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Outpatient Workflow  
Design Trends:  
Transformations  
Fueled by Technology



At a time when there is continued pressure for greater operational efficiency and growing uncertainty about the future of care delivery, healthcare organizations are looking for solutions to help meet the challenges of the evolving ambulatory environment. The urgency has been further compounded by the COVID-19 pandemic and its impact on financial recovery, safety and patient confidence.

Fortunately, advanced technology, greater connectivity and the push to create a more patient-centered experience have created a myriad of valuable data that is fueling workflow designs and the evolution of care delivery. Our Midmark experts used an abundance of industry research and information to identify four workflow design trends that are gaining attention in the outpatient space.

# Patient-Focused, Data-Driven Workflow Design Trends

Better care starts with a better designed care environment—an environment that incorporates a patient-centered approach, focuses on how care is delivered and is informed by actionable data. That is what these four design trends have in common and the reason they are gaining traction in ambulatory care. They are also enhanced by real-time locating system (RTLS) technology and are transforming the traditional outpatient care environment into highly efficient and patient-centric care areas.

**Self-Rooming (or Direct-Rooming)** allows patients to move directly to the exam room, minimizing contagion exposure

**Collaborative Care** keeps the patient at the center of the care experience by delivering ancillary services within the exam room

**Dynamic Room Assignments** place the patient and provider in the first available room, enhancing visit capacity and minimizing wait times

**On-Stage/Off-Stage** supports greater care team collaboration and a calmer patient environment by separating public-facing spaces and work zones

## Self-Rooming (or Direct-Rooming) Model

There is growing interest around eliminating the waiting room to improve the patient experience and maximize exam space. In light of COVID-19 and social distancing, the model has also been touted as a way to minimize the transmission of infectious diseases and exposure to contagions.

The concept is also popular with patients. A 2015 [pilot study](#)<sup>1</sup> examining the feasibility of a patient

## RTLS—A Foundation of Accurate, Actionable Data

We live in a data-driven world. To be most effective, the data needs to be automated, actionable and accurate. And as greater connectivity paves the way for the digitization of the point of care ecosystem, we are continually creating and uncovering new pockets of data that can be gathered, analyzed and acted upon.

Real-time locating system (RTLS) technology, which has been providing value in acute care for decades, makes capturing that accurate workflow data possible, communicating in-the-moment patient and staff locations, wait times and staff interactions, as well as a vast amount of retrospective detail.

Badges worn by patients and staff, and tags affixed to equipment, communicate with a sensory network installed throughout a facility. The sensory network relays the location of badges and tags to software, revealing insights to key activities, such as equipment and room utilization trends and visibility into patient-caregiver interactions. Care teams are empowered to make informed decisions at every step of the patient visit.

self-rooming process found that 95 percent of participating patients “preferred being checked in and proceeding directly to the exam room (self-rooming or direct-rooming) as compared to conventional rooming.” Aurora Children’s Health + UW Health in Wisconsin **eliminated its waiting room and saw patient satisfaction rise.**<sup>2</sup> Patients “reported that not having a waiting room and being seen quickly and efficiently by their provider led to a satisfying experience.”

For those not familiar with the model, patients check in for their appointment and proceed directly to an exam room or diagnostic sub-waiting location either on their own, like at a hotel, or escorted by a staff member.

The most efficient way to know which exam rooms are immediately available is with RTLS technology. Patients receive locator badges at check-in and staff use RTLS software to identify which rooms are clean and ready for a new patient. Upon the patient’s entry into the room, the RTLS technology automatically notifies the care team of their arrival.

The elimination of the waiting room also creates opportunity for introducing new clinic spaces that are more conducive to direct revenue-generating care delivery, such as additional lab space, more exam rooms, or even a multi-functional procedure room.

RTLS-enabled self-rooming has more benefits than just improving wait times and the patient experience. As mentioned, it can also be a strong tool in infection prevention efforts. While self-rooming helps minimize exposure to possible contagions in common waiting areas, if a patient is diagnosed with an infectious disease, RTLS can automate the contact tracing process. Administrators can replace much of the labor-intensive manual contact tracing process by simply running a report that helps them quickly identify who the patient came in contact with, where in the facility they were and what equipment was used.



### Collaborative Care Model

A March 2020 Medical Group Management Association (MGMA) survey conducted during a webinar found that 69 percent of respondents identified this care model as an approach that would offer the most benefit to improving operational efficiency and patient satisfaction.

The Collaborative Care Model is an embodiment of the patient-centric approach to the delivery of care, providing structure for caregivers to more closely collaborate on a patient’s care plan.

Traditionally, patients move through various locations of the facility during their visits, often for diagnostic testing or other ancillary services. By allowing the patient to remain in one place and consolidating the visit as much as possible, care teams are decreasing the patient’s overall length of stay while improving access and efficiency. The patient receives services within the same exam room, rather than moving from location to location. By bringing in ancillary services, including referral scheduling, lab, financial counseling and checkout, the patient’s time in the clinic is optimized and the overall patient experience can be less stressful.

RTLS technology enhances this model by allowing greater visibility and management of processes. Caregivers can identify the exact location of patients as well as the steps that need to take place during the visit. Intelligent rule sets combined with location data enable the technology to automatically communicate which caregiver has seen the patient, and which one(s) may need to see the patient next, based on the facility's designated workflow. The enhanced communication allows for streamlined orchestration of caregiver interactions, reducing overall alone time for patients.

At the [Brooklyn Health Center](#),<sup>3</sup> services are co-located within care pods staffed with doctors, nurses, phlebotomists and radiology technicians. Patients can see the doctor and have ancillary tests in one area on one floor—no longer having to move throughout the facility. The health center reports that, as a result of this collaborative care approach, 85 percent of its patients have their medical visit, blood drawn, make follow-up appointments, pick up their medications and leave the building within one hour.

## Dynamic Room Assignment Model

In traditional ambulatory care facilities, providers are assigned two or more exam rooms and their patients are cycled through those rooms throughout the day. This approach may not be an efficient way to manage capacity and schedules, as it can restrict the number of providers who can practice in a given space, create unnecessary bottlenecks for more efficient providers and miss opportunities to increase patient access.

A dynamic room assignment model eliminates the “physician-owned” exam room. Instead, patients and physicians are assigned to the first-available room in a given care area. This fluid allocation of resources allows rooms to be better utilized while reducing patient wait times. It also provides the flexibility to deal with unexpected patient emergencies, as well as walk-in patients. In certain cases, clinics have used the extra capacity to add additional physicians or create areas in the schedule for specialist visits.



Visual management tools like the Enterprise View® Floorplan give staff a bird's eye view of everything happening within the clinic. Color-coded exam room status enables efficient patient rooming and flow.



Clear visibility to room status is essential for this model to succeed. Using RTLS technology, registration staff consult floor plan views of the clinic to determine which exam rooms are available the moment the patient arrives. For instance, the University of Minnesota Health Clinics and Surgery Center staff **dynamically assign patients and their providers to exam rooms based on real-time demands.**<sup>4</sup> Alerts are sent to the care team with a patient's room assignment and readiness status.

This allows more providers to utilize fewer exam rooms than would be required in a more traditional system where physicians have their own dedicated rooms. Staff receive real-time cues when a visit is complete and the room needs to be disinfected. Further, access to historical data enables administrators to validate the amount of time providers are in exam rooms with patients, allowing their schedules to be optimized to increase the total number of available appointments.

In this way, a practice can accommodate significantly more patients each day without impacting real estate needs. In the case of the Clinics and Surgery Center, they were able to see the same number of patients in a space 40 percent smaller than their previous location, significantly impacting the facility's footprint and construction costs. They improved exam room utilization by 67 percent.

### **On-Stage/Off-Stage Model**

Before COVID-19, the growing patient population was putting greater strain on the typical linear design of ambulatory care environments. As patients slowly come back, those strains will likely reemerge. With the linear design, which features shared corridors and publicly exposed staff workstations, hallways can often become crowded with equipment, patients and caregivers; privacy issues can arise, and overall patient experience is impacted.



The on-stage/off-stage model, which is more easily adoptable with new construction or redesigns, separates caregiver work areas from patient-facing spaces, with dedicated corridors to dual-entry exam rooms where patients and caregivers enter from different sides. The "on-stage" patient corridors and entries offer greater privacy and a calmer environment free from clinical clutter. Meanwhile, the staff and clinician entry leads to an "off-stage" centralized work area where caregivers can be highly collaborative with the entire care team. The off-stage area also provides direct access to all exam rooms for better flow management.

The on-stage/off-stage concept contributes to greater flexibility of exam room usage as capacity needs require. For practices seeking balance between in-person and telemedicine visits, RTLS provides care teams with in-the-moment visibility to room status and provider availability, streamlining the ability to designate exam room use.



Without the visibility that RTLS provides, an on-stage/off-stage model can become difficult to manage, with caregivers unsure of which patient is in which room. RTLS makes it easier to determine patient locations and their stage of care, so providers and clinical staff know who to see and where to go next.

[A comparative study conducted in 2017<sup>5</sup>](#) demonstrated that the on-stage/off-stage model significantly improved staff workflow, reduced travel distances, increased communication in private areas, and significantly reduced patient throughput and wait times.

The VCU Health Neuroscience, Orthopedic and Wellness Center implemented RTLS technology to manage patient flow for its on-stage/off-stage design. By doing so, they [realized a significant patient flow improvement<sup>6</sup>](#) for patients for whom X-rays were obtained. They reduced overall length of stay by 26 percent, wait times by 40 percent and time in X-ray by 36 percent.

The collaborative space in an on-stage/off-stage design can facilitate team communication and coordination, with team huddles occurring in the space at the beginning of the morning and afternoon shifts. [Aurora Children's Health + UW Health<sup>2</sup>](#) has experienced this firsthand—they have found that providers stay in the space during patient care hours and are more accessible.

<sup>1</sup> Kamnetz S, Marquez B, Aeschlimann R, Pandhi N. "Are waiting rooms passé? A pilot study of patient self-rooming." *J Ambul Care Manage.* 2015;38(1):25-28. doi:10.1097/JAC.0000000000000045.

<sup>2</sup> "Eliminate the Wait: Self-Rooming at Aurora Children's Health + UW Health," *Group Practice Journal*, August 2018.

<sup>3</sup> Brooklyn Health Center: "Patient Flow Optimization Case Study," Midmark RTLS Customer Case Study."

<sup>4</sup> University of Minnesota Health Clinics and Surgery Center: "Patient Flow Optimization Case Study," Midmark RTLS Customer Case Study."

<sup>5</sup> Freihoefer K, Kaiser L, Vonasek D, Bayramzadeh S. "Setting the Stage: A Comparative Analysis of an Onstage/Offstage and a Linear Clinic Modules." *HERD.* 2018;11(2):89-103. doi:10.1177/1937586717729348.

<sup>6</sup> "Use of RTLS to Support a Model of Patient Centered Care," HIMSS18 Conference Presentation, March 2018.



Healthcare design is clearly evolving with greater availability and analysis of data. Heightened emphasis on the experience and safety of patients and caregivers is guiding this evolution. Workflow approaches that are enhanced by real-time locating accuracy and retrospective reporting are transforming care delivery and providing performance metrics to measure success.

Whichever of the four design approaches discussed that a healthcare organization takes, they will be better positioned to enhance the patient-caregiver experience by increasing efficiency, ensuring a safer environment and introducing the flexibility needed to quickly respond to changing demands.





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