Midmark White Paper

Patient Centered Design in the Exam or Procedure Room

MIDMARK®

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Executive Summary

The healthcare industry is currently undergoing significant change, brought on by new legislation, new technologies and changing patient demographics. As these forces continue to shape the healthcare industry of tomorrow, increasing focus is being placed on the point-of-care and a new design approach centered on the patient.

This new view of the practice and clinical work environment is helping physicians, practice managers and practitioners rethink caregiver-patient interaction and the delivery of efficient patient care in a brand new way. The understanding is that the practitioner's clinical work environment, as a whole, needs to be designed around the patient to enhance efficiency, effectiveness, safety, comfort and quality of care.

This white paper is designed to help practitioners adopt a patient-centered design view of their practice and clinical space by identifying the key components.

Redefining the Clinical Space

A number of factors are driving the evolution of the healthcare industry with an acute focus on efficiency. These factors include:

1. Healthcare Legislation. In early 2010, the President of the United States signed into law the Affordable Care Act, which is designed to lower healthcare costs, make available more healthcare choices and enhance the quality of healthcare for Americans. While there is much debate on the merits and effects of this bill, most experts agree that it attempts to provide increased access to healthcare for as many as 30 million uninsured patients.

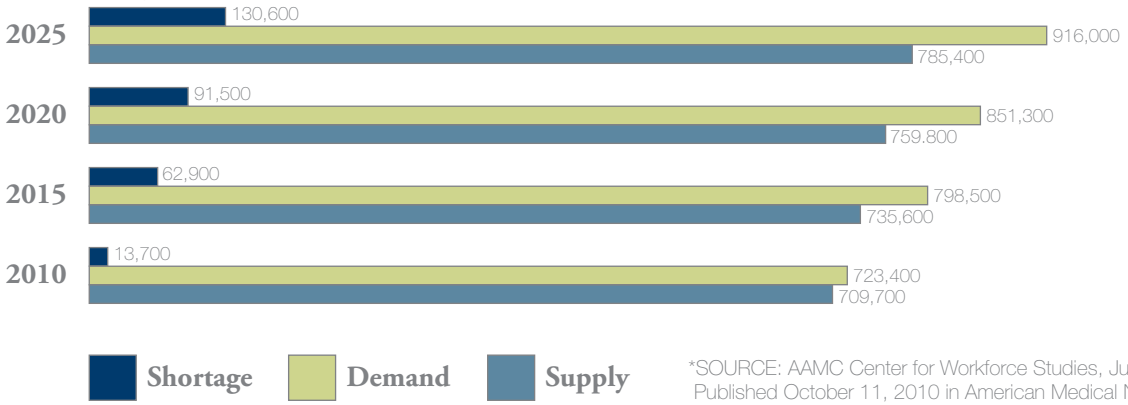
2. Shortage of Primary Care Physicians. The increase in the number of insured patients is expected to put more strain on the pool of physicians currently in the healthcare environment. In many parts of the country, primary care physicians are already in short supply. The federal government estimates that 65 million people currently live in areas designated as having a shortage of primary care physicians. Industry experts attribute this shortage to a number of factors, including an increasing number of U.S. medical students bypassing primary care for better paying, higher profile specialties. Those physicians in primary practice are usually overworked and often are unable to accept new patients. The Department of Health and Human Services estimates that there will be a shortage of 21,000 primary care physicians by 2015.

   And, according to the Association of American Medical Colleges, that number will increase to 91,500 by 2020*.

3. Electronic Health Records (EHR). The push for integrating electronic medical records is driven not only by technological advances, but legislation. For instance, the recently passed Health Information Technology for Economic and Clinical Health Act (HITECH) authorizes incentive payments through Medicare and Medicaid to clinicians and hospitals when they use EHRs privately and securely to achieve specified improvements in care delivery. EHRs promise to improve caregivers' decisions and patients' outcomes. However, EHRs present a significant challenge in terms of integrating technology into healthcare environments not initially designed to incorporate technology and IT hardware. This often results in a negative impact on existing paper-based workflows and therefore, efficiency of care.

4. Changing Patient Demographics. According to 2000 Census, the number of people in the United States with some form of disability is about 54 million, and the number with a severe disability is close to 27 million*. The percentage of older adults is also increasing. Aging adults represented 12 percent of the population in 1997; they will represent 20 percent of the population by 2030. The obesity percentage among U.S. adults also continues to rise and is currently at 30 percent. For many of these people, a visit to the doctor's office can be very stressful. Many also fail to receive adequate care because of accessibility issues.

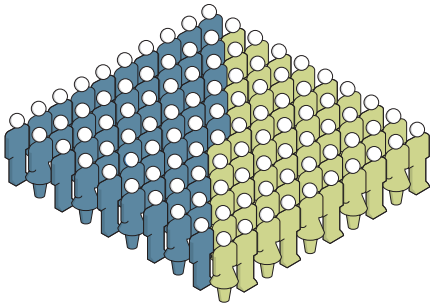
Shortage of Physicians Estimated at 91,500 by 2020



*SOURCE: AAMC Center for Workforce Studies, June Analysis
Published October 11, 2010 in American Medical News. www.AMEDNEWS.com

In order to meet the evolving needs presented by these factors, companies such as Midmark, are rethinking the concept of the clinical space with a patient-centered approach. Patient-centered design focuses on the point-of-care with the patient by integrating technology with the examination, consultation, and treatment. This seamless, holistic system is designed to enhance workflows and the patient-caregiver relationship.

When it comes to medical practices, patient-centered design is just as important for patients as it is for physicians and staff. When implemented correctly, this design view can provide a number of benefits at the point-of-care for patients, physicians and staff.



Total Number of Disabled Americans: 54 Million
Number of Americans with a severe disability: 27 million

Americans 65 and older
Number of Americans over 65 with some form of disability

*SOURCE: 2000 & 1999 Census

Benefits of Patient-Centered Design

The benefits of implementing a patient-centered design approach in the physician office are many and variable depending on the practice type. Following are benefits that can be realized when this design approach is implemented in a clinical environment.

Efficiency

Depending on the existing practice, and improvements in workflow and patient experience, changes in efficiency are variable. One example of a design change to enhance steps in the exam room is to utilize mobile workstations for EHR access and diagnostics to create a flexible workspace around the care zone. Surrounding the exam table with the mobile stations offers added control and flexibility to adjust to the point of care.

The workstations are always within arm's reach, decreasing the caregiver's need to move within the space and maximizing engagement with the patient. All medical data is accessible at the point of care and can be shared or kept discrete. The patient is seated on the exam table throughout the visit. There are no delays due to transferring the patient from other areas in the room. The digital care and physical care interfaces are within the same zone. The movement of the physician is minimized, and constant contact with the patient can be maintained.

Safety

It is important that patients and staff feel safe and confident in the care given when they are in the office and exam/procedure room. If a patient does not feel safe, whether accessing the table, on a table in a high position, or even confidence in the staff, they may become uncomfortable and tense resulting in, among other things, white coat syndrome.

For example, with the average age of patients on the rise, it is more likely that patients may need assistance in accessing an exam or procedure table. In many facilities, the burden falls on staff to lift or assist the patient. This sort of patient/staff interaction has a high potential for serious injury to one or both of the parties involved. At the very least, it could result in back injuries for staff, which is a serious issue in the healthcare industry. The National Institute for Occupational Safety and Health (NIOSH) estimates that direct and indirect costs associated with back injuries in the healthcare industry are about $20 billion annually.

> Direct and indirect costs associated with back injuries in the healthcare industry are estimated to be $20 billion annually. Additionally, nursing aides and orderlies suffer the highest prevalence (18.8%) and report the most annual cases (269,000) of work-related back pain among female workers in the United States. In 2000, 10,983 registered nurses (RNs) suffered lost-time work injuries due to lifting patients. Twelve percent of nurses report that they left the nursing profession because of back pain.
>
> SOURCE: Center for Disease Control and Prevention – NIOSH

Accessibility

As the healthcare industry evolves, equal access to healthcare is an increasingly important issue affecting the healthcare system across the country. It basically pertains to a practice's ability and willingness to ensure that healthcare is accessible and inviting for disabled patients, as well as those with other mobility concerns, such as elderly or obesity issues.

Equal access healthcare can refer to care that includes a number of features, such as:

1. a fully accessible architectural environment that can be navigated easily by everyone;
2. equipment such as low-height exam and procedure tables, diagnostic equipment and scales to accommodate those who may or may not use mobility devices;
3. inclusive appointment policies and exam procedures that provide for all types of physical and communication needs; and
4. a staff trained to understand and respond with sensitivity to people with different types of disabilities, including less visible impairments such as deafness, cognitive impairments and depression.

Growing Importance of Accessibility

Earlier in the paper, "accessibility" was identified as one of the benefits of patient-centered design. The issue of accessibility is increasingly becoming a central issue in the healthcare industry.

By providing an accessible healthcare environment for everyone, providers will not limit access of healthcare to a patient, due to physical or mental disability, a right noted in the Americans with Disabilities Act of 1990.

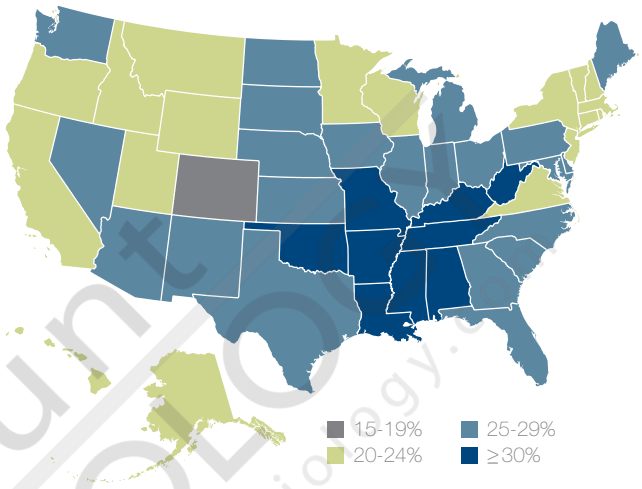
Many healthcare facilities do not provide appropriate access because they fail to provide the proper equipment, or have other programmatic or financial barriers. A nationwide survey of people with disabilities conducted in 2005 found that 74.9 percent of those surveyed had more than a moderate degree of difficulty accessing exam and procedure tables; similarly, 68.2 percent had significant problems accessing x-ray equipment, and more than 50 percent (for each) had difficulty accessing x-ray equipment and weight scales. (June Kailes, Center for Disabilities Issues and the Health Professions at Western University of Health Sciences, Pomona, CA.)

According to the 2000 census, people with disabilities represent 19.3 percent of the population over the age of 5. Many of these people fail to receive adequate care because of accessibility issues. And, it is not just people that "self-identify" as having a disability who lack access to proper healthcare.

The percentage of older adults is increasing rapidly as the "baby boomers" age. Aging adults represented 12 percent of the population in 1997; they will represent 20 percent of the population by 2030.

The obesity percentage among U.S. adults has also continued to rise and is currently at 30 percent, which is another factor impacting the need for accessible healthcare.

Percent of Obese (BMI ≥ 30) in U.S. Adults



The data shown in this maps was collected through the CDC's Behavioral Risk Factor Surveillance System (BRFSS).
SOURCE: www.CDC.gov

The growing importance of accessibility is breaking down barriers in the exam and procedure room, allowing for equality in healthcare that has been non-existent in the past. As part of this drive, healthcare organizations and patient and advocacy groups have come together in recent years to bring attention to this issue and help physicians and patients become aware of the importance of a barrier-free practice. One such effort is the annual National Patient Accessibility Week (NPAW), which is celebrated annually in November.

Supported by organizations such as the Department of Veterans Affairs (VA), the Disability Rights Education and Defense Fund (DREDF), the American Council of the Blind (ACB), the Breast Health Access for Women with Disabilities (BHAWD) and Midmark Corporation, the focus of this national education campaign is to increase the awareness that healthcare providers need and are obligated by law to have accessible, barrier-free facilities for patients who have disabilities, as well as patients with other mobility concerns, including the elderly and obese populations.

It is also worth noting that the healthcare reform signed into law by President Obama authorizes the U.S. Access Board to develop new access standards for medical diagnostic equipment, including examination tables.

Elements of Patient-Centered Design

To fully understand the significant role a patient-centered design approach can play in a clinical environment, it is important to look at the clinical space.

Exam and procedure rooms

A significant component of the patient-centered design approach is the reengineering of the exam/procedure room to integrate consultation, counseling and treatment all within a seamlessly efficient atmosphere.

This new view is helping practitioners think about caregiver-patient interaction and the delivery of care in a brand new way. Since this is the one area where patients and physicians spend most of their time, it makes sense that here is where patient-centered design can have the greatest impact.

The size of the room needs to be large enough to comfortably accommodate the patient, physician and staff and allow exams and procedures to be properly performed. The industry standard for an exam room is approximately 10 ft. x 10 ft. and provides a 60-inch diameter area to accommodate wheelchair turnaround for disabled patients, as recommended in guidelines of the Americans with Disabilities Act (ADA). Procedure rooms can be 12 ft. x 12 ft., depending on procedure equipment, and patient positioning required.

The room allows the door to be reverse-hinged to increase patient privacy. If a staff member enters the room to assist the physician, the patient is not exposed to other patients in the corridor. Larger rooms will also accommodate newer equipment, such as lasers, and will allow for versatility down the road if one needs to add new in-office procedures.

For many procedures, the work of the physician and staff can be concentrated around the head section of the table or even the foot and midsection of the table, so access around the entire table is critical. To facilitate this access, the procedure table should be positioned either in the middle of the room or at an angle, allowing the physician and staff to work at the head end of the table, and as much as possible in a neutral position, without too much overreaching or twisting torso. And adequate room space will mean that the physician can easily move about while seated on a stool, minimizing any strain that might be caused by continually sitting and standing during an exam or procedure.

The consultation and family/visitor zone should be designed around the idea of shared communication between caregiver, patient and guest. The zone can be created through an extended work surface as support for a large interactive display panel that can be shared between physician and patient. A large interactive screen makes information readily accessible, creating a more intimate dialogue between patient and caregiver and bringing needed educational information into the procedure room. The walls surrounding the family/visitor zone can mount or use interactive displays for additional presentation needs.

Exam and procedure tables

The centerpiece of the procedure/exam zone is the table. It is the one piece of equipment in a practice that touches nearly every patient. The right table can increase the level of efficiency, comfort and safety, resulting in the best delivery of care.

With the average age of patients on the rise, it is more likely that patients may need assistance in accessing an exam or procedure table. In many facilities, the burden falls on staff to lift or assist the patient. This sort of patient/staff interaction results in emotional and physical discomfort to one or both of those involved. Barrier-free tables/chairs can also reduce the risk of distress and injury to patients who are elderly, disabled, obese or even pregnant who may have difficulty in accessing a fixed procedure table. Therefore, it is important that an accessible table/chair be a central fixture of any patient-centered design.

The most important feature of a barrier-free table/chair is that it should be able to lower to a height of 17 to 19 inches so patients are able to access with little or no assistance. This can increase a patient's comfort, help the physician conduct a more thorough and accurate exam or procedure, and improve the overall patient experience.

Procedure tables require more complex patient positioning where features such as powered height, back, foot and tilt are common. This will enable the patient to remain relatively still during the entire procedure. This will also enable access during examinations and procedures, saving the physician from overreaching, twisting or bending and resulting in long term injuries.

Rotation built into the table should be considered as it allows the physician to move the patient to the diagnostic equipment, such as lasers, in the room instead of requiring the physician to move. In addition, by rotating the patient, the physician can position the work site close so twisting movements and overreaching can be minimized.

Computer work zone

To counter some current beliefs, the integration of a computer into the exam room will help and not hinder patient-caregiver interaction, keeping patients comfortable, informed and engaged. Incorporating the computer as part of an efficient patient care environment gives the physician direct contact with the patient and enables instant retrieval of information. Uninterrupted time with the patient can be increased while the overall exam time is decreased.

The computer work zone consists of a work surface with adjacent seating for the patient. The work zone is located just inside the exam room for separation between the family/visitor and the exam zones. Including the computer allows access to past patient medical records and the entry of new data as part of the interaction with the patient.

Casework/Cabinetry

Casework designed specifically for medical environments is often more durable and will not break down under medical use, unlike common wood casework. While casework does have an aesthetic affect on the image of the practice to patients and staff, it also can be tied closely to patient-centered design.

For example, a pull-out writing surface at an approximate height of 30 inches would allow any paperwork needed during an examination to be readily and conveniently accessed. And locating the sink in the corner maintains a countertop surface closer to the working environment and isolates any splashing to eliminate potential slippery spots on the floor. Another important area on the cabinetry is the kick area of the base cabinet. This should be high enough to allow the legs of the stool to slide under the edge of the base cabinet while the user's foot is positioned on the base in a very common use scenario.

Physician stool

For a physician, the ideal stool should feature a contoured seat that molds to the shape of the body and provides maximum comfort and support for the buttocks, feet and torso. It should also feature a strong base structure that offers stability and minimizes the chances of tipping.

The stool should be easily adjustable and maneuverable, to allow physicians to find the most comfortable working height and effortlessly interface with the patient. The adjustable height will allow physicians to maintain neutral postures and keep shoulders relaxed and the head balanced and looking essentially straight ahead, while minimizing overreaching and sustained bending and twisting.

Flat Screens

Flat Screens have become a critical part of the exam/procedure room. Physicians need to be able to easily view the screens during any procedure. For this reason, it is important to have a fully adjustable screen on an arm that allows it to be easily positioned for both sitting and standing postures and for a variety of procedures. This adjustability will also ensure that the screen never inhibits or hinders the patient-physician interaction.

Lighting

It is important to have medical lighting in the exam/procedure room that provides a large pattern size with an even distribution of light throughout that eliminates shadows. It should also remain safe and cool to the touch. The lighting should be counterbalanced to provide precise positioning without drifting and without any undue spring or frictional force that would cause the user to overly push or pull in order to position the light. Thus, it should be easy to maneuver, eliminating any strain on physicians.

Staff awareness and training

A final key component of patient-centered design is ensuring staff is aware of this focus and properly trained. OSHA recommends that practices establish a training program designed and implemented by qualified persons to provide continual ergonomics education and training. In many ways, this is also a perfect vehicle to integrate training on patient-centered design.

Staff at the facility should be trained to understand and respond with respect to people with different types of disabilities and those who are mobility-impaired. Medical staff should be properly trained on how to safely assist or maneuver patients with disabilities or those who are mobility impaired.

Training programs also provide a great opportunity to reinforce the importance of focusing on the needs of the patients to ensure a high quality of care.

Conclusion

Healthcare and its delivery systems are changing. Innovations in patient care and healthcare information technology are emerging. Yet, many of today's healthcare environments were designed decades ago. For these facilities, change is overdue.

As the industry looks to the future, there is much to consider in facility design, access, control, comfort, workflow and the caregiver-patient relationship. Growth and change are inevitable, and healthcare environments must be flexible to adapt to the integration of new technologies and healthcare protocols. Now is the time to rethink and redefine workflow and a adopt a patient-centered design. By designing the clinical space around the patient, practitioners can significantly enhance efficiency, effectiveness, safety, comfort and quality of care.

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