

Midmark White Paper

# Rethink the Outpatient Clinical Space: Efficient Exam Room Design



## Introduction

Healthcare is currently undergoing significant change brought on by the Affordable Care Act, unsustainable cost burdens, new technologies and changing patient demographics. As these forces continue to shape the healthcare industry, increased focus is being placed on new patient-centric approaches to manage diagnosis, treatment and wellness in outpatient spaces.

This rethinking of the clinical space is helping health systems take a renewed look at caregiver-patient interaction and, in the end, the delivery of efficient patient care for improved outcomes. The design of the space, as well as furniture and equipment decisions, has an undeniable impact on workflows.

This white paper is designed to help healthcare systems consider a patient-centered view of outpatient spaces, primarily exam rooms, by identifying key design elements that can improve workflows for your unique care paths.

## Benefits of Patient-Centered Design

The benefits of implementing a patient-centered design approach in the clinical space can vary, depending on the facility. Each health system and their corresponding facilities have unique care paths that require an understanding of the expected outcomes, taking into consideration patient demographics, specialty, menu of services, etc. Following are a number of potential benefits that can be realized when this design approach is applied.

### Efficiency

One thing to consider when improving efficiency in the exam room is how digital data is used in the space, whether through electronic medical records (EMR), diagnostic devices or decision support tools. The use of mobile workstations to create a flexible workspace inside the patient care zone can make significant advances in patient engagement. Think about digital data as a consumable essential in the delivery of care, like a 4 x 4 or a bandage. How can space design enable delivery of the right content, at the right place and the right time?

The use of mobile or wall-mounted workstations can also bring the device (desktop, laptop or tablet) within arm's reach, decreasing the caregiver's need to move within the space and maximizing engagement with the patient. All necessary data is accessible at the point of care and can be shared at the provider's discretion. The patient is seated on a chair-like, low-height exam table throughout the entire visit. A low-height table is ideal in order to allow a patient to be in a variety of positions (e.g., seated, prone, flat, side lying, etc.) as clinical exams may be necessary, even in a consultative visit. There are no delays in transferring the patient from other areas in the room. Digital and physical care interfaces are within the same work zone, and the movement of the care provider is minimized as constant contact with the patient is maintained.

### Safety

It is essential that patients and staff feel safe and confident throughout the experience. If a patient does not feel completely safe and comfortable, whether accessing the facility, transferring to the exam table or during care delivery, they can become anxious and tense. This can result in an unsatisfactory visit, inaccurate diagnostic data, and potentially poor care outcomes, such as low patient satisfaction scores.

Consider that the U.S. Administration on Aging estimates that by 2030, there will be about 72.1 million older persons in the United States; more than twice their number in 2000.<sup>1</sup> As the average age of patients continues to rise, it is more likely that patients will need assistance in accessing an exam or procedure table. In many facilities, the burden falls on staff to lift or assist the patient, which can present a high potential for injury to one or both of the parties involved.<sup>2</sup> The Occupational Safety & Health Administration (OSHA) estimates that direct and indirect costs associated with back injuries in the healthcare industry are about \$20 billion annually.<sup>3</sup>

### Accessibility

As the healthcare industry evolves, providing the same access to healthcare for patients with a mobility limitation as for those without such limitations is an increasingly important issue for health systems.

<sup>1</sup> Administration on Aging, [www.aoa.acl.gov/Aging\\_Statistics/index.aspx](http://www.aoa.acl.gov/Aging_Statistics/index.aspx)

<sup>2</sup> Center for Disease Control and Prevention, [www.cdc.gov/niosh/topics/safepatient/](http://www.cdc.gov/niosh/topics/safepatient/)

<sup>3</sup> Occupational Safety & Health Administration, [www.osha.gov/SLTC/healthcarefacilities/safepatienthandling.html](http://www.osha.gov/SLTC/healthcarefacilities/safepatienthandling.html)

## Elements of Patient-Centered Design

The “same access of healthcare” can refer to a number of design considerations, such as:

1. A fully accessible facility design that can be navigated easily by everyone. For instance, a “Universal Design” approach in public spaces can help provide healthcare for everyone, whether ambulatory or limited in mobility. Keep in mind these are healthcare facilities, not retail businesses. Inaccessible spaces, even if grandfathered from a code standpoint, will have health ramifications for your patient demographics.
2. Inclusive appointment policies and exam procedures that provide for all types of physical and communication needs.
3. Exam rooms designed with a “mixed use” approach that manages both consultative and clinical paths without the need to segregate patients during check-in. While this lean approach allows for a higher utilization of spaces and resources, it should be considered based on your practice needs. Some healthcare facilities separate consultative visits from clinical visits with two care paths. Depending on patient demographics and the type of care the practice is delivering, this approach may present challenges during execution.
4. Equipment such as low-height exam and procedure tables, diagnostic equipment and scales to accommodate those who may or may not use mobility devices.
5. 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.

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 Tables

The focus of the outpatient facility is the exam table, as it is the place where caregivers truly deliver care to patients; it touches nearly every patient. Today’s exam table is becoming a mix between a clinical device and the design elements of a chair (i.e., low height and comfortable seated area). It is the patient positioning device. Examinations require clinical positioning capabilities, something that is not offered in a simple recliner or chair. In many ways, the exam table also is evolving into a clinical hub where diagnostics, patient engagement and treatment intersect. Results can be gathered within and seamlessly transferred to the EMR. The right exam table can increase the level of efficiency, comfort and safety, resulting in the best workflows for your facility.

With the average age of patients on the rise, it is more likely that patients will need assistance in accessing an exam or procedure table. Many facilities still require staff members to lift or assist the patient. This sort of patient/staff interaction often results in emotional and physical discomfort to one or both of those involved. Accessible tables can reduce the risk of distress and injury to patients who may have difficulty in accessing a fixed examination table including those who are elderly, disabled, obese or even pregnant. Therefore, it is important that an accessible table be a central fixture of any patient-centered design.

To provide the right access and comfort, the table needs to be able to lower to a height of 17 to 19 inches (currently under review by the US Access Board), so patients are able to access with little or no assistance whenever possible. This can increase the patient’s comfort, protect their dignity and ensure physicians conduct a more thorough and accurate visit, improving the overall patient experience. In certain situations rotation built into the table can be considered, as it allows the caregiver to move the patient to the treatment areas instead of requiring the devices or physician to move.

### Vital Signs/Diagnostic Equipment

Digital diagnostic testing (e.g., vitals, spirometry and ECG) has joined EMRs in becoming a reality across the medical industry. A combination of easy-to-use diagnostic devices and software solutions that are designed to increase efficiency, reduce errors and advance patient care is being used to support improved workflows.

For instance, the acquisition of vital signs is the beginning of most patient-caregiver interactions. It provides critical information related to changes in patient health and plays an important role in a physician's treatment decisions. However, the vital signs process hasn't changed significantly in the last 30 years. The integration of EMRs and automated vital signs devices (e.g. BP, temperature, pulse, SpO<sub>2</sub>) can have a positive impact on the overall efficiency of the process. Time is saved by reducing patient conveyance and eliminating the need for multiple vital signs capture. The results most often are transcribed directly into the EMR, increasing efficiency and reducing the chance of transcription errors.

### Mobile Workstations

As the practice of healthcare evolves, technology will continue to play a larger role in the exam room and in how physicians and caregivers interact with patients. Without proper planning and the right equipment, integration of technologies such as EMRs and tablets could negatively impact the overall efficiency of the care process. Mobile workstations designed to improve the caregiver-patient interaction enable organizations to easily bring digital information to the point of care without sacrificing workflow.

Many mobile workstations are designed to provide the flexibility needed to support technology within the exam room, from room to room, or when a space-saving solution is needed. They allow physicians to work in the way they are most comfortable, whether that be seated, standing, mobile or stationary. Certain workstations adjust in height (29" to 47") while offering tilt and rotation functionality that allows for a proper working position to be maintained without sacrificing eye contact 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 instance, 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.

### 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.

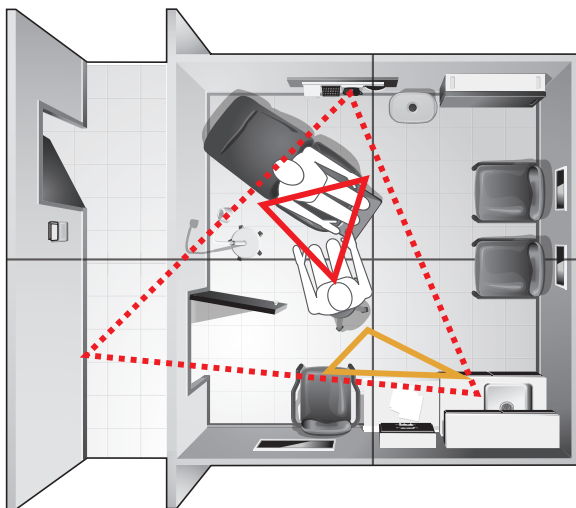
The stool should be easily adjustable and maneuverable, to allow physicians to find the most comfortable working height and effortlessly interface with the patient. The adjustable height will allow physicians to maintain neutral postures, keep shoulders relaxed and the head balanced and looking essentially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

## Redefining the Clinical Space

As we look to the future of the clinical space, there is much to consider in the way of facility design, workflow, access, comfort, information flow and the caregiver-patient relationship. Healthcare environments must meet today's needs while providing enough flexibility for changing demands, including the integration of new technologies, information systems and healthcare protocols. In an effort to help healthcare executives and caregivers rethink the clinical space, Midmark developed a number of workflow design options that help provide the right clinical work environment to effectively advance patient care and office efficiency.

### Workflow A

This traditional exam room design (Figure 1) provides the foundation for a basic caregiver-patient workflow with separate zones for patient interviews and exams, and the option for additional privacy with public/private zones. While this traditional setup allows for immediate patient care, historical patient data and any additional medical data that supports patient care is not immediately available in the room. Caregivers must leave the room to retrieve this information.



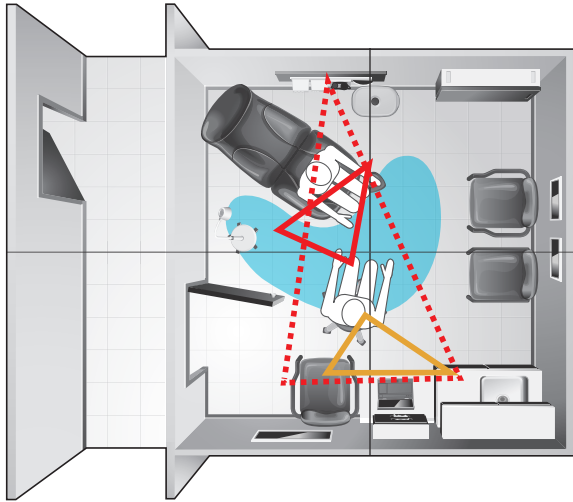
**Figure 1. With Workflow A, patient care is divided into separate zones for the patient interview (1) and patient exam area (2).**

For better access to the patient, the exam table is positioned at a right angle, providing access from three sides. The exam room is organized into four zones, including entry, patient care, family/visitor and organized storage with an integrated sink. A lowered writing surface is adjacent to the storage zone, as is a chair for the initial patient interview. The overall room size is 10 ft. x 10 ft. with the entry door reverse-hinged for patient privacy.



## Workflow B

This exam room design (Figure 2) builds on Workflow A with the integration of the EMR for real-time access to patient histories and diagnostic data at the point of care. The patient is seated adjacent to the computer, then moved to the exam table.



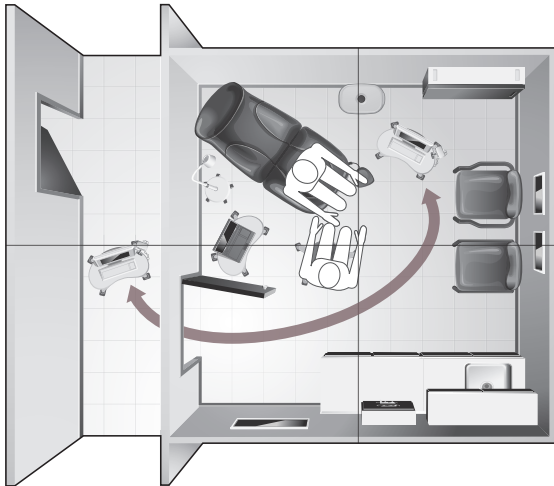
**Figure 2. Workflow B incorporates the computer as part of an efficient patient care environment, giving the caregiver more direct contact with the patient.**

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 for access to past patient medical records and the entry of new data as part of the interaction with the patient.

This exam room supports barrier-free access for patients, including wheelchair accessibility with a central turning diameter of 60 inches. The overall room size is 10 ft. x 10 ft., with the distance from the door to the corner of the room (18") allowable for patient egress.

### Workflow C

Safety and efficiency in patient care are the focal point for this workflow design. (Figure 3) Seating the patient on the exam table throughout the visit assists caregivers in reducing the time needed for patient positioning and maximizes efficiency for both the physician and caregiver.



**Figure 3. In Workflow C, the digital care and physical care interfaces are within the same zone to ensure constant contact with the patient is maintained.**

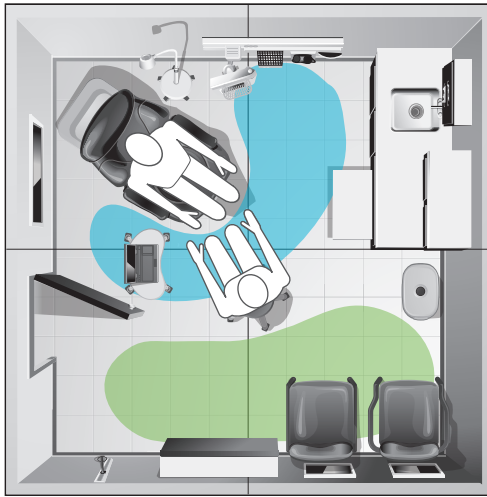
Mobile workstations surrounding the exam table for EMR access and/or diagnostics offer added control and flexibility to adjust to the point of care. The workstations are always within arm's reach, decreasing the caregiver's need to move within the space and maximizing engagement with the patient. All medical data is accessible at the point of care and can be shared or kept discrete.

A distinct family/visitor zone with an adjacent dressing nook is incorporated without interfering with the care zone. Additional storage for instruments and supplies is provided away from the family/visitor zone. As with Workflows A and B, the exam room size is 10 ft. x 10 ft., providing ample access to the exam table.



## Workflow D

This innovative workflow design (Figure 5) establishes two distinct zones: the care zone and the family/visitor zone. The family/visitor zone is easily accessible from the entry, provides guest seating, and includes a dressing nook. The design features a full-function exam table with EMR connectivity and an integrated scale to help streamline workflow and eliminate the need for a floor scale in the room. It also decreases the need for manually lifting and repositioning patients.



**Figure 5. Workflow D features a family/visitor zone (1) that is accessible from the entrance and a care zone (2), also known as the private zone.**

A dedicated computer workstation is located adjacent to the exam table for optimal access to digital data at the point of care. The mobile instrument and supply cart also improves the flow of the workspace around the care zone. This workflow decreases the need for the caregiver to move within the space, allowing for maximum engagement with the patient.

In addition, storage and organization of instruments and supplies is designed for accessibility and separation from the public zone. The exam room size is once again 10 ft. x 10 ft.

## Workflow E

This option (Figure 6) offers a dual access room design that improves workflow while eliminating obstacles that could inhibit the integration of new technologies. Two sliding doors – one for patient entry and one for caregiver entry – enable safe, clear patient navigation away from clinical clutter.



**Figure 6. Workflow E provides dual access to the room for effective workflow.**

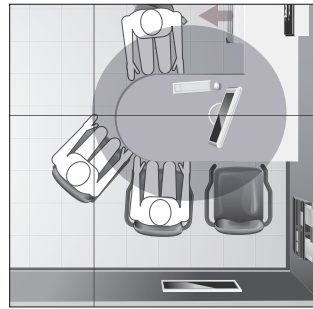
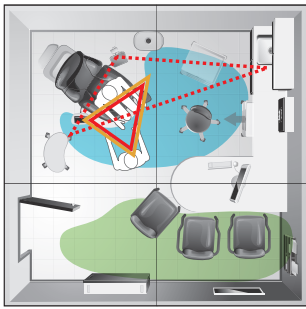
The 10 ft. x 12 ft. exam room has a distinct separation of care zone and patient consultation zone. With separate doors and defined areas, patients self-room through a clearly marked way-finding system without having to move through any of the care zones. The layout of the care zone is focused on efficiency at the point of care.

The consultation zone is easily accessible from the patient entry side, providing seating, a work surface and a large display to review educational information. The care team work area provides line of sight to all exam rooms for better flow management – eliminating waste and maximizing value. The workflow also allows for better integration among providers for ease of collaboration.

Specialty equipment is placed on carts that can easily be pulled in and out of rooms as needed, eliminating fixed elements in rooms and enabling integration of new technologies. Workflow and patient flow is further enhanced with one stop for patient weight and vitals readings.

## Workflow F

This design (Figure 7) features a 12 ft. x 12 ft. exam room divided into two distinct zones: the typical care zone and a dedicated consultation zone. The consultation zone enables the physician to monitor the patient's health more closely, by providing a place for the caregiver, patient and family/visitor to review critical information and data for continuous care. An interactive display, which can be viewed jointly with the patient, helps to recall information, review current health status and develop therapies or schedules for medications, callback and/or feedback options.



**Figure 7. Workflow F offers a designated consultation zone that gives physicians the power to monitor the patient's health more closely.**

The flexible care zone includes a table-mounted computer work surface that raises and lowers with the table. It supports optimum access and posture for the caregiver. All essential data and information is accessible to the physician within the exam room.

## Conclusion

Healthcare and its delivery systems are changing. Innovations in patient care and healthcare information technology are emerging.

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 adopt patient-centered design. By designing the clinical space around the patient, practitioners can significantly enhance efficiency, effectiveness, safety, comfort and quality of care.



Midmark is an ISO 13485 and ISO 9001 Certified Company.  
For more information, contact your Midmark dealer or call:  
1-800-MIDMARK Fax: 1-800-365-8631 Outside the U.S.A.  
call: 1-937-526-3662 Fax: 1-937-526-8392 or visit our  
website at [midmark.com](http://midmark.com)

© 2011 Midmark Corporation  
60 Vista Drive, Versailles, Ohio 45380  
Litho in U.S.A. 007-1112-00 Rev. A1 (7/15)

