match the workflow
3. Consider privacy and proximity issues
4. Maintain a quiet room for staff who are unable to work in the open environment or for silent work activities
5. Consider renovation expenses. Often, optimal space design is best suited for those building new workspaces. Pursue smaller changes until larger-scale redesign can be accomplished

How’s it working in Dallas, TX?

Parkland Health & Hospital System redesigned their outpatient clinics considering the patient and team experience from check-in to the exam room, to the team station and check out. The design team observed patients, nurses and physicians as they moved through their day, including how they interacted with each other. Computer use and an isolated “home base” were identified as barriers that limited communication. Enhancing communication and collaboration emerged as key themes and the “connected clinic” design evolved from these discussions.

The team found that shared work stations increase collaboration and opportunities for interaction with physicians. The team stations were most effective when located on a corner, where they were:

- Highly visible
- Easy to reach
- Had enough space for any team member to accomplish work

Parkland Health & Hospital System found that patients were more likely to talk with nurses at an open, highly visible nurses’ station (blue area in Figure 1) rather than in more closed areas (red area in Figure 1). Patient engagement also increased when a staff member was standing at their station, rather than sitting. In addition, Parkland Health found that nurses were almost 20 times more likely to speak with physicians when co-located at interdisciplinary team stations rather than in separate spaces.

![Figure 1](in an outpatient oncology clinic at Parkland Health & Hospital System, an interdisciplinary team station with high accessibility and high visibility off of the main corridor and located at a corner is)
more likely to be used by care providers. The blue team space has more desirable visibility than the red team space, increasing opportunities for staff-patient communication. Image courtesy of BBH Design.

A team of nurses worked with designers on their ideal clinic layouts, workstations and examination rooms. Design ideas included:

- Hybrid work areas with modular furnishing and seating
- Transparent and translucent partitions/half walls with privacy gradients (see Figure 2)
- Multiple interaction points within the exam room (see Figure 3)
- Shared and portable technologies (e.g., screens that pivot and tablet arms)
- Exam rooms that can double as education/teaching areas

![Figure 2](https://via.placeholder.com/150)
Figure 2 The “onion” layout designed by a group of nurses at Parkland Health has an inner ring that can function as an independent practice or, when combined with an outer ring, can flex into a multi-provider practice. Image courtesy of BBH Design.

![Figure 3](https://via.placeholder.com/150)
Figure 3 In this “around-the-clock” exam room layout, care delivery revolves around the patient much like the hands of a clock. Image courtesy of BBH Design.

How’s it working in New York City, NY?

Gouverneur Health, a part of the New York City Health and Hospitals Corporation (HHC), serves 250 patients per day in its two primary care practices. Within the clinic, patients struggled to find the way due to long corridors and minimal signage. Furthermore the scattered practice teams had few places to interact, which inhibited the team from getting work done efficiently and contributed to long wait times for patients.

Gouverneur Health teamed up with a local design school to create better use of space, employing the following tools:

- Mapping patient flow: what was the patient path from arrival to departure?
• Literature review: what had other peer-reviewed research uncovered?
• Space inventory: how was the space currently used and did it match the intent?
• Interviewing clinic staff and administrators
• Observing patient flow and behavior (ethnography)
• Clinic layout analysis: how many spaces are there? Are the spaces visible and accessible?

The design team provided the following recommendations:

• Install programmable LED lighting to enhance wayfinding in corridors
• Use art to alleviate patient anxiety and enhance the patient experience. Gouverneur has begun an art installation project to engage patients and staff in choosing appropriate artwork for practice spaces.
• Use standardized furnishings and equipment positions, including computer screens that are moveable or swivel, to enable face-to-face interactions with patients
• Employ self-registration kiosks and patient-driven movement throughout the clinic (such as self-rooming) from triage to the patient room and discharge area
• Incorporate visual cues to indicate if a room is occupied, such as lights or flags
• Expand outlet availability in areas where patients may be waiting to keep them connected and occupied
• Use a variety of seating configurations, such as private seating or pods for small groups
• Make better use of less visible or underutilized exam rooms, opening them up to act as team rooms or alternative work spaces for practice team members
• Create team spaces in close proximity, ideally visibly accessible, to exam rooms

Kenneth J. Feldman, Ed.D., FACHE, Associate Executive Director, Gouverneur Health, observed, “Our recently updated facility provides a nurturing, safe environment to deliver cutting-edge care.”

How’s it working in Cherokee, NC?

At Cherokee Indian Hospital’s outpatient clinics, the space is designed to enable a patient-centered medical home (PCMH) care model. The key element is co-location, with three to four teams of providers and staff working in a shared, open team space. Co-location was first piloted in an older facility, where minor renovations created two team spaces. While there was some initial scepticism, they saw many benefits, primarily in increased efficiency and communication.

Patient scheduling, nurse case management and population health management functions all happen in the same space with the same team. All members of the care team, including MAs, case managers, nurses and physicians, report greater awareness of clinic activity; less time is spent looking for other team members and critical information is easier to access. Most of the providers’ time is now spent in the collaborative space, where they remain available to each other to discuss complex cases or to conduct warm hand-offs of patients to members of the extended care team. Patients have access to a pharmacist, nutritionist and behavioral health specialist during a visit. Patients like having direct access to this broader team, and the provision of care is more efficient and satisfying for care team members as well.

Pod: the typical clinic pod consists of three to four examination rooms, a team station and a supply area. Self-rooming: Patients are assigned an examination or consultation space upon entering a clinic and then go to that space without waiting in a designated waiting area.
As a physician, I am not running around to find the team members I need to coordinate care, and I don’t have to worry about the patient not following up with a behavioral health specialist or dietician because we provide the warm hand-off in real-time.

Michael Toedt, MD, FAAFP
Family Physician, Cherokee Indian Hospital

Cherokee Indian Hospital will be opening a new facility in fall 2015 and is committed to using team rooms and co-location of the extended care team going forward. They have found that adjacent team rooms with partially open space between teams work best, and so there will be no private offices in the new facility. Care team members will face each other at round table work stations as opposed to having their backs to each other at desks around the perimeter of a room, facilitating team work, communication and efficiency.

How’s it working in Kaiser Permanente?

In preparing to build a series of new medical office buildings, Kaiser Permanente realized it had an opportunity to transform care delivery by thinking differently about the human connections in physical spaces. For this to be successful, Kaiser Permanente knew the design of the new space would have to be a collaborative process that leveraged its integration as a health care delivery system. In setting out to design something different, Kaiser Permanente asked its facilities and information technology executives to shadow patients, physicians and staff to better understand the challenges being faced. Through this process, staff members who do not directly deliver care in the traditional sense—such as receptionists, architects, information technology leads and administrative partners—were able to realize the integral role they play in the care that patients receive.

Upon arriving at the new medical office buildings, it is clear right away that this is not your standard physician office. The design of the space begins to live Kaiser Permanente’s “Thrive” brand and extends its presence not only to its members, but to the community as well. The buildings and surrounding space are not just places for people to visit when they are feeling ill; patients will want to come when they are well, too. Kaiser Permanente was intentional in its use of outdoor spaces to expand care delivery, for example, using green spaces for a community game of kickball and outdoor kitchen areas for healthy cooking demonstrations.
Kaiser Permanente found that, on average, patients do not spend more than a few hours in its system each year. Given this, it needed to leverage every opportunity to expand its care team’s influence and spread messages of preventive health. With this in mind, Kaiser Permanente transformed its traditional waiting spaces into “public squares” that allow members options for connecting with their care in new ways. Digital signage shares up-to-date information and local happenings. The placement of “community” furniture encourages members to interact with one another. And, the “Thrive Bar” lets members informally connect with Kaiser Permanente to ask simple questions and learn more about its services.

In considering its care delivery model, Kaiser Permanente found that perhaps its greatest untapped resource is its patients. With the use of electronic tablets, patients are encouraged to share—with Kaiser Permanente as well as with others—their goals, values and what matters to them. Questionnaires that patients complete either in the Public Square or even on kp.org at home, are uploaded automatically into their electronic medical record to give providers more meaningful information.

Displays in the exam room allow Kaiser Permanente to share health education materials that augment a patient’s visit and enhance the provider’s ability to visually show patients the details about their specific diagnosis. This makes the patient-provider interaction more productive and meaningful.
Kaiser Permanente recognized the need to make collaboration easier. Today, technology and the built environment can get in the way of collaboration among providers. Being able to problem-solve with colleagues, partner on tough cases or even just socialize with them—these are all strategies that are known to improve work lives and help with recruitment. For this reason, Kaiser Permanente is using technology to create opportunities for collaboration, for example, through exam rooms that have telehealth capability and mobile devices that provide information at your fingertips.

To deliver true team-based care, Kaiser Permanente created team spaces that break down physical barriers and lead to natural “collision points” throughout the day. These team spaces facilitate co-location of physicians and staff and allow Kaiser Permanente to leverage the collective knowledge of the health care team and improve collaboration on behalf of patients. This also reduces isolation and leads to greater staff satisfaction, and for patients, improved satisfaction and clinical outcomes. Where possible, Kaiser Permanente located supporting specialties adjacent to one another. For example, a Neurosurgery and Interventional Anesthesia team now share a space. Their proximity allows for non-surgical candidates to seamlessly be referred to Anesthesia for pain management and vice versa. The team space also allows more effective care for patients with chronic diseases such as diabetes, obesity or depression. Treatment of chronic disease is not an individual effort, but rather requires a team-based approach that centers on the patient.

At Kaiser Permanente, the newly designed spaces are augmenting relationships that are fundamental to good health. Fostering relationships between care teams, patients and communities is bringing back the joy in medicine.

How’s it working in Minneapolis, MN?

In 2016, University of Minnesota Health consolidated 37 different specialty clinics into one building called the Clinics and Surgery Center. This afforded an opportunity to design a space that facilitated collaboration, not just within departmental clinic teams but also across specialties. The design also focused on social connections, which
have been associated with reductions in physician burnout.\textsuperscript{1} Improved collaboration and social cohesion make for a better patient and provider experience.

During the planning process, “zones” were created to improve patient flow and support relationship-building across care teams. Patient zones were shared waiting spaces across clinics. Patients move from the patient zone to the exam/treatment zone, which includes an intake area and vital sign station, exam rooms and procedure rooms. A collaboration zone runs across the entire building within the exam/treatment zone, connecting the clinical teams to one another. Staff-only zones are located behind the exam/treatment zone.

These zones have facilitated innumerable one-on-one, face-to-face conversations about patient care between clinicians. Before the clinics moved to the new shared space, these conversations were taking place over the phone, asynchronously within the electronic health record or not happening at all. As University of Minnesota Health Primary Care physician Kathleen Watson, MD, explains, “It’s great having the urologist in the next clinic over. I have wandered over to talk with him when I need "curbside" advice about the workup of a urological condition before I send a patient to them. Boy, do they get excited whenever I have a patient with kidney stones! We also share many patients, and it’s been helpful to talk face-to-face about some of the diagnostic and therapeutic dilemmas. It saves time, builds relationships and improves patient care, and I learn something new every time!”

As ambulatory and hospital care follow divergent career paths, practice is becoming more “siloed.” With this separation, the social connectedness that grew from primary care and specialty physicians sharing patients within the hospital physicians’ lounges has been lost. The design of the Clinics and Surgery Center makes it easy to find collaborating clinicians in a way that makes great things happen for patient care. “In the same way that I consult with my urology colleagues, it’s not uncommon for me to walk over to orthopedics to ask an opinion about management or try to help get a patient’s care expedited. Just last week, a patient came in for preoperative assessment for gastrointestinal surgery. She had accidentally fractured her distal radius on the night before her preoperative visit. I was able to talk to an orthopedist, stabilize the wrist and get her in to be seen the next day for proper immobilization. The patient was amazed and so was I!” says Dr. Watson.

Reference


Introduction:
Increasing administrative responsibilities—due to regulatory pressures and evolving payment and care delivery models—reduce the amount of time physicians spend delivering direct patient care. Implementing solutions for optimal space design can boost team performance, efficiency, engagement and satisfaction, as well as improve patient satisfaction and outcomes.

Learning Objectives:
At the end of this activity, you will be able to:
1. Describe the importance of creating a space with well-designed team stations and clinic examination rooms.
2. Identify the impact of positive distractions, within the clinic’s surroundings, on the patient.
3. List measures one can take to create a spacious and welcoming examination room.
4. Recognize the value added to patient experience and engagement through shared computer screens and team documentation.

**Release Date:**
October 2015

**End Date:**
October 2019

**Accreditation Statement:**
The American Medical Association is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

**Credit Designation Statement:**
The American Medical Association designates this enduring material for a maximum of 0.5 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Target Audience:** This activity is designed to meet the educational needs of practicing physicians.

**Statement of Competency:** This activity is designed to address the following ABMS/ACGME competencies: practice-based learning and improvement, interpersonal and communications skills, professionalism, systems-based practice and also address interdisciplinary teamwork and quality improvement.

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**About the Professional Satisfaction, Practice Sustainability Group:** The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, "Factors affecting physician professional satisfaction and their
implications for patient care, health systems and health policy," and other research sources, the group developed a series
of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based
physician practices and improve health outcomes, increase operational productivity and reduce health care costs.

Disclosure statement: The content of this activity does not relate to any product of a commercial interest as defined by the
ACCME; therefore, neither the planners nor the faculty have relevant financial relationships to disclose.

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