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Designing the Ambulatory Space for Continuous Evolution

Traditionally, exam rooms were designed as static spaces, with a physician, patient and perhaps a nurse interacting in a room configured around a single, in-person visit. Today, the definition, importance and function of the exam space is expanding well beyond that boundary.

Care delivery is undergoing significant change and nowhere is this more visible than in the ambulatory setting. Outpatient care now accounts for a growing share of procedures, diagnostics and follow-up services that once required a hospital visit or stay. To keep pace with these changes occurring in the healthcare space, the point of care (POC) ecosystem needs to continuously evolve.

This Midmark white paper looks at the role design plays in transforming the POC into a dynamic, patient-focused, tech-enabled environment that continues to evolve. It also offers five areas where architects, designers and healthcare systems can focus to help support this evolution.

Accelerating Pace of Change in Ambulatory Care

Traditionally, the healthcare sector has evolved at a measured, cautious pace, with change often occurring gradually and deliberately. The following are three examples of this.

- Despite evidence-based design (EBD) emerging as a discipline in the 1980s, it was mostly viewed as an unconventional approach to healthcare facility design up until a few years ago. As greater attention and focus are being placed on the interaction between patients and caregivers at the ambulatory POC space, we are now seeing EBD being more frequently used in clinics and exam rooms.
- While digital record-keeping was possible in the 1960s, widespread adoption of electronic medical records (EMR) in the US did not really begin until the 2009 HITECH Act. Even with the financial incentives offered to hospitals and providers, it still took a few years before EMRs became truly widespread.
- Accessible design was first recognized by the American National Standards Institute (ANSI) in 1961. In 2021, the Quintuple Aim added an explicit focus on health equity, which includes accessibility as a fifth aim. There is now a growing focus on designing for accessibility when it specifically comes to exam and procedure rooms, where most of the patient/caregiver interaction occurs.

This does not mean the healthcare sector is resistant to change; rather it is deliberate. Healthcare directly impacts human lives. Errors in diagnosis, treatment or care can have serious consequences. Unlike in many industries where failure can mean financial loss or inconvenience, failure in healthcare can also mean loss of life. Healthcare systems, hospitals and healthcare providers are deliberate in adopting new technologies, prioritizing patient safety and risk reduction.

Healthcare is also one of the most heavily regulated industries. Any new treatment, technology or process must pass through multiple layers of approval, such as clinical trials, certification, clinical validation and oversight to ensure safety and efficacy. While these layers of approval are needed and effective to maintain quality of care, they can slow down the pace of change.

Despite this, the POC environment has seen significant change over the last five years, brought on by technological innovation, patient-centric approach, workforce dynamics and lessons from the COVID-19 pandemic. One only has to look at the current adoption of telehealth and artificial intelligence (AI) to see how the pace of change is increasing.

The COVID-19 pandemic drove rapid implementation of telehealth technology as healthcare systems tried to maintain the delivery of care. According to the Centers for Disease Control and Prevention (CDC), the number of office-based physicians using telehealth for patient visits rose from 16% in 2019 to 80.5.% in 2021. Today, telehealth continues to be a valuable part of cohesive patient care.

Meanwhile, the adoption of AI is happening just as quickly in healthcare as it is in other industries. A 2024 American Medical Association (AMA) survey found that 66% of physicians currently use AI in their practice, up from 38% in 2023. The use of the technology at the POC is quickly reshaping healthcare delivery by enhancing clinical decision-making and streamlining operational efficiency.

Designing a Foundation for Continuous Evolution

This accelerated pace of change highlights how important it is that the ambulatory space is designed to evolve and remain effective as needs, patients, staff and technologies change. Flexibility, adaptability and continuous improvement are crucial.

The following are five areas where architects, designers and healthcare systems can focus to help design a foundation for continuous evolution for the ambulatory space.

1. Shifting patient expectations and needs.

Patients are becoming consumers of care as much as they are recipients—wanting more convenient, personalized and accessible care with the same advanced technologies they encounter in every other aspect of their lives. And a healthcare environment that feels welcoming rather than clinical. At the same time, the US population is aging and instances of mobility issues and obesity are increasing.

Designing for accessibility in ambulatory care environments is a crucial part of a foundation for continuous evolution. It helps ensure all patients, regardless of their physical, cognitive or sensory abilities can access and receive appropriate care. It helps break down barriers and fosters an inclusive environment where every individual, including patients and care teams, can engage in enhancing health and well-being.

An example of this accessibility effort is examination and procedure chairs as they are the place where caregivers truly deliver care to patients in outpatient settings. In 2024, the US Access Board (USAB) released new standards providing design criteria for exam and procedure chairs that are accessible to people with disabilities. Today, Midmark is the first and only manufacturer to have both an examination chair (Midmark 626 Barrier-Free® Examination Chair) and procedure chair (Midmark® 631 Procedure Chair) that comply with the 2024 USAB standard.

2. Advances in medical technology

An ambulatory care environment positioned to evolve needs to be able to leverage and effectively utilize the best of new medical technologies. These technologies, such as diagnostic connectivity and AI, are changing how, when and where patients are diagnosed and managed. These innovations are enabling the ambulatory care environment to play an increasingly central role in reducing costs, improving clinical outcomes and empowering patients to take more control of their health.

In many ways, greater connectivity and connected devices are leading the way in this transformation. Increased connectivity at the POC is making it easier to create seamless healthcare experiences. A fully connected POC ecosystem, one that transforms the space by harmonizing technology, workflow and equipment, helps healthcare systems meet the changing demands of clinical medicine. It also ensures they can leverage the latest technology and innovation while maintaining the critical empathy and intimacy of the provider-patient relationship.

For example, Midmark® IQvitals Zone™ automatically connects to EMRs to facilitate data transmission and help ensure exact vital signs measurements are stored in the permanent record. This establishes an exemplary level of standardization to minimize human variables and maximize consistency and data accuracy. When used in conjunction with an exam chair, such as the Midmark 626 Barrier-Free® Examination Chair, that features an integrated scale, the patient's weight can be taken while on the chair and transferred directly into the EMR.

3. Growth in outpatient care

Many medical procedures that were once performed exclusively in hospitals are now being done safely and effectively in outpatient settings, including physician practices and ambulatory surgery centers. As technology advances and value-based care models expand, this progression is helping transform ambulatory spaces into comprehensive care hubs.

To keep up with this trend, ambulatory facilities need to expand their capacity and capabilities to handle higher-acuity care, while ensuring patient safety and operational efficiency. One area where this is especially important is instrument processing, which is central to helping maintain a safe ambulatory care environment. The instrument processing workflow and area needs to be designed and equipped to fit current and future procedure volume.

Often considered the focal point of the instrument processing area, sterilizers are part of a frontline defense in keeping patients safe, especially as more procedures move to ambulatory care. It is important to have the size, type and number of sterilizers that fit the needs of the practice. It is also important to have a sterilizer, such as the next generation of Midmark M9® and M11® Steam Sterilizers, to help make instrument processing and adherence to clinical best practices (and standards) as easy and as automated as possible.

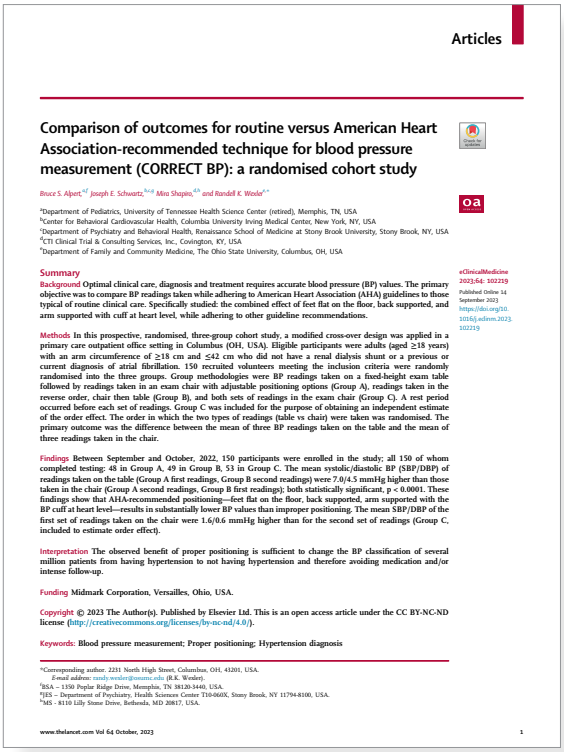
4. Emphasis on key performance metrics

The shifting of payment models from pure fee-for-service to paying for value is driving an increased emphasis on key performance metrics in ambulatory care. This focus on performance metrics is changing how success is defined. It is enabling organizations to demonstrate value, efficiency and high-quality patient outcomes into the consideration set and helping establish a culture of continuous improvement and data-driven decision-making.

One of the most widely used tools for measuring performance of healthcare organizations is the Healthcare Effectiveness Data and Information Set (HEDIS). HEDIS includes more than 90 standardized measures across six major domains of care. Scores can influence Medicare Advantage Star Ratings, payer reimbursements, provider bonuses and patient satisfaction and retention.

For instance, one performance measure of HEDIS is the Controlling High Blood Pressure measure. This measure evaluates how well health plans and providers help patients with hypertension achieve healthy blood pressure levels. Through our Better BP initiative, Midmark is helping raise awareness and promote best practices for accurate BP measurement at the POC. In addition, Midmark funded the independent CORRECT BP study—conducted by non-affiliated research scientists and clinicians using Midmark equipment—which demonstrate that proper positioning has a clinically significant impact on BP readings.

For the study, the authors chose to use the Midmark 626 Barrier-Free® Examination Chair to ensure proper patient positioning following AHA recommendations. It is the only exam chair designed to promote proper patient positioning for a more accurate BP measurement.



Articles

Comparison of outcomes for routine versus American Heart Association-recommended technique for blood pressure measurement (CORRECT BP): a randomised cohort study

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Summary

Background Optimal clinical care, diagnosis and treatment requires accurate blood pressure (BP) values. The primary objective was to compare BP readings taken while adhering to American Heart Association (AHA) guidelines to those typical of routine clinical care. Specifically studied: the combined effect of feet flat on the floor, back supported, and arm supported with cuff at heart level, while adhering to other guideline recommendations.

Methods In this prospective, randomised, three-group cohort study, a modified cross-over design was applied in a primary care outpatient office setting in Columbus (OH, USA). Eligible participants were adults (aged ≥18 years) with an arm circumference of ≥18 cm and ≤42 cm who did not have a renal dialysis shunt or a previous or current diagnosis of atrial fibrillation. 150 recruited volunteers meeting the inclusion criteria were randomly randomised into the three groups. Group methodologies were BP readings taken on a fixed-height exam table followed by readings taken in an exam chair with adjustable positioning options (Group A), readings taken in the reverse order, chair then table (Group B), and both sets of readings in the exam chair (Group C). A rest period occurred before each set of readings. Group C was included for the purpose of obtaining an independent estimate of the order effect. The order in which the two types of readings (table vs chair) were taken was randomised. The primary outcome was the difference between the mean of three BP readings taken on the table and the mean of three readings taken in the chair.

Findings Between September and October, 2022, 150 participants were enrolled in the study; all 150 of whom completed testing: 48 in Group A, 49 in Group B, 53 in Group C. The mean systolic/diastolic BP (SBP/DBP) of readings taken on the table (Group A first readings, Group B second readings) were 7.0/4.5 mmHg higher than those taken in the chair (Group A second readings, Group B first readings); both statistically significant, $p < 0.0001$. These findings show that AHA-recommended positioning—feet flat on the floor, back supported, arm supported with the BP cuff at heart level—results in substantially lower BP values than improper positioning. The mean SBP/DBP of the first set of readings taken on the chair were 1.6/0.6 mmHg higher than for the second set of readings (Group C, included to estimate order effect).

Interpretation The observed benefit of proper positioning is sufficient to change the BP classification of several million patients from having hypertension to not having hypertension and therefore avoiding medication and/or intense follow-up.

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Keywords: Blood pressure measurement; Proper positioning; Hypertension diagnosis

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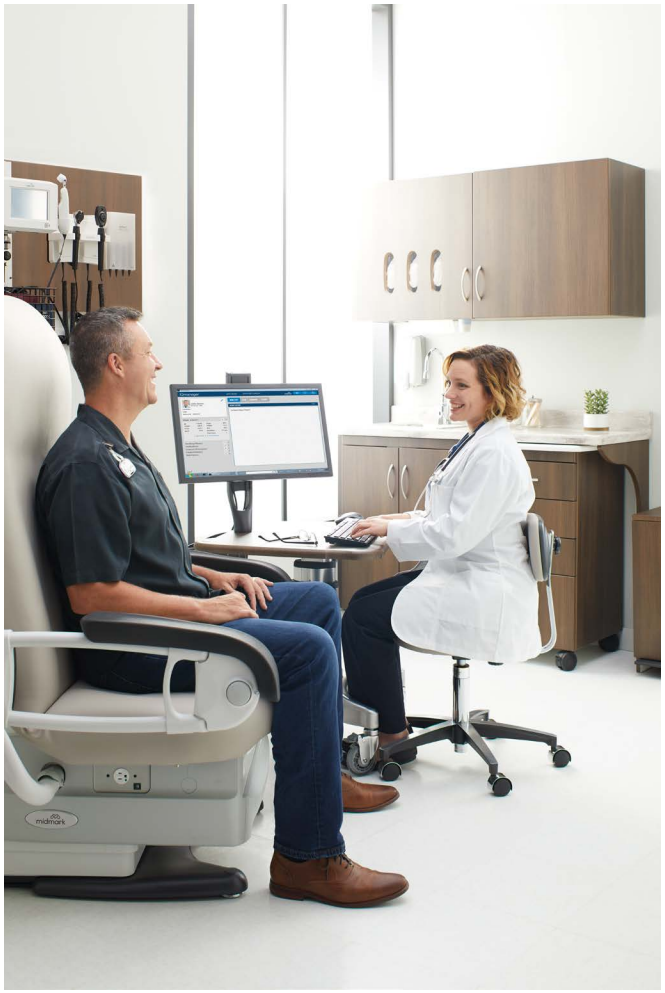
5. Workforce and operational realities

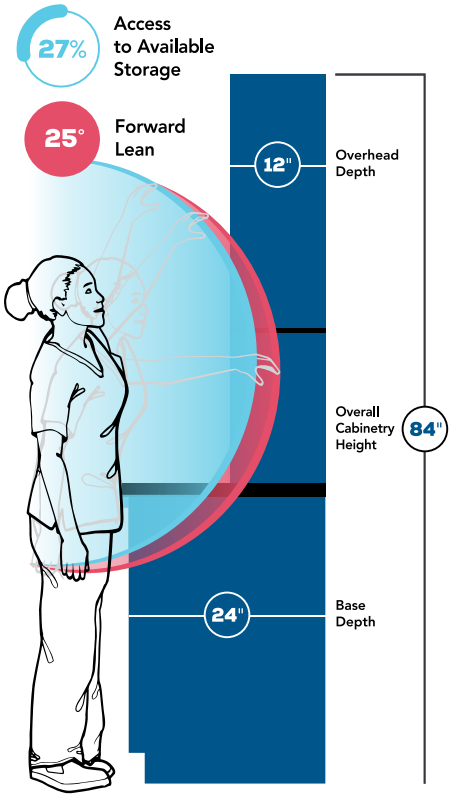
Staffing shortages and caregiver burnout are both unfortunate realities of today's healthcare sector. Working in an ambulatory care environment can be a physically and mentally demanding experience. It is not uncommon for many caregivers to routinely go home with back pain, aching necks or sore muscles and joints. This is often the result of caregivers continuously working in uncomfortable positions utilizing poor ergonomics while accessing supplies or interacting with equipment or patients.

As clinical design has become a strategic component of the ambulatory environment, it has helped healthcare organizations place more importance on staff well-being and satisfaction. There is growing understanding of the impact that the right kind of equipment, especially if it features ergonomic principles, can have on the patient and caregiver experience.

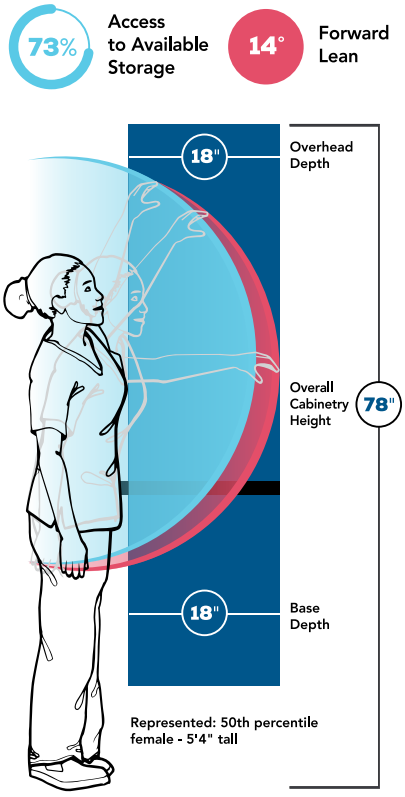


This can include cabinetry—such as Midmark Synthesis® Cabinetry—designed for average-height healthcare workers that enables people to easily reach frequently accessed supplies without unnecessary bending, stretching or overreaching. It can also include mobile workstations—such as Midmark® Workstations—designed to help users work from an ergonomically correct position, whether seated or standing. This helps reduce unnecessary strain on a caregiver's back, shoulder or neck.

Standard Cabinet Configuration



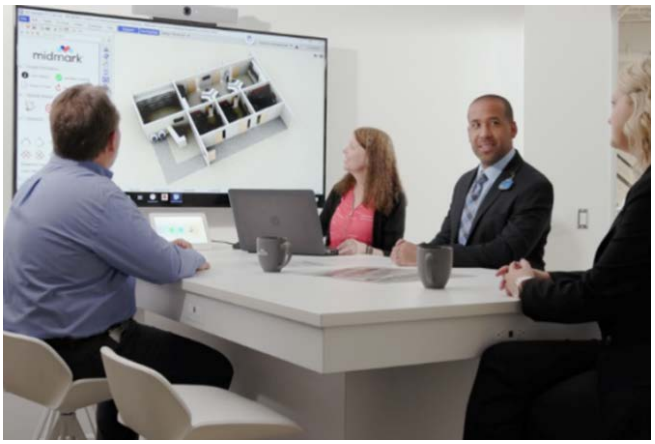
Tall Hanging Cabinet Configuration



Important role of the equipment provider

Equipment providers can be a valuable resource for architects and designers during ambulatory care projects. A knowledgeable equipment manufacturer that has broadened its offerings beyond equipment can bring a deeper understanding of how design, equipment and layout can position the ambulatory space for continuous evolution.

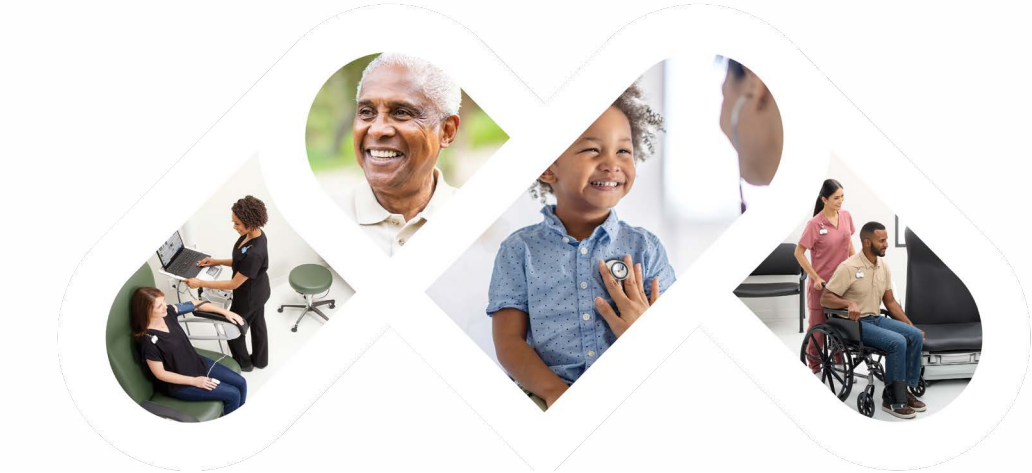
At Midmark, our in-house design consultation experts work directly with project architects, contractors and interior designers to help ensure facility design and room configurations align with equipment and furniture needs, as well as desired workflows and accessibility goals.



During the Midmark Live Design process, the design team often solves potential issues previously undetected and offers options and critical insight to help resolve the issues. Midmark also has a team of EDAC-certified (Evidence Based Design Accreditation and Certification) designers and planners available to offer assistance and expertise from the initial design process through the finished installation and beyond.

The ambulatory POC ecosystem can no longer be static. It must continue to evolve to keep pace with shifting expectations, changing demographics, advanced technologies and new models of care. Only then can it truly be a dynamic, tech-enabled environment that balances comfort, efficiency and outcomes. Focusing on these five areas and partnering with the right equipment provider can help provide a strong foundation for continuous evolution.

For more information, visit midmark.com.



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