CLINIC

20XX

DESIGNING FOR AN EVER-CHANGING PRESENT

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How do we design not for a faceless future but a dynamic, ever-changing present?
In recent times, much has been discussed on the clinic of the future. With a shift to ambulatory care, we all want the magic bullet that tells us where to invest, how to attract patients, how to attract physicians and quality staff and, finally, how to build better facilities that can support a rapidly changing and evolving ambulatory care market.

This report is an attempt to look deeper into our market to understand what is driving the latest trends and two of our key constituents (patients and physicians). How do patients and physicians perceive these trends, and what do they want from their clinics and practices today? Which trends are the latest “idea du jour” without evidence of validity, and which are sustainable? How are facilities today responding to the changes we see, and what are the implications for design not for a faceless future but a dynamic and ever-changing present?

The report is divided into five key parts:

1. Drivers
2. Trends
3. Facility Case Studies
4. Patient and Physician Surveys
5. Summary: Take-away for a change-ready facility

The patient surveys* are focused on baby boomers and millennials – the two largest constituents of the workplace and the healthcare marketplace today. Our physician surveys are focused on primary care practitioners (family practice and internal medicine).

This report is part of an ongoing initiative to take the pulse of our industry and our stakeholders. Future Clinic 20XX reports will extend the patient database and poll the staff members who represent our growingly diverse care teams. We also expect that every year, the market will change, and drivers and trends will evolve; an ongoing initiative to capture this is important. In that spirit, this report is a living document that captures a snapshot of where we are in the industry today within a contained scope and context. We will continue to add to this body of knowledge and keep this report live in the coming years.

This report was made possible by the generous funding from JE Dunn; extensive staff support from HKS; critical insights from our research advisory group; access to facilities and staff members from our case studies at Intermountain Healthcare, Adelante Healthcare and Five Forks family medicine clinic; and finally, a truly dedicated and inspired research and visualization team. We are extremely grateful and hope to continue to learn from each other in this ongoing initiative.

Upali Nanda, PhD, EDAC, Assoc AIA
Executive Director
Center for Advanced Design Research and Evaluation

*We originally considered the patient surveys to be consumer surveys until learning that our patients don’t really consider themselves consumers just yet.
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In an information age, the insights we get must be winnowed down through carefully selected lenses – only then do we understand the core principles that can withstand change.
INTRODUCTION: GETTING READY FOR CHANGE

HEALTH CARE SYSTEM PERFORMANCE: AN INTERNATIONAL COMPARISON (2014)

Rising Healthcare Costs

The rising healthcare costs in the United States have been an ongoing concern for policy makers, healthcare providers and patients. In a recent Commonwealth report, it was found that, compared to 10 other developed countries, the United States spent the most on healthcare, while the quality of care was rated among the lowest.[1]

This finding, and many previous reports on escalating healthcare costs, has brought about an urgency to change healthcare and bring about systemic and system-wide reform. Needless to say, the ripple effect of the need for systemic change has been felt in the design and construction industry as well.

PROJECTED GROWTH IN AMBULATORY CARE CONSTRUCTION PROJECTS IN THE NEXT THREE YEARS

1. Ambulatory Facility, 71%
2. Medical Office Building, 53%
3. Inpatient Tower, 41%
4. Specialty Hospital, 15%
5. Post-Acute Facility, 12%

Shift to Outpatient Care and Implications for Facility Design

The healthcare landscape is shifting, and one of the manifestations of this shift is the growth in ambulatory care. According to a 2014 report from The Advisory Board, based on feedback from 38 hospitals and healthcare systems, over the next three years, ambulatory care facility construction (retail clinic, urgent care, freestanding EDs, imaging centers or ambulatory surgery centers) is projected to grow by 71 percent, medical office buildings by 53 percent, inpatient towers by 41 percent, specialty hospitals by 15 percent and post-acute facilities (skilled nursing facility, long-term care hospital, hospice, rehab and senior living) by 12 percent.[2]

Information Source: The Advisory Board [2]
Inpatient Services

Shift in Hospital Utilization According to a preliminary 2014 MedPac report, healthcare access by Medicare beneficiaries is changing. There is a fall in inpatient use (by 17 percent), and there is a rise in outpatient use (by 33 percent). The trend is supported by the overall rise in gross outpatient revenue since 1992, from 24 percent up to 43 percent in 2012.

In an opinion paper framing the issue, Vesely (2014) summarizes the shift to outpatient care as a transformative trend brought about by the decrease in inpatient visits, while outpatient visits rise due to new technologies, reimbursement rules and payment reform. This, in turn, has propelled health system leaders to reorganize and streamline delivery processes, and see a rise in mergers and acquisitions that are no longer horizontal but, rather, vertical across the care spectrum. According to Vesely, “The shift to outpatient care is not the end game but simply a start to a more integrated model that reaches the patients in the home.”

“THE SHIFT TO OUTPATIENT CARE IS NOT THE END GAME BUT SIMPLY A START TO A MORE INTEGRATED MODEL THAT REACHES THE PATIENTS IN THE HOME.”

– Rebecca Vesely, Hospitals & Health Networks

Clinic 20XX Method

Given the rise in outpatient care and overall construction, the A/E and construction industry is quickly assessing how it can respond to the shifting landscape. Many ambulatory care of the future/clinic of the future reports are out there, and each provides a valuable insight for the industry.

But what does designing for the future really mean? In an era of hyper-connectivity, personalized medicine and wellness initiatives on one end and changing health management systems and insurance models on the other, what role do clinics play, and how will our facilities accommodate these roles? Will clinics be larger or smaller, more specialized or diversified?

There is an urgent need to investigate the changing expectations from clinics and how the facility design community has to position itself for a timely response. To do this, we must first understand the underlying drivers for key change; then explore current trends that respond to these drivers; and finally, assess the extent to which these trends are sustainable based on a review of the literature, visits to exemplars of key trends and feedback from the key constituents: patients, physicians and providers.

The following section is part one of this five-part report that focuses on 1) drivers for change, 2) trends that have emerged from these drivers and facility implications for these trends, 3) case studies of organizations that push the envelope on a key trend, 4) findings from extensive patient/consumer and physician surveys and 5) a summary of the key insights on Clinic 20XX and the implications for facility design.

The trends we see are filtered through the insights from case studies and survey responses. The result is a takeaway for the change-ready facility.
Healthcare is undergoing a paradigm shift. We have captured five drivers catalyzing this shift.
D1 | SYSTEM
more access, more accountability

D2 | PATIENT
four generations, changing expectations, chronic conditions

D3 | PROVIDER
physician shortage, extender/team increase

D4 | FIELD
advanced diagnostics and precise and personalized medicine

D5 | TECHNOLOGY
technology boom, big data and construction advancements
D1. THE NEW SYSTEM. MORE ACCESS, MORE ACCOUNTABILITY

Patient Protection and Affordable Care Act (ACA)
The Patient Protection and Affordable Care Act (also called the Affordable Care Act or “Obamacare”) is a federal statute that was signed into law by President Barack Obama in March of 2010. It is arguably the most significant regulatory change for the U.S. healthcare system since the passage of Medicare and Medicaid in 1965. According to the Democratic Policy Committee & Center, the ACA is fully paid for and will provide coverage to more than 94 percent of Americans while staying under the $900 billion budget defined by the president; this will bend the healthcare cost curve and reduce the deficit over the next 10 years and beyond. The act contains nine titles that include improving the quality and efficiency of healthcare, prevention of chronic diseases and improvement in public health, and innovations in the healthcare workforce. The full list is available on the Democratic Policy and Communication Center website (http://www.dpc.senate.gov/healthreformbill/healthbill04.pdf).

High-Deductible Plans
One of the biggest changes with the ACA is the insurance marketplace and evolving payer models. The new consumer-driven health plans (CDHPs) are gaining popularity; at the same time, they pose unique challenges. According to The Advisory Board, with a competitive health insurance marketplace, CDHPs, or plans with high deductibles, have emerged, which are now, ironically, seeing a certain delay in seeking quality healthcare. Enrollment is up 18 points, from 7 percent in 2003 to 25 percent in 2012. At the same time, Americans are struggling to obtain quality care at an affordable deductible.

Increased Accountability: Shift From Volume-Based Care to Value-Based Care
Traditionally, fee-for-service payment systems reward volume and intensity of services – which contributes to overall cost inflation without rewarding quality, efficiency or care coordination. With the ACA, we are seeing a shift to a more value-based payment strategy, especially around Medicare and Medicaid reimbursements. Care has now been reorganized for Medicare beneficiaries in fee-for-service plans by imposing penalties to hospitals for readmissions and acquired infection rates among these Medicare patients. At the core of the different initiatives that we see in the healthcare industry today are three key shifts:

1. The rise of Accountable Care Organizations
2. The rise of the Patient-Centered Medical Home model
3. The extension of the spectrum of outpatient services to reduce load on high-cost, hospital-based care

Information Source: The Advisory Board [2]
Increased Accountability: Shift From Volume-Based Care to Value-Based Care

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With the ACA, we are seeing a shift to a more value-based payment strategy, especially around Medicare and Medicaid reimbursements. Care has now been reorganized for Medicare beneficiaries in fee-for-service plans by imposing penalties to hospitals for readmissions and acquired infection rates among these Medicare patients. [10]

At the core of the different initiatives that we see in the healthcare industry today are three key shifts:

1. The Rise of Accountable Care Organizations
   - The ACA and emergence of Accountable Care Organizations (ACOs) and patient-centered medical homes (PCMHs) have resulted in a need to better coordinate care to patients. The Medicare website defines ACOs as groups of doctors, hospitals and other healthcare providers that come together voluntarily to give coordinated high-quality care to their Medicare patients. The goal of coordinated care is to ensure that patients receive the right care at the right time, while avoiding duplication of services and preventing medical errors. [12]

2. The Rise of the Patient-Centered Medical Home Model
   - The PCMH model aims to improve American healthcare by transforming the way it is organized and delivered. The Agency for Healthcare Research and Quality (AHRQ) defines a PCMH as an organizational model of primary care that encompasses five major components, as described in the graphic above. [14] There are currently 6,800 medical homes in the United States—certified by the National Committee for Quality Assurance (NCQA)—with approximately 34,600 clinicians practicing in these homes. [14]

3. Expanding Access Across the Care Continuum
   - With an increased focus on population health management and care coordination, the entire spectrum of outpatient care is now expanding. On one end, this includes the retail walk-in clinic (small satellite clinics that offer routine care) while on the other end of the spectrum are regional hubs, with a full suite of services serving an expansive catchment area. [15]

The graphic above shows the importance of establishing a wellness network as a full spectrum of population care points, which are interwoven within communities.
### D2. THE NEW PATIENT. FOUR GENERATIONS, CHANGING EXPECTATIONS, CHRONIC CONDITIONS

#### MARKETING TACTICS BY GENERATION

<table>
<thead>
<tr>
<th>Generation</th>
<th>Number</th>
<th>Born</th>
<th>Age in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. THE SILENT GENERATION</td>
<td>48 MILLION</td>
<td>1928-1945</td>
<td>70-87</td>
</tr>
<tr>
<td>2. BABY BOOMERS</td>
<td>77 MILLION</td>
<td>1946-1964</td>
<td>51-69</td>
</tr>
<tr>
<td>3. GENERATION X</td>
<td>50 MILLION</td>
<td>1965-1980</td>
<td>35-50</td>
</tr>
<tr>
<td>4. MILLENNIALS</td>
<td>72 MILLION</td>
<td>1981-1997</td>
<td>18-34</td>
</tr>
</tbody>
</table>

#### A Generational Shift
Healthcare and the provider-patient relationship used to be very simple. Patients sought care locally, trusted their physicians and followed their care plan implicitly. In the information age of today, compounded by a healthcare insurance market, the patient now has to make a choice, or series of choices, regarding healthcare. Moreover, we are living in a rare period of time where, for the first time in recent history, the workplace is catering to four different generations – and it is these four generations that are availing themselves of healthcare, along with their family and loved ones.

Much has been written about the different generations and their approaches to life, work and, more recently, health. Research by the Smith & Jones group suggests that each generation has unique emotional triggers and motivations for choosing healthcare providers, and each interfaces with healthcare organizations in distinct ways. For example, baby boomers rely more on physician recommendations than Gen-Xers and millennials, who rely on prior experiences. This has given rise to what is now termed as “generational consciousness.” Unlike the silent generation and the baby boomers, Gen X and millennials are characterized by high levels of skepticism and need more information before making their decisions. Next to baby boomers, millennials pose a challenge for the healthcare marketplace.

#### Generation NOW
Across all generations, however, is the demand to have instant gratification for needs. A recent study by The Advisory Board showed that being able to see a physician within 30 minutes, or in same-day appointments, ranked significantly higher than having a same-day appointment where a patient would have to wait for an hour. “Time as premium” is a concept that suggests that, regardless of year of birth, the healthcare industry is responding to a “Generation Now” where they demand more care, better care and immediately available care. Millennials are also known to have very little brand loyalty, which, given that they are currently the largest market for healthcare, makes it a challenge for health systems vying to attract and retain patients.

#### ON-DEMAND PATIENT EXPECTATIONS

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Living Longer, but Not Healthier
According to a 2000 report by the RAND corporation, 133 million Americans (close to 45 percent) have one or more chronic diseases.\(^{[19]}\) By 2030, it projects that the percentage of our population with a chronic disease will rise to nearly 50 percent. Chronic diseases, are defined by the Centers for Disease Control and Prevention (CDC) as incurable ailments that are among the most common, costly and preventable of all health problems.\(^{[21]}\) The chart adapted from the RAND report shows the steady increase in these conditions and the larger projected increase in coming years.

Meanwhile, advances in medical science allow us to live longer. According to the latest report by The World Bank, our life expectancy has increased from 68 years in 1960 to 79 years in 2012.\(^{[22]}\) Additionally, the U.S. Census reports that by 2025, 63 percent of the global population will live over the age of 65.\(^{[23]}\) This means that we are now living longer, but not necessarily better.

According to the American Hospital Association, more complex and sicker patients are increasing the use of emergency department (ED) services.\(^{[24]}\) Chronic conditions are not limited to one per person, and many individuals are battling an assortment of health issues. The AHRQ states that factors that increase the complexity of care include multiple chronic or acute physical health problems, the social vulnerability of the patient and a large number of providers and settings involved in a patient’s care.\(^{[25]}\)

The Complex Patient With Complicated Choices
Today’s patient has a wider range of payer models, ranging from public insurance to consumer-driven health plans, and has multiple medical conditions. Accordingly, today’s patient’s care is more complex, requiring careful management of several medications and an unprecedented level of coordination among caregivers across settings.\(^{[26]}\) This has changed the fundamental model for care delivery and the focus from a purely physician-centered practice.
Where Have the Physicians Gone?
As diseases and their treatments get more complex, the core skillset of the physician has also needed to advance. Unfortunately, this has resulted in a growth of specialists (who are paid much more) disproportionate with the growth of primary care physicians, who are the first point of contact for a patient. This disparity, coupled with the growing shortage of physicians overall (suspected to be as high as 200,000 physicians by 2025, according to the Association of American Medical Colleges[27]), has forced the provider model to change.

We are seeing a growth of new care team members, such as the physician extender/nurse practitioner (who can take on some of the physician responsibilities), and physician/medical assistants who team with the key care provider to provide team-based care. Additionally, with a focus on whole health, a growth in ancillary support for the entire team via health coaches, case managers and behavioral health specialists has increased. We also are seeing the need for more technical knowledge due to the advances in the field, technology and electronic health records.

The challenge with a diverse team structure is that without care coordination, the system can fall apart.

DISTRIBUTION OF PHYSICIANS

**SPECIALISTS, 68%**

**PRIMARY CARE, 32%**

*Percentage of workforce

Information Source: Council on Graduate Medical Education [28]
Shift from Inpatient to Outpatient Procedure
According to a report from the Leonard Davis Institute of Health Economics, since the early 1980s, many surgical procedures have moved from the inpatient to the outpatient setting, with outpatient surgical visits now accounting for about two-thirds of all surgical visits in the United States. Because of this, freestanding ambulatory surgery centers (ASCs) have arisen as alternatives to traditional hospital-based outpatient surgical departments. As of 2011, 40 percent of the market share of outpatient surgeries was owned by ASCs. [29]

Improved and Miniaturized Diagnostics
In part, this shift has been accommodated by the advancement in technology, including miniaturization of diagnostic equipment ranging all the way from handheld X-ray machines and portable ultrasounds to 3-D printing of medical (especially dental) implants. Smaller diagnostic equipment, wearable technology and the ability to remotely monitor health are transforming healthcare and will be discussed further in the technology section.

Shift to Precise and Personalized Medicine
Just as technology is transforming the delivery of healthcare, the field itself is undergoing a paradigm shift. In his January 2015 State of the Union address, President Obama unveiled the “Precision Medicine Initiative” to support an innovative approach to disease prevention and treatment that takes into account individual differences in people’s genes, environments and lifestyles. This precision allows the care teams to understand the unique needs of a particular patient beyond the one-size-fits-all approach, which works for some patients and not others. [31]

Through collaborative public and private efforts, the Precision Medicine Initiative will leverage advances in genomics, emerging methods for managing and analyzing large data sets while protecting privacy, and health information technology to accelerate biomedical discoveries. The initiative will also engage a million or more Americans to volunteer to contribute their health data to improve health outcomes, fuel the development of new treatments and catalyze a new era of data-based and more precise medical treatment. Clinics, as the first point of contact, will play a critical role in this initiative.

CLINICS WILL BE A CRITICAL PORTAL FOR PRECISE AND PERSONALIZED MEDICINE, OFTEN BEING THE FIRST POINT OF CONTACT BETWEEN A PATIENT AND THE HEALTHCARE SYSTEM.
**Healthcare in the Digital Age**

According to Wikipedia, the change from analog, mechanical and electronic technology to digital technology between the late 1950s to the late 1970s (marked by the adoption and proliferation of digital computers and digital record keeping) defines the advent of the digital age. The term also refers to the sweeping changes brought about by digital computing and communication technology during (and after) the latter half of the 20th century that are attributed in large part to the mass production and widespread use of digital logic circuits (and its derived technologies), including the computer, the digital cellular phone and the Internet.

According to the Pew Research Center, cell phone usage has increased exponentially over the last decade, and this is followed by a use in smartphones, tablet computers and e-readers. Fundamentally, these devices have become, in many cases, the first access point for healthcare.

**Increased Reach by Providers**

Manhattan Research suggests portable devices are becoming the device of choice for physicians to access information and stay up to date on the medical practice.

**Tablets Are Mainstream**

Physician tablet adoption for professional purposes has almost doubled since 2011, reaching 62 percent in 2012 (iPads are the dominant platform). One-half of tablet-owning physicians used their device at the point of care.

In a recent TechCrunch interview, the executive chairman of Google, Eric Schmidt, claims that more data has been produced in the last two days than the entire history of mankind, and this trend is predicted to see continued growth in coming years.
Electronic Health Records and Health Information Exchanges

Electronic health records (EHRs) are one aspect of the data revolution that we are currently going through. In healthcare, this has resulted in the possibility of personalized and precise medicine discussed earlier. By definition, big data is data that exceeds the processing capability of a conventional database system and is characterized by three V’s: Volume, Velocity and Variety.\[37\]

Personalized and precise medicine, where patient information can be continuously monitored and patterns that predict care determined at the gene level, require computational tools for big data. They also require access to nuanced information, which is why EHRs are so critical.

EHRs aim to systematically document and electronically store patient health information. A 2011 report by the CDC found the following benefits to physicians by the use of EHRs: remotely accessing patient information, alerts for critical labs values and potential medication errors and reminders to provide preventive care.\[38\] While many challenges remain in mobilizing EHRs and enabling meaningful use, this intent and access regarding data marks a shift in our delivery models.

“Precision medicine is an innovative approach to disease prevention and treatment that takes into account individual differences in people’s genes, environments and lifestyles”

– White House Fact Sheet on President Obama’s Precision Medicine Initiative (Para 2) [33]

Advancements in Building Technology and Construction

The importance of technology in construction affects design and productivity of the new built environments. Modularity, as an example, expedites the construction of the building structure without compromising the quality of the materials during the assembling process. The controlled conditions of the environment during manufacturing provide a more precise structure than those built on-site. It also permits a more rigorous quality control process. Also, units can be tested and modified prior to production, allowing the architect to make modifications as required. The use of modularity in building construction is common in the creation of typical patient rooms and bathrooms.

In the next section, we will discuss the trends that have emerged from these drivers and how facilities have responded to them in practice.
These drivers have led to several trends, which we have categorized into five supertrends.
T1 | mHEALTH
health at hand

T2 | TELEHEALTH
remote access

T3 | COORDINATED HEALTH
coordination between patients, providers and systems

T4 | POPULATION HEALTH
community-based whole health

T5 | RETAIL HEALTH
demand-focused, choice-based health
**T1. mHEALTH**

Mobile healthcare (mHealth) is the practice of medicine and public health supported by mobile and wireless devices. Its applications are extensive, according to the PricewaterhouseCoopers (PwC) report on its emergence, with uses including:
- Education and awareness
- Helpline
- Diagnostic and treatment support
- Staff communication and training
- Disease outbreak tracking
- Remote monitoring
- Remote data collection

Remote Monitoring has been made possible through innovations like wearable technology and cloud-based syncing. It gives care teams real-time updates of their patients, and the information is stored on the individual's EHR. EHRs provide insight into the behaviors and risks of individuals, which, in turn, can be aggregated to determine preventive options for population groups. Applications already used by clinics to monitor their patients include:

**Ingestible Technology**
Smart pills that are swallowed with medication to track and photograph the patient from within.

**Wearable Technology**
Allows individuals to track their health and fitness and remotely share that data with their physician.

**Smartphone Attachments**
Patients can attach modules to their smartphone to record and share biometrics like heart rate and blood pressure.

BELOW: Globally, patients agree that, in three years, mHealth will improve convenience, quality and cost of healthcare.

**EVIDENCE SUPPORT FOR mHEALTH AND TELEHEALTH**

Telemedicine is a viable solution for bridging geographic access gaps to a variety of specialty care, especially for rural areas.

Telemedicine via remote monitoring to reach patients in their homes can result in fewer ED visits and better outcomes, especially for elderly patients with conditions such as congestive heart failure (CHF).

Awareness and education are crucial components of telemedicine, to allow patients to appropriately use instruments and access services. This has particular potential for patients with chronic conditions.

Telemedicine results in higher self-perceived health by patients with chronic conditions such as diabetes.

For Kaiser patients with diabetes, those who requested statin refills exclusively via the patient portal decreased medication nonadherence by 6 percent. Patients who used the Internet-based portal also decreased their risk of high cholesterol levels by 6 percent.

Physicians with three screens spend more time online on each device and go online more often during the workday than physicians with one or two screens.

More than two-thirds of physicians use YouTube to learn and keep up to date with clinical information.

Research shows that use of mobile devices significantly increased access to point-of-care tools, which has been shown to support better clinical decision-making and improved patient outcomes.

Holmes Physician Network's nine new regional call centers have cut calls to primary care practices in half.
Telemedicine puts the care team in front of its patient, wherever he or she may be. Communicating with patients remotely is not a new technology, as physicians have long been able to telephone patients to update them, but advances in technology make communicating even easier.

Telemedicine also refers to communication between a network of clinics. Remote patient monitoring has made it possible for small clinics to communicate with larger regional clinics several miles away to better treat patients.

The Holmes Physician Network, a 700-physician group based in the Southwest, employs registered nurses from primary care practices in a telemedicine center. Patients call the center and discuss their issue with the registered nurse (RN). The RN and a scheduler then evaluate the risk level of the issue based on complexity, and either deal with the patient over the phone or schedule him or her to meet with a physician at a local clinic. Telemedicine has the potential to reach patients around the world, offering remote care to a wider, more ethnically diverse population.

FACILITY IMPLICATIONS

**E-Kiosks**: Medical kiosks, or e-kiosks, are electronic stations from which patients can perform a number of functions. Often docked at the front of the clinic, they serve as a check-in station, but are capable of full interactive experiences for patients to record vitals to their care team.

**Wi-Fi and Video Capabilities**: Clinics opting for connectivity allow their care teams to connect with their patients remotely via virtual visits to follow up on care, update records and promote wellness. Virtual visits can be done in an exam/consult room or in an assigned telehealth space.

**Patient Portals**: Patient portals give patients full, secure access to their medical information, via the Internet, with their specific care team. Portals also allow patients to electronically interact with their care team at all hours of the day.

**Provision for Call Centers**: As telehealth capabilities grow, the facility has to accommodate people who may spend more time on the phone and in follow-up care.

**Integrated Technology and Mobile Furniture**: Integrating technology into all areas of the clinic and keeping the furniture mobile can allow the facility to account for changes in technology.
According to the AHRQ, “Care coordination involves deliberately organizing patient care activities and sharing information among all of the participants concerned with a patient’s care to achieve safer and more effective care. This means that the patient’s needs and preferences are known ahead of time and communicated at the right time to the right people, and that this information is used to provide safe, appropriate and effective care to the patient.”

Care coordination requires continuous communication between a diverse care team and their patient, which activates the patient to participate in his or her own care. The availability of health information keeps patients and the care team in the loop remotely. AHRQ proposes two ways of achieving coordinated care: using broad approaches that are commonly used to improve health care delivery and using specific care coordination activities.[50]

Examples of broad care coordination approaches include:
- Teamwork
- Care management
- Medication management
- Health information technology
- Patient-centered medical home

Examples of specific care coordination activities include:
- Establishing accountability and agreeing on responsibility
- Communicating/sharing knowledge
- Helping with transitions of care
- Assessing patient needs and goals
- Creating a proactive care plan
- Monitoring and follow-up, including responding to changes in patient needs
- Supporting patient self-management goals
- Linking to community resources
- Working to align resources with patient and population needs[50]

Lean Process Improvement
This has strong implications for healthcare design because the healthcare delivery space must be considered a workspace that is conducive to care coordination. New trends in the healthcare workplace have been observed that include open office spaces for the care team to come together, touchdown and hoteling spaces to facilitate conversations, and emphasis on the consult space between patients and staff members to have better conversations. More and more facilities are also investing in lean process improvement to streamline the work process and workflow.
CASE STUDY: INTERMOUNTAIN HEALTHCARE

At Intermountain Healthcare’s (IMH) Kaysville Clinic in Salt Lake City, Utah, care coordination is facilitated through seamless digital and physical space integration. An interactive digital integrated greaseboard (DIG) and cross-trained medical assistants are the linchpins of this system. When patients check in, physicians are notified on their mobile devices. They can also let their staff members know what is needed while at a consult. Additionally, collaboration is fostered through open office areas where physicians, medical assistants and all care team members work together. More details are shared in the case study section on page 28.

EVIDENCE SUPPORT

Care coordination is particularly critical for patients with chronic conditions and in the context of an aging population. Dysfunctional nurse-physician communication has been linked to medication errors, patient injuries and patient death.

Studies in non-healthcare settings show that proximity among employees and visual contact affect the pattern of communication networks and the probability of communication. Presence of consult areas improves interpersonal communication.

FACILITY IMPLICATIONS

Open Office: Getting physicians, case managers and other health professionals out of their individual offices to an open plan so they can connect with each other. This fosters collaboration between diverse care teams through informal work areas within ambulatory clinics. The Duke Primary Care Clinic prototype was designed to include Huddle Rooms, semi-enclosed areas within the work core for coordination meetings between staff members. The space allows all members of a patient’s care team to collaborate on a care plan.

Hoteling Spaces: These flexible spaces are favored as practice shifts from singular physician practices to multispecialty practices, providing unassigned spaces that can be used as needed by different team members.

Touchdown Areas: These areas provide the opportunity for impromptu information exchanges, in response to the increased level of communication between care team staff that is the cornerstone of ACOs and PCMHs. The Duke Primary Care Clinic prototype includes several areas within the work core where staff members can quickly coordinate care; they include transaction-height counters at workstations and standing desk space available for quick two-person meetings.

Proximity Across Specialties: Locating specialties close together encourage interdisciplinary collaboration. The rise of multispecialty ambulatory care centers (MACCs) supports this trend.

On-Stage/Off-Stage: This is a clinic module borrowed from Disney practice. The on-stage areas include space for the public, and the off-stage is reserved for the care team. The use of double doors in exam rooms is an effective use of the practice, as it minimizes congestion at the front of the clinic, improves privacy and reduces noise levels in the clinic.

Digital Integration: Increased use of large plasma screens enable digital tracking of patient flow. At IMH, the digital integrated greaseboard (DIG) is displayed in the open offices and is a core element of care coordination.
Population health management (PHM) has been emphasized recently to combat the rise of chronic diseases. David Kindig defined population health as the health outcomes of a group of individuals, including the distribution of such outcomes within the group. Engaging patients and managing the health outcomes of several million individuals is a complicated process, but rapid advancements in technology allow for care teams to not only manage these individuals but also collate these individuals into groups by similar risk factors.

**WELLNESS AT WORK**

**Health Coaches** help patients gain the knowledge, skills, tools and confidence to become active participants in their care. Chronic diseases like diabetes need more than simple treatment; patients need the ability and confidence to participate in their own health. Payers are rewarding clinics for healthier patients versus the past model of patient volume.

**Community Education** teaches patients the benefits of healthy living. Auxiliary members of the care team offer alternative methods of care in a casual classroom setting to those seeking to combat their ailments without medication. They are designed to promote community presence and enhance quality of life outside of the exam room.

**Wellness Training** involves members of the care team educating their patient on alternatives to medicine for treating and managing ailments and unhealthy habits. It involves the mind, body and spirit to make healthier lifestyle changes. Care teams have prescribed yoga and meditation for stress management, versus physicians prescribing anti-anxiety medication.
At Adelante Healthcare Mesa, community engagement is supported through a multipurpose community room that hosts meetings for various local organizations and a healthy café situated in the lobby. The café serves as a place for cooking demonstrations, nutrition education and respite with its complimentary Wi-Fi, easy access to public transportation and exterior patio seating. Group education spaces within the health center bring community members with similar ailments together to receive preventive care in an informal setting, fostering community encouragement. Talking rooms are placed next to exam rooms where physicians, behavioral health professionals and nutritionists can confer with the patient as needed. More details are shared in the case study section on page 30.

EVIDENCE SUPPORT

A Commonwealth Foundation report argues that primary care (in contrast to specialty care) is associated with a more equitable distribution of health in populations, a finding that holds in both cross-national and within-national studies. Primary care and mental health integration was found to be effective in the Veterans Affairs health system to reach demographic subgroups that are traditionally less likely to use specialty mental health care. Physician time is the biggest challenge in primary care serving as a vessel for population health. A study found that physicians would need seven extra hours in their working day to provide the services recommended by the U.S. Preventive Services Task Force (USPSTF).

FACILITY IMPLICATIONS

Consult Spaces: These spaces provide expanded opportunities for patient education while encouraging family presence. At Adelante Healthcare, talking rooms were incorporated throughout patient care areas to provide a space for patient/care team collaboration. Void of medical equipment, these informal rooms foster patient participation while freeing exam rooms for procedures and routine visits.

Community Gardens: An outdoor garden space can connect people with their land and community. These gardens facilitate happiness and wellbeing, and are designed using evidence-based design (EBD) principles to define a specific purpose (such as encouraging exercise in senior citizens and instilling a gardening culture for children).

On-Site Access: Easy access to a health coach, clinical pharmacist and behavior health resources encourage use. At Intermountain Healthcare and Adelante Healthcare, offices for health coaches and behavioral health specialists are provided in the clinic.

Proximity to Wellness and Fitness Amenities: At Permian Regional Medical Center, a gym is located next to the clinic. At Adelante Healthcare, walking paths surround the facility. Nutritionists are in the health center on certain days. The art program provides information on healthy living and healthy eating.

Community Engagement: Group congregation spaces can flex to accommodate different uses, such as community organization meetings or educational sessions.
The Opinion Market: Patient consumers hold the power in their hands when searching for healthcare. Armed with the Internet, they are making healthcare decisions based on reviews. According to The Advisory Board, 35 percent of individuals choose physicians based on a positive review, and 37 percent avoided their negative counterparts. Websites like Healthgrades and ZocDoc are making people more engaged in their own health, rather than going with their physician’s recommendation.\textsuperscript{[21]}

Concierge Medicine: This refers to the practice of care provided by a primary care physician, where a patient pays an annual retainer fee for care and services – most practices charge an annual fee that ranges between $1,500 and $2,000. In exchange, physicians limit the number of patients they see, resulting in greater access, longer appointments and personalized care to their patients.\textsuperscript{[26]} This service is gaining traction with affluent patients who would like greater access to their provider and are willing to pay for it.
EVIDENCE SUPPORT

Approximately 44 percent of retail visits occur when a physician’s office is likely to be closed.\[71\]

Retail clinics can be operated at a lower cost than primary care or EDs, and are popular because they are affordable and convenient. However, they run the risk of disrupting the doctor-patient relationship, fragmenting the quality of care and being unsafe. There is still a lack of good evidence and well-designed comparative effectiveness studies.\[73\]

Patients today think like consumers; even for a same-day appointment, waiting more than 30 minutes can be a dissatisfier.\[18\]

Positive correlations have been found between more attractive environments and higher levels of perceived quality, satisfaction, staff interaction and reduction of patient anxiety.\[78\]

FACILITY IMPLICATIONS

Modularity and Prototyping: Clinic modules range from interior walls and exam rooms to entire clinics. The customization of components ensures that the clinic module is built for the staff and patients.

Duke Medicine opted to develop a clinic prototype that could be implemented at different locations and help guide its real estate selection process. The Duke Primary Care Clinic prototype was applied directly to one location, and adapted to suit two other locations. The prototype utilizes a nine-room modular configuration, which can be scaled to accommodate a specific clinic’s need. Each pod incorporates the on-stage/off-stage concept and includes exam rooms and support spaces such as a consult room, a patient toilet, supply alcoves, shared workstations and dictation stations.

Prefabrication: This practice involves assembling clinic modules in a single factory and later transporting them in whole to the final site. Prefab clinics are delivered to the market in a fraction of the time compared to traditional construction, increasing access to care in rural communities.

Hospitality Elements and Branding: Clinics are now investing more on the patient experience and overall branding. In Five Forks Clinic, a spa-like ambience is created through finishes, music, lighting and furniture selection (for example, use of couches instead of exam tables and standalone chairs).

Adaptive Reuse of Retail Locations: More and more, old retail stores within shopping centers are being converted into clinics that patients can easily access, which allows.\[98\]

- **Speed to Market**: Expedites project delivery by retrofitting existing retail locations
- **Reduced Construction Cost**: Offers reduced first cost of construction compared to built-to-suit option
- **Increased Visibility**: Provides clinic a visible storefront image in proximity to community

CASE STUDY: MGC FAMILY MEDICINE - FIVE FORKS

The design of the clinic was inspired by three companies that excel in customer experience: Disney, Apple and BMW. Disney was the inspiration in designing (and, when possible, eliminating) wait times and treating the physician-patient encounter as a destination that you prepare the patient for. Apple was the inspiration for rethinking the patient experience. BMW was the inspiration for streamlining the flow and making it efficient. Five Forks set itself apart from traditional clinics by borrowing successful practices from said companies, which are explained in more detail in the case study on page 32.
The facility innovations observed in case studies, and shared by experts, are included in this spread. Corresponding trends are annotated through colored circles.

**mHealth**

**Care Coordination**

**Telehealth**

**Population Health**

**Retail Health**

**FACILITY INNOVATION SPREAD**

**PATIENT PATHWAY**

<table>
<thead>
<tr>
<th>Access</th>
<th>Registration</th>
<th>Waiting/Pause</th>
</tr>
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**STAFF PATHWAY**

<table>
<thead>
<tr>
<th>Scheduling</th>
<th>Greeting &amp; Triaging</th>
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A
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PATIENT PATHWAY

A. Modularity/Flexibility, HKS Smart Hospital Prototype
B. Modular Construction, BLOX
C. Patient App, Mayo Clinic
D. Call Centers, Kaysville Clinic
E. Mobile Clinic, Kaiser Permanente
F. Adaptive Reuse of Retail, Vein Clinics of America
G. eKiosk Registration & Check-In, Intermountain Healthcare
H. Combined Registration & Triage, Intermountain Healthcare
I. Greeter Station, Intermountain Health
J. Private Registration Booths & Art Integration for Wayfinding, Phoenix Children’s
K. Daylight & View, Intermountain Healthcare
L. Hospitality elements integrating flooring & furniture patterns for wayfinding, Adelante Healthcare
M. Concourse Waiting with Workstations as spillover waiting. Patient taken directly to room, MGC Family Medicine - Five Forks
N. Art Integration & On-Stage/Off-Stage, Intermountain Health
O. Tech-Ready Exam Rooms
P. In-Room Waiting. Digital Screens & Flexible/Movable Furniture for Tech Integration, MGC Family Medicine - Five Forks
Q. Talking Rooms, Adelante Healthcare
R. Murphy Bed, Reconstructive Orthopedic Center (DIRTT)
S. Group Visit Space with Televist Capability, Wake Forest Cancer Center
T. Hoteling Spaces, Duke Primary Care Prototype
U. Open Workspaces with Digital Integration, Intermountain Healthcare
V. On-Stage/Off-Stage, Reconstructive Orthopedic Center
W. Telemedicine Follow-Up Care
X. Recreation Center Proximity, Alegent Health Immanuel Medical Center
Y. Walking Paths, Adelante Healthcare
Z. Community Gardens

STAFF PATHWAY
The following were identified as facilities pushing the envelope on clinic design.
The previous section identified key trends, three of which have strong facility implications that are manifested in building design today. The case studies included are examples of organizations that push the envelope on a key trend. These studies were identified by a review of the literature and conversations with experts in the field. They also represent a wide range of systems – from a large health system to a safety clinic to a small neighborhood family practice.

For each case study, the research team conducted a site visit and spoke to key stakeholders. Responses from stakeholders are captured in perspectives that explain their viewpoint of outpatient/clinic care in general and their facilities in particular. They also discussed the view of what they thought was an aspect of healthcare that would not change.
C1. COORDINATED HEALTH.
INTERMOUNTAIN HEALTHCARE.

Intermountain Healthcare Kaysville Creekside Clinic is a 14,000-square-foot primary care and urgent care (Instacare) clinic in Kaysville, Utah, opened in late 2014. The building is comprised of clinic modules of 12 exam/procedure rooms (12-pack) to accommodate a team care model comprised of four physicians, four medical assistants, one case manager, one patient educator and one behavioral health professional. One module of primary care exam/procedure rooms (12-pack) and one module of urgent care (smaller 10-pack module) is provided along with general X-ray and laboratory services.

PERSPECTIVES

PHYSICIAN

It is imperative to be open to new care models which feature a care team. A physician is still the primary point of access to the patient. When relying on a more diverse team of nurses and advocates to provide information on patients, team coordination is critically important. Technology, like the Digital Integrated Greaseboard, alerting the physician and care team of the patient's status and where they are in their visit, is also important.

What Will Not Change
The need for face-to-face contact will never go away. Patient comfort is still most important, even down to the parking distance.

CLINIC DIRECTOR

Staff satisfaction is as important as patient satisfaction, as it is difficult to retain staff. It is a challenge to maintain a team large enough to keep patients out of the waiting room. Staff must be accepting of changes for the better. The quicker and more efficient the delivery of care, the better. It is important to watch for and identify bottlenecks in the clinic’s care process, understand why they are bottlenecks (lack of equipment, policy restrictions, etc.) and to address them through continuous process improvement. There is value to informal checkups with staff and physicians for updates on satisfaction.

What Will Not Change
Resistance to change.

OPERATIONS OFFICER

The clinic’s space and its amenities play an integral role in patient-consumers’ decision-making. The space, which mimics a hotel or resort, must be pleasing to both the patients and staff. Larger care teams need the space that promotes collaborative work. It is important to reduce the size/eliminate space waste, i.e., the waiting room. The aging population plays an underlying role in the space; wayfinding should not be left up to the patient. The exam room to physician ratio varies based on the age of the patient – between 1-to-3 and 1-to-2 for older patients. The money spent in and on the clinic is an important metric.

What Will Not Change
Resistance to change.

DIRECTOR OF STRATEGIC PLANNING

The truth is in the numbers. The process in which care is delivered will trump any number of amenities placed within or on the clinic façade. With the technology available, data needs to measure any and all elements of care to validate the most economical, quality practices. It is important to be aware of the politics behind new healthcare and provide better services to patients to fit within managed population health budgets. The modern clinic must be fluid in design to maximize space and functions. Quality and safety are top priorities. Company slogan sums it up: “Helping people live the healthiest life possible.”

What Will Not Change
Team-based, personalized care.
“CLINICS MUST BE DESIGNED AROUND THE MOST EFFICIENT WORKFLOW.”

- Tim Hatch, Director of Strategic Planning, Intermountain Health

Registration and Triage Room:
Combined Registration/Triage (and use of MAs) to serve multiple roles.

Note: This space was dictated by the urgent care component. In subsequent clinics, this space has been eliminated and the function moved into the exam room.

Digital Integrated Greaseboard:
Information Exchange Platform/DIG + open offices to enable communication and collaboration.

Team Collaboration:
On-stage/off-stage design to separate patient and staff flow, exam room servers to enable point-of-use supplies.
C2. POPULATION HEALTH AND WELLNESS.
ADELANTE HEALTHCARE.

Adelante Healthcare is a nonprofit system of eight federally qualified health centers, serving more than 40,000 patients, with over 120,000 annual medical encounters, within the Phoenix metropolitan area and surrounding communities. Founded in 1979 to meet the needs of migrant farm workers, it has a history of delivering high-quality care to low-income, uninsured individuals in medically underserved communities.

Adelante Healthcare Mesa, the nation's first LEED-Platinum community health center, was designed to support clinicians in delivering personalized care, while empowering patients to manage their health by creating a comforting environment that extends dignity and resonates with the community.

PERSPECTIVES

PRACTICE ADMINISTRATOR

It is important to streamline processes on all fronts, particularly information systems, through use of technology, which removes the need for staff to remember patient information and which saves time and money. InfoSync has resulted in staff spending more time documenting all details of their patients. By delegating different parts of InfoSync to different team members, work is reduced and collaboration is increased – a desired goal. The PCMH model is a successful one, which needs increased access, centrally locating it but with the ability to be flexible. Talking rooms are effective as they get patients in and out faster – most do not need an exam table.

What Will Not Change
You can’t replace people in healthcare. Technology will change, but it will never go away.

FAMILY CARE PHYSICIANS

They face large waves of Medicare and uninsured patients, as Adelante is the largest safety-net clinic in the area. This doesn’t allow a physician to engage and follow up with patients as often as he’d like. It is important to believe in technology integration, but it is currently unreliable, as patient trackers are manually updated. Technological advances will force insurance companies into finding a new way to capture patient encounters. I wish to easily access PCMH staff when necessary and believe visibility to team members is important. However, technology will play a vital role in subsequent interactions, such as televisits for follow-ups. Adelante’s talking rooms are successful, but are not as efficient when patrons have to switch to an exam room.

What Will Not Change
Doctors are creatures of habit and will be reluctant to change; face-to-face contact will never go away.

RESEARCH CONSULTANT

The shift to wellness is essential for future ambulatory care, and by adding areas like talking rooms and education spaces, patients can learn about their ailments and how to treat them rather than relying on medicine and procedures. Using lack of funding as an excuse to put off true innovation is unacceptable and should not have to be argued for.

What Will Not Change
Access will increase due to technology, but at the end of the day, people will always need people.
As part of the nation’s safety net, Adelante Healthcare provides services to high-risk patients with chronic conditions. Each health center within the Adelante Healthcare network contains various specialties specific to the patient population they are serving. Some sites provide family medicine and obstetrics, while others provide comprehensive services that include family medicine, adult medicine, pediatrics, OB/GYN, dental, lab, cafe and pharmacy.

Since 2013, Adelante Healthcare has begun the transformation of implementing a PCMH model of care into four of its locations. Through the addition of an extended care team comprised of a Health Coach (MA), Clinical Coordinator (RN), Behavioral Health Specialist (LCSW) and Nutritional Specialist (RD) that works across specialties within each of the participating health centers, the organization has expanded its ability to meet patients’ needs while extending the care team’s capability to connect with patients across the care continuum.

During the first year of implementing the PCMH care model, a target population consisting of 271 uncontrolled diabetic patients in two health center locations were followed. With the addition of a Health Coach and Clinical Coordinator to the care team, nearly 30% of patients within this target group exhibited control (HbA1c <8.0) over their diabetes at the end of the intervention period. Higher rates of compliance and patient engagement were also noted.

To gain further insight into the successes, as well as the challenges associated with implementing this new care model, research is currently being conducted to understand the impact of a PCMH on patient and staff health outcomes, as well as organizational implications. Findings from this research will be used to guide future decisions regarding the implementation of a PCMH across the network and drive quality improvement projects.

**Group Visit Space:**
This space supports community education in a classroom setting to enhance quality of life outside of the exam room.

**Wayfinding and Noise Reduction:**
A calming ambience is supported through strategically placed soffits that assist in wayfinding and contribute to reduced noise levels, while adding warmth and color.

**Educational Art Program:**
An art program inspires exploration and movement while providing a platform for showcasing local artists within the community.

**In the Women, Infants and Children Center**, artwork is used to educate patients on good nutrition, healthy lifestyle and keeping children engaged.

**Community Space and Walking Path:**
Providing a path that circles the health center educates patients on local flora and wildlife, while encouraging an active lifestyle.

**Adjacency Between Different Specialties:**
Interdepartmental adjacencies and access to behavioral health specialists allow physicians to provide for the care continuum of patients.
C3. RETAIL HEALTH.
MGC FAMILY MEDICINE - FIVE FORKS.

MGC Family Medicine is a small family practice located in Simpsonville, South Carolina. The office is a two-physician, six-exam room practice, which is unique in its implementation of retail-inspired concepts. The staffing model consists of an office manager, two medical assistants/greeters, one licensed practical nurse (LPN), one lab tech and one radiation tech. The “spa-like” interiors, complete with light music, a waterfall and soft finishes, speak more to a retail environment than a family practice. But this is a family practice, and a very efficient one. It also follows the Patient-Centered Medical Home model with the highest level of certification (level 3).

PERSPECTIVES

PHYSICIAN

Patient encounter times are increasing as a result of an increase in the number of patients with chronic conditions – more disease management is necessary. The days of the “Hi, how are you?” are gone – patients want more time, so 15 to 20 minutes per patient is needed. We also are dealing with depression and mental health issues that need time. The concept of the exam table is changing as well. Many exams don’t require an exam table, they need a conversation. Patients also want us to be the key care coordinator between all their different issues. Although new concierge/VIP practices are emerging, successful practices treat all of their patients like VIPs.

Adopting new technology, such as the use of smartphones and texting, can become a challenge due to strict Health Insurance Portability and Accountability Act (HIPAA) regulations. Also, reimbursement policies have not evolved as rapidly as technology has. Going forward, more investment in a digital tracking board and better communication systems between the staff and team members is needed.

What Will Not Change
The patient-provider relationship will be a constant; the personal feel with patients will be key.

OFFICE MANAGER

More preventive care visits. It is not just about managing care; it is about managing lives. Hypertension, diabetes, obesity – these are common issues that we address.

Being part of a large healthcare system, but off-site from the main hospital, can create connectivity issues. Some visits, like Medicare wellness visits, take longer, and this can affect the patient volumes. With a small practice, cross-training staff is important. At the same time, being able to utilize them at top-of-license abilities is important to keep them satisfied. Being flexible with staffing is a constant challenge. Back-of-house space can become tight, so more space would be helpful. Patient spaces work well.

What Will Not Change
No matter what happens or how policies change, you still have to provide quality care.

DESIGNER

A shift to grouping practices in a different way – expanding the PCMH model toward larger multispecialty ambulatory care.

What Will Not Change
Changing organizational culture to truly impact transformation

“IT IS NOT JUST ABOUT MANAGING CARE; IT IS ABOUT MANAGING LIVES.”

– Christopher Atkins Smith, MD, Physician
In-Room-Out: In-room registration, co-pay, charting and follow-up cuts down waste in the clinic process. Older patients are not that mobile, so staff members move around to meet the needs of the patient – and that also saves time in the process!

Wait as the Visit: While the patient waits for the physician in the assessment room, the plasma screen is used to first prepare the patient for what to expect. The patient is also introduced to the physician, developing a relationship before he or she enters the room. The concept is derived from Disney, where staff members instruct you on what will happen before an attraction. You get to know the characters and be entertained while you wait.

On-Stage/Off-Stage: Dual-door entry into staff areas is used to streamline patient and family flow.

Standardization: All rooms and all supplies are standardized so physicians and staff members can find them easily. Supplies are designed to be hidden from view to allow an uncluttered, spa-like ambiance.

This practice has no exam tables, no waiting rooms and no registration desk. Instead, as soon as patients check in, they are taken into the assessment rooms, where they sit on a couch (next to their family members) and share their problems with the physician. If needed, a patient is taken to a separate procedure room or to the X-ray room.

A concourse space is available outside these rooms if a family member needs to step out. At first glance, the facility looks like a spa – but it functions like a highly efficient medical practice with a 30 to 40 patient-per-physician volume per day.

Inspiration from Retail: Retail is playing an increasing role in the design and efficiency of clinics. As mentioned in the previous section, Apple, BMW and Disney each played a unique role in improving the patient experience at MGC Family Medicine.

Integrated Technology: The practice has free Wi-Fi, and the concourse space has charging pods and small workstations for patient and family use. Wall-mounted plasma screens in the assessment rooms are used for patient education and can be connected to the physicians’ laptops.

Music Buffer: Music is used in the common areas to enhance the spa-like effect. It is also used as a sound buffer tool in the assessment rooms, which provide the ability to control the music from inside the room to allow patients privacy.

Note: The facility is now moving to Epic, which has larger screen requirements – this may impose a need for wall-mounted computer screens in the assessment room.

Flexible and Mobile Furniture: The assessment room consists of one couch, one small table and a chair, both on wheels – that’s all. The couch converts into a flat bed, if needed for exams (physicians report doing so around 20 percent of the time). Its broad arms are used for blood draws, when necessary. The mobile table and chair allow the physician to move around the room and closer to the patient.

Family Room, Not Exam Room: The use of the couch, and the clear indication that families can be together during a conversation with their physician, is a paradigm shift. The family is not an add in the room, but an integral part of the visit – and the room is designed around the couch that puts the family together.
To understand the perspective of two key stakeholders – physicians and patients – online surveys were conducted with a nationwide panel.
PATIENT/CONSUMER
baby boomers vs. millennials

PHYSICIANS
family practice and internal medicine

Case studies discussed in the previous section showcased specific facility innovations and challenges associated with them. However, their innovations were wide-ranging and identifying the common principles was still a challenge. It was evident that patient experience and physician satisfaction were two key drivers. The final step was conducting a nationwide poll of patients (millennials and boomers) and physicians (family medicine and internal medicine), to understand what two of the key stakeholders really want from their clinics. This helped create the foundation for a change-ready facility.
20XX SURVEY: PATIENT

ABOUT THE SURVEY

328 RESPONSES

167 BABY BOOMERS 1946 - 1964
84 OLDER BOOMERS 1946 - 1954
83 YOUNGER BOOMERS 1955 - 1964
161 MILLENNIALS 1981 - 2000
97 OLDER MILLENNIALS 1981 - 1990
51 YOUNGER MILLENNIALS 1991 - 2000
13 MISSING

THE SURVEY WAS SENT TO INDIVIDUALS WHO HAD VISITED AT LEAST ONE CLINIC FOR THE FIRST TIME WITHIN THE LAST SIX MONTHS.
METHODOLOGY

An unbiased, third-party independent survey vendor conducted a panel survey. The survey was sent to individuals who had visited at least one clinic for the first time within the last six months. The study also targeted people who were born either within 1946-1964 (baby boomers) or 1981-2000 (millennials). These two age groups represent the largest population of our workforce today. A total of 328 completed surveys was received, with 51 percent completed by baby boomers and 49 percent completed by millennials. The study sample was also divided into younger and older baby boomers and millennials.

Overall, respondents included 33 percent male and 67 percent female participants. The majority of participants (67 percent) had only one clinic visit, while 33 percent of them visited the same clinic more than once in the past six months. The participants were asked about their level of education, and the results show that 49 percent had a high school diploma or some college but no degree, while 29 percent had associate or bachelor’s degrees, and 17 percent had master’s or doctoral degrees.

The survey data was analyzed using descriptive statistics as well as correlation, t-test, analysis of variance (ANOVA) and hierarchical multiple regression analyses. All of the analyses were conducted using the SPSS Statistics software package, v. 20.

The qualitative information collected from open-ended questions was examined using content analysis. First, responses to each question were looked over to gain an initial impression of the central themes, then they were coded and organized into mutually exclusive and exhaustive categories. This helped discover overarching themes that emerged organically from the linguistic content of the qualitative data.

Descriptive statistics were conducted, including t-tests and correlations. Multiple regression analyses were conducted on the patient survey data to evaluate potential predictors for main criterion variables, including overall satisfaction with the clinic visit and likelihood of returning to the same clinic. First, bivariate correlation analyses were conducted to test associations between each criterion variable and potentially relevant predictor variables. Identified correlations (below the 0.05 alpha level) were considered for further exploration. Multiple regression analyses were implemented to determine if the criterion variables could be predicted from these identified predictor variables.

THE MAJORITY OF VISITS (49 PERCENT) HAPPENED IN PRIVATE PHYSICIAN OFFICES, 18 PERCENT IN URGENT CARE CLINICS, 10 PERCENT IN FREE CLINICS, 9 PERCENT IN COMMUNITY HEALTH CENTERS AND 8 PERCENT IN RETAIL CLINICS.
MILLENNIALS VS. BOOMERS: HOW DO THEY DESCRIBE THEMSELVES?

Much has been written about the aging population and how boomers and millennials, our largest constituents, are fundamentally different.

To investigate this, we asked all respondents four fundamental questions on what better described them. These forced-choice questions compelled respondents to take a side on whether they thought of themselves as a patient needing health services or a consumer buying health services; whether having a good experience is important or, as long as their health issue is addressed, they don’t really care about the experience; whether they trust in people or in information; and whether their phone is just a means of communication or their smartphone is their lifeline and they would like to access services through it.

HOW DO YOU DESCRIBE YOURSELF?
Patient vs. Consumer

A patient needing health services
85%

A consumer buying health services
88%

87%

Patient, Not Consumer

We found that, contrary to expectation, 86.5 percent of the respondents thought of themselves as patients needing health services more than as consumers buying health services. This trend stayed surprisingly true for millennials (85.1 percent) as well as boomers (87.9 percent), though with the youngest millennials (born after 1995), we started to see this trend change.
Experience Over Service

We also found that the majority of respondents were seeking a good experience besides having their health issues addressed. This was true for both millennials and boomers.

Trust in People Over Information

In the era of information, the majority of respondents still tend to trust people more than information. Younger millennials and, surprisingly, older baby boomers were most likely to trust information over people. However, younger baby boomers and older millennials trusted people over information.

Shift to Phone as a Lifeline

With all the advancements in digital technology, most people still consider their phones as only a means of communication and not a lifeline, believing there is no means to access health services via phone. This trend stayed true for baby boomers, while millennials were virtually split, leaning toward their phone being a lifeline. As generations pass, the phone becomes more of a lifeline.
WHAT MADE PATIENTS SELECT THEIR CLINIC?

Participants were asked to rate the important factors for their clinic selection on a scale of one to five. The descriptive results showed that, on average, for both boomers and millennials, the top three important factors were rated as coverage under health plans, facility cleanliness and access to diagnostic services at the same location.

Top-box comparison is the analysis where we examined factors rated highest (five out of five) by baby boomers versus millennials. The findings showed that coverage under health plans and facility cleanliness were still the top two factors with highest ratings for both generations, while the third-most important factor was rated by baby boomers as access to diagnostic services and by millennials as proximity to home.

HEALTHCARE COVERAGE AND PERCEPTION OF CLEANLINESS ARE IMPORTANT FOR BOOMERS AND MILLENNIALS.
WHAT ARE THE TOP CONSIDERATIONS FOR VISITING A CLINIC FOR THE FIRST TIME?

80% of respondents mentioned convenience and affordability as the top consideration for selecting a clinic.

WHAT ARE THE TOP CONSIDERATIONS FOR VISITING AND RETURNING TO THE CLINIC?

- **People**
  - Quality of care: 32%
  - Knowledgeable & professional: 66%
  - Attitude (polite, friendly, caring, personal): 68%

- **Place**
  - Proximity: 29%
  - Cleanliness: 24%

- **Process**
  - Short and/or fast waiting time: 26%
  - Insurance coverage: 17%
  - Easy scheduling: 11%
  - Same-day appointment: 11%

- **Logistics**
  - Baby Boomers: 41%
  - Millennials: 34%

QUALITATIVE COMMENTS ON TOP CONSIDERATIONS

Participants were asked to report their top considerations in selecting and returning to a clinic. Qualitative analysis showed that patients were looking for clinics providing high-quality care, knowledgeable and friendly doctors and staff members, low waiting time, easy scheduling and coverage under their health plans. Convenient location and cleanliness were very frequently noted as important facility features. The results were comparable for baby boomers and millennials, except in one case where, compared to millennials, almost twice as many baby boomers reported knowledgeable and professional doctors and staff members as an important consideration in selecting and returning to a clinic.

QUALITY OF CARE, QUALITY OF PEOPLE, LOW WAIT TIME, CONVENIENT LOCATION AND CLEANLINESS ARE IMPORTANT FOR RETURNING TO A CLINIC.
HOW SATISFIED ARE PATIENTS WITH THEIR VISIT? WHAT PREDICTS THEIR SATISFACTION?

**Boomer Satisfaction, 4.4 Stars (Average Score)**

1 Star, 1%
2 Stars, 2%
3 Stars, 11%
4 Stars, 29%
5 Stars, 57%

**Millennial Satisfaction, 4.0 Stars (Average Score)**

1 Star, 1%
2 Stars, 4%
3 Stars, 15%
4 Stars, 48%
5 Stars, 32%

Based on t-test analysis, boomer versus millennial mean difference was statistically significant. Boomers, overall, are more satisfied with their care than millennials.

**Predictors of Overall Satisfaction**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>Wait Time</td>
<td>Patients reporting reasonable wait time in the waiting room and registration areas were more satisfied.</td>
</tr>
<tr>
<td>Service Quality</td>
<td>Patients reporting satisfaction with registration process and overall care coordination were more satisfied.</td>
</tr>
</tbody>
</table>

A four-stage hierarchical multiple regression was conducted with overall satisfaction with the clinic visit as the criterion variable. The four predictor increments included generational grouping (baby boomers versus millennials), waiting experience and satisfaction with clinic service and facility. The results showed that the generational grouping was not found to be a significant predictor of overall satisfaction. However, reasonable wait times in waiting room and at registration desk were shown to be significant predictors of overall satisfaction. Also, results showed that satisfaction with the registration process and overall care coordination were significant predictors of their overall satisfaction with the clinic visit.

OVERALL, MILLENNIALS ARE LESS SATISFIED THAN BOOMERS.

FOR BOTH MILLENNIALS AND BOOMERS, WAIT TIMES AND SERVICE QUALITY PREDICT SATISFACTION.
Another four-stage hierarchical multiple regression was conducted with the likelihood of going back to the same clinic as the criterion variable. The four predictor increments included generational grouping (baby boomers versus millennials), overall satisfaction with the clinic visit and satisfaction with clinic service and facility. The results showed that the generational grouping was not found to be a significant predictor of likelihood of returning to the same clinic. However, overall satisfaction with the clinic visit, satisfaction with follow-up care after the visit and satisfaction with Wi-Fi connection at the clinic facility were shown to be significant predictors of patient likelihood of going back to the same clinic.

**OVERALL, BOOMERS ARE MORE LOYAL THAN MILLENNIALS.**

**FOR BOTH MILLENNIALS AND BOOMERS, OVERALL SATISFACTION WITH THE CLINIC, FOLLOW-UP CARE AND WI-FI CONNECTION PREDICT A RETURN VISIT.**
HOW DO PATIENTS RATE THEIR COMMUNICATION WITH THEIR CARE TEAM?

Participants were asked to rate their communication with their care team members. Overall, the results showed that, on average, they rated communication with their doctors, nurses and medical assistants higher than other members. When comparing different generations, baby boomers rated communication with their doctors the highest and then with their nurses and nurse practitioners. Millennials rated communication with all three groups (doctors, nurses and medical assistants) the same.

In a qualitative question, participants were also asked with whom they had their most meaningful interaction. For both boomers and millennials, this was the physician.

PATIENTS HAD THE MOST MEANINGFUL INTERACTION WITH THEIR PHYSICIANS.
WHERE ARE THE PATIENTS WAITING? WHAT DO THEY DO WHILE THEY WAIT?

Patients were asked to rank their wait time in waiting rooms, registration desks, exam rooms and labs/diagnostic areas. In terms of duration, the waiting room was ranked as the location with highest wait time, followed by the exam room. The findings also showed the majority of respondents spend more than 15 minutes in waiting and exam rooms. Eighty percent of respondents had less than 15 minutes of wait time at the registration desk.

The results from ANOVA analysis showed that levels of frustration from waiting in waiting rooms were significantly higher than waiting at registration desks. Also, levels of frustration from waiting in exam rooms and lab/diagnostics areas were found to be significantly higher than levels of frustration from waiting at registration desks. Although no statistically significant difference was found between exam room and waiting room frustration, overall, waiting room frustration was rated as the highest.

Waiting Room Activities
Patients were asked about how they spent their time in waiting areas. Overall, the top three activities were rated as using a tablet or smartphone, looking at other people and reading a book or magazine. The findings also showed that, compared to baby boomers, millennials spent significantly more time on digital devices, such as smartphones, tablets and laptops. They also spent significantly more time eating/drinking, or going to vending machines or cafeterias (t-test analysis).

Patients find waiting in the waiting room to be the most frustrating, followed by waiting in the exam room.
WHAT FEATURES MAKE A CLINIC MORE APPEALING?

1. Cleanliness and Hygiene
2. Same-Day Appointment
3. Walk-In Appt. (> 30-minute wait)

Patients were asked about attributes that could make a clinic more appealing for their future visits. Overall, the top three attributes for a more appealing clinic were rated as facility cleanliness, availability of walk-in (less than 30-minute wait) appointments and same-day appointments. Similar to The Advisory Board results, our findings also showed that walk-ins with a wait of less than 30 minutes were a priority, and walk-ins with a wait of an hour or more dropped to the bottom of the list. This finding stayed true for baby boomers and millennials. Top-box comparison showed that while quiet environments and walk-in appointments (less than one-hour wait) were important for baby boomers, millennials thought 24/7 access and online registration would make a clinic more appealing.

In their own words, we asked patients to describe what facility features they felt would improve their experiences in a clinic. A content analysis of their response revealed that, overall, patients are looking for a clean, comfortable environment (10 percent); the availability of entertainment (16 percent) such as snacks, reading material or a TV to distract them as they wait; and the availability of technology in the space (13 percent) such as Wi-Fi access.

More specifically, both baby boomers (10.7 percent) and millennials (10.5 percent) desire entertainment as they wait, but millennials, more than baby boomers, want spaces that are clean and comfortable (14 percent), with available technology (17 percent).

Overall, both baby boomers and millennials find cleanliness and hygiene, same-day appointments and short wait times (under 30 minutes) most appealing. Additionally, other aspects related to ease of access seem to be greatly appealing to both groups (e.g., 24/7 access and online registration).

Both groups also value aspects of the environment, but their priorities differ a bit. Though both groups find quiet environments and access to daylight and views to the outdoors appealing, these environmental characteristics are desired more by a greater percentage of millennial, as opposed to baby boomers. Further, millennial desire a spa-like environment and more integration of technology into their visits (e.g., mobile apps to track their health or book appointments, and the ability to virtually visit with physicians, RNs and PAs).

CLEANLINESS AND CONVENIENCE MAKE A CLINIC MORE APPEALING.
BOOMERS HAVE MORE STREAMLINED AND PRAGMATIC PRIORITIES. MILLENNIALS WANT MORE, AND PRIORITIZE TECH-CONNECTIVITY AND EXPERIENTIAL FACTORS HIGHER.
Patients first! The clinic patient is not the typical consumer. Both millennials and boomers considered themselves a patient needing health services over a consumer buying health services.

Experience is important, especially for millennials. A spa-like experience is much more important for millennials compared to boomers.

People trust people over information, but only slightly.

Times are changing. Millennials see phones as the portal to access healthcare.

Cleanliness is a top-of-mind concern across all generations.

Healthcare coverage and perception of cleanliness are important for boomers as well as millennials. For millennials, distance from home and work, recommendations from friends and family and online reviews are more important than for boomers.

Quality of care, quality of people, low wait time, convenient location and cleanliness are important for returning to a clinic.
Cleanliness and convenience are universally appealing to boomers and millennials. Boomers have more streamlined and pragmatic priorities, compared to millennials. Millennials want more. Use of apps and a spa-like environment are much higher for millennials compared to boomers.

Overall, boomers are more likely to return to the same clinic compared to millennials. Overall satisfaction, follow-up care and Wi-Fi connection predict return visits.

Overall, physician communication is rated higher for boomers. Millennials may be more receptive to team-based care. For both millennials and boomers, the most meaningful interaction is with the physician. Patients reported feeling most frustrated about waiting in the waiting room, followed by the exam room.
20XX SURVEY: PHYSICIAN

ABOUT THE SURVEY

METHODOLOGY
An unbiased, third-party independent survey vendor conducted a panel survey. The survey was sent to physicians, who included 51 percent family practice and 49 percent internal medicine physicians. The sample included 85 percent male and 15 percent female physicians. The majority of participants (68 percent) were 46 to 65 years old, while 24 percent were younger than 45 and 8 percent were older than 66 years old. Also, the majority of physicians (88 percent) were involved in primary care practice, and 38 percent of participants worked in multispecialty clinics. Only 10 percent of the respondents were part of a patient-centered medical home.

Participants were asked about their practice locations, and the results showed that 29 percent were located in urban, 48 percent in suburban and 23 percent in rural settings. Only 12 percent of physicians didn’t have electronic medical records (EMRs) implemented in their practice, while the majority of them have implemented EMR for more than one year (82 percent). The study participants were asked about the size of their practice, with the results showing that 27 percent were involved in solo practices, 42 percent in small- (two to 10 physicians), 17 percent in medium- (11 to 50 physicians) and 14 percent in large- (more than 50 physicians) size practices.

All respondents were directly compensated by the survey vendor upon the return of complete survey responses. This ensured that the 100 responses were complete in both qualitative and quantitative information.

The survey results were then exported into SPSS, a statistical package, and analyzed. Qualitative data was exported to Excel and analyzed via a thematic content analysis.
HOW SATISFIED ARE PHYSICIANS WITH THEIR PRACTICE? WHAT IS THE ONE THING THAT WOULD MAKE PHYSICIANS MORE SATISFIED?

Physician Satisfaction of Practice
Overall, physicians reported being marginally satisfied with their practice today (with a mean rating of 3.5 out of 5 stars).

Correlation analysis showed physicians who closely worked with case managers, mental health professionals, health coaches, pharmacists and other specialists were more satisfied with their practices today. Also, physicians who used smartphones for patient engagement and documentation/information access reported higher levels of satisfaction.

Multiple regression analysis showed that among all the predictors, working closely with case managers was a significant predictor of physicians’ satisfaction with their practices today.

The One Thing Physicians Would Change
Physicians were also asked what is the “one thing” that they would change to improve their practice. Responses to this open-ended question were varied, but more than 20 percent of the physicians mentioned the following three considerations:
1. More patient time
2. Easier insurance/billing
3. More efficient electronic medical records

Other considerations that were mentioned include less paperwork, better staffing, better efficiency and care coordination at the system level.

CARE COORDINATION WITH CASE MANAGERS IS A PREDICTOR OF PHYSICIAN SATISFACTION.

PHYSICIANS WANT MORE PATIENT TIME, EASIER ADMINISTRATION AND EFFICIENT ELECTRONIC RECORDING.
HOW DO PHYSICIANS SPEND THEIR TIME?

More than 60 percent of physicians believe their time would be better utilized with less documentation and better EMR

Direct Patient Care, 65%
Documentation, 19%
Care Coordination with other Healthcare Staff, 6%
Indirect Patient Care (calls, meeting with family), 5%
Administrative Work, 3%
Education, 2%

“NO WAY SHOULD IT REQUIRE THIS MUCH TIME AWAY FROM THE PATIENT TO CHART.”
—Physician in response to electronic medical record adoption

To understand the facility needs of physicians, it is important to know how they spend their time. Physicians were asked to divide how they spend their time on key activities identified from the literature. On average, physicians estimated that they spend more than 60 percent of their time on direct patient care. This is unsurprising, given how many patients a typical family practice/internal medicine physician sees in a day (on average 25 to 30 patients a day) with approximately 15-minute appointments.

When asked about how they thought their time could be better utilized, more than 60 percent of physicians mentioned less time on documentation and better EMR. Eighty-eight percent of physicians polled were using EMR and mentioned high levels of dissatisfaction. The biggest resentment against electronic medical records is the time that it takes away from direct patient care.

PHYSICIANS SPEND THE MAJORITY OF THEIR TIME DIRECTLY CARING FOR THE PATIENT.
WHAT MAKES A SUCCESSFUL PRACTICE?

On being asked about the importance of key factors in how they run a successful practice, patient relationships trumped all other concerns, followed by the ability to provide follow-up care, financial rewards and the overall efficiency of practice.

Intellectual stimulation was surprisingly rated higher than access to information and interaction with colleagues and other healthcare professionals.

Physicians were also asked to talk about their top three considerations in an open-ended question. In these responses too, patient relationships and patient satisfaction were the most prominent. This was followed by quality of care, good staff members and profitability, among other themes.

FOR PHYSICIANS, IT’S ALL ABOUT PATIENTS, BUT CARE QUALITY, PROFITABILITY, GOOD STAFF MEMBERS AND INTELLECTUAL STIMULATION ARE ALSO IMPORTANT.
WHAT ARE PHYSICIANS MOST EXCITED AND SKEPTICAL ABOUT?

Physicians were asked to state in their own words some of the changes in healthcare delivery they saw today about which they were the most excited and the most skeptical. These comments were analyzed by the research team and sorted into key themes.

Physicians were clearly most excited about telemedicine. On the other hand, government regulations related to healthcare reform had a lot of skepticism. Interestingly enough, trends such as coordinated care and retail health seemed to have an equal amount of excitement and skepticism around them.

PHYSICIANS ARE EXCITED ABOUT TELEMEDICINE AND SKEPTICAL ABOUT HEALTHCARE REFORM.
In rating the importance of different facility design factors that emerged from our literature, physicians prioritized having an exam room available when needed, streamlined check-in and registration, and a place to sit down and talk to patients and family members.

In the middle order were considerations of technology, proximity to labs, point-of-use supplies, etc.

Patient-centered medical home features, such as consult areas outside the exam room, mental health, life coaching, wellness amenities and community education space, did not have consensus (meaning they were not significant) and fell to the bottom of the priority list.

Physicians want ease, efficiency and space for interaction with patients and family members. The exam room holds the key to a successful practice.
HOW DO PHYSICIANS UTILIZE THEIR EXAM ROOMS?

In an open-ended question, physicians were asked how many exam rooms they typically use in a day. Responses were sorted in three categories. The majority of physicians (74 percent) used one to three exam rooms, while 23 percent used four to five, and three percent used six or more rooms in a day. The majority of physicians (76 percent) had private exam rooms assigned to them, while 24 percent of them had to share with others.

Physicians were asked to report on the percentage of time that they typically use exam tables. More than half of the physicians mentioned needing an exam table more than 75 percent of the time. A quarter mentioned needing it between 50 and 75 percent of the time, and approximately another quarter mentioned needing it less than 50 percent of the time.

PHYSICIANS PERCEIVE A HIGH NEED FOR EXAM TABLES, BUT THEY ALSO WANT CONSULT AREAS.
WHAT IS IN THE PHYSICIAN’S IDEAL EXAM ROOM?

In an open-ended question on the ideal exam room, many physicians discussed the need for a consult area to sit across from the patient and have a conversation. A content analysis of the physicians’ responses revealed that the most important features in the ideal exam room were, unsurprisingly, equipment and furniture that would help to facilitate an exam: exam table (41 percent), chairs (27 percent), a desk (18 percent) and a computer (18 percent).

Fifty-five percent of physicians also mentioned the need for some sort of a consult space (i.e., space to interact face-to-face with patients, a desk, chairs for the patient and their family members). Physicians also spoke frequently about the overall design of the room. For example, 16 percent of physicians expressed the desire for a space that is roomy, 11 percent desired a well-lit space and 10 percent expressed the need for a room design that allows for convenient face-to-face interactions with their patients. Physicians also mentioned a need for accessible spaces for older, mobility-impaired and bariatric patients.

The ideal exam room has an exam table, chairs, a desk and a computer; is well-lit and roomy; and allows convenient face-to-face interactions. It should also accommodate patients with limited mobility (people needing wheelchair access, geriatric, bariatric).

FOR PHYSICIANS, THE IDEAL EXAM ROOM OFFERS SPACE FOR PATIENT CONSULTATIONS.
IN WHICH TYPE OF SPACE DO PHYSICIANS WORK? WHERE WOULD THEY PREFER TO WORK?

Current Workspace

- Private Office, 60%
- Shared workplace with other physicians and staff, 16%
- Shared Office with Other Physicians, 24%

60 percent of physicians with a private office reported spending more than 75 percent of their time in the office.

Preferred Workspace

- Private Office, 90%
- Shared, 10%
- Shared, 62.5%
- Shared, 43.8%

Overall, the physicians were asked about their current and preferred workspaces. Currently, 60 percent of polled physicians have private offices. While only 10 percent of physicians with a private office would consider a shared office, 43.8 percent of physicians in a shared workplace with other physicians and staff members would be open to sharing their workspaces. Also, 62.5 percent of physicians with an office shared with other physicians are open to the idea of sharing their work environments with others.

There is a significant correlation between physicians’ current and preferred workspace (p-value = 0.000). This implies that physicians’ current workspaces bias their preferences for their future workspaces.

WHERE PHYSICIANS WORK TODAY BIASES THEIR PREFERENCE FOR THE FUTURE.
In order to understand what kind of facilities physicians need, it is important to understand what devices they use. Physicians were asked to select the devices they used and how extensively they used these devices (on a three-point scale). We found that multiple digital devices were quite common. Desktops in the office were still the most common; however, we saw an interesting trend toward an increased use of tablets and smartphones for patient engagement and communication with staff members. These devices do not seem to lend themselves to documentation needs. This finding is significant, given previous research that shows that physicians using multiple devices are more likely to use them for patient engagement.

**WHAT DEVICES DO PHYSICIANS USE? WHAT DO THEY USE THEM FOR?**

- **Patient Engagement**
  - Exam Room: 30%
  - Office: 26%
  - Laptop: 47%
  - Tablet: 53%
  - Smartphone: 33%

- **Documentation/Information Access**
  - Exam Room: 41%
  - Office: 31%
  - Laptop: 25%
  - Tablet: 13%
  - Smartphone: 22%

- **Communication with Staff**
  - Exam Room: 28%
  - Office: 30%

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**PHYSICIANS USE MULTIPLE DEVICES, BUT MOST USE A DESKTOP IN THEIR OFFICES.**
WHAT TRENDS DO PHYSICIANS FIND SUSTAINABLE?

Based on the review of the literature, physicians were asked about their opinions on some of the commonly discussed trends such as concierge medicine, telemedicine/telehealth, managed/coordinated care, retail health and population health. They were asked to rate each trend in terms of how trendy it was (i.e., people are talking about it a lot, how sustainable it was, would it stand the test of time).

Telemedicine was perceived as one of the most prevalent trends, as well as the most sustainable one. Perception of sustainability seemed to increase with the younger physicians. The remaining trends were all seen as more trendy than sustainable.

TELEMEDICINE IS VIEWED AS A SUSTAINABLE TREND, AS LONG AS IT IS USED AS A SUPPLEMENT AND NOT A REPLACEMENT TO IN-PERSON VISITS.
Both physicians and patients were asked about the idea of virtual visits. The majority of physicians (55 percent) feel that some current in-person visits could be replaced with virtual visits, and 24 percent of them think their patients can likely or very likely connect with them via a virtual clinic.

When asking the same question from patients, there is a big difference between baby boomers’ versus millennials’ perceptions. Compared to baby boomers, almost twice as many younger people reported that they likely or very likely would go to a virtual clinic.

Physicians think virtual visits work best for follow-up care, mental health and chronic disease management; however, it may limit the one-on-one interaction, precision and trust.

On the other hand, some individuals think virtual visits are convenient and time-effective and that they work well for follow-up visits. They also believe that they limit in-person interaction and reliable/accurate care, and that they may not work well for diagnostics. Neutral comments came up when either they didn’t have the experience or they think it really depends on their health issues. In case study interviews, reimbursement was cited as the single largest hurdle for telemedicine.

Physicians are ready but don’t believe patients are ready for telehealth. Millennials are more ready than boomers.
WHAT ARE THE TOP CONSIDERATIONS FOR A BETTER PATIENT EXPERIENCE?

We asked physicians to describe the three most important considerations for patient experience. A content analysis revealed that, overall, 31 percent of physicians believe the patient-provider relationship to be paramount.

In addition to a good patient-provider relationship, time was also an important factor according to physicians. Specifically, 20 percent of physicians think that the ability for patients to have adequate time with the doctor is essential, and 26 percent believe minimal wait time during the process also greatly enhances a patient’s experience.

It is also noteworthy that 17 percent of physicians believe that some sort of virtual component applied to the visit (e.g., EHRs) would also enhance patients’ experiences.

Physicians were asked to rate the importance of facility environmental features from a patient experience perspective. The top three most important features were rated as facility cleanliness, privacy and comfortable temperature. Interestingly, when they were asked about the ideal facility for their practice, the greatest importance went to building accessibility for geriatrics, bariatrics and patients with physical disabilities.

CLEANLINESS, PRIVACY AND COMFORT ARE PERCEIVED AS THE TOP THREE FACILITY CONSIDERATIONS FOR PATIENTS.
Physicians want more patient time, easier administration and efficient electronic recording.

Physicians think their time would be better utilized with less documentation and better EMR.

Physicians put patient relationships first as the key to a successful practice.

Physicians are most excited about telemedicine and most skeptical about government regulations and healthcare reform via the ACA.

In terms of facility features, the exam room holds the key to a successful practice — physicians want an exam room that is available. They also want ease, efficiency and space for interaction.

Fifty-five percent of physicians mentioned the need for a consult area in the exam room.

A majority of physicians are assigned between one to three rooms. More than half of the physicians also reported using the exam table more than 75 percent of the time. At the same time, physicians repeatedly mentioned the need for consult areas. It is not clear if exam tables are currently being used for consultations, rather than physical examinations.

The ideal exam room, according to physicians, has an exam table, chairs, a desk and a computer; is well-lit and roomy; and allows convenient face-to-face interactions. It should also accommodate patients with limited mobility.
Fifty-five percent of the physicians think that some in-person visits can be replaced with virtual visits. They think it has value for follow-up care, mental health and chronic disease management. They are concerned about missing out on the one-on-one interaction, and with the precision of the telehealth tools, which becomes an issue of trust in the technology. Younger physicians are more open compared to older physicians.

Care coordination with case managers is a predictor of physician satisfaction.

According to physicians, patient experience can be enhanced through clean facilities that provide privacy and comfort. An operationally strong patient-provider relationship, more time with providers and low wait times could improve patient experience.
Based on literature review, case studies and online surveys, we now summarize the key insights on Clinic 20XX and the implications for facility design.
REVISITING DRIVERS AND TRENDS
revisiting the drivers and trends after the surveys

UNDERSTANDING THE PATIENT
boomers vs. millennials: insights from patient survey

UNDERSTANDING THE PHYSICIAN
insights from physician survey

CHANGE-READY CORE
facility implications of the research study: how will facilities remain relevant in a rapidly changing healthcare environment?
REVISITING DRIVERS

Overview:
At the beginning of the report, we identified five drivers based on the review of market reports, best practice articles and research articles. These included the changing system, patient, provider, technology and field of medicine. In response to these drivers, we identified five trends: mobile health, telehealth, coordinated health, population health and retail health. These drivers and trends were put to the test in our case studies.

Increased Access, But Not Affordability:
Healthcare reform is improving access and increasing accountability, as witnessed in the rise of accountable care organizations, patient-centered medical homes and a shift from volume-based to value-based delivery of care. However, new challenges have emerged, such as delayed care (patients postponing care due to the high deductibles). Based on survey and case study data, patients make their decisions primarily based on coverage under health plan, so affordable and accessible healthcare is a paramount concern. Physicians remain skeptical about healthcare reform, and with policies changing rapidly, the take-away is that although healthcare is becoming more accountable, it is not as accessible or affordable as it needs to be.

Patients First:
For the first time, we have four generations in the workforce requiring healthcare – but each generation is unique, with a different decision-making framework. With the aging population and the rise of more chronic and complex conditions on one end, and a more demanding, digital-native population on the other end, the demands on clinics are wide-ranging. Our patient surveys reveal that contrary to the “idee du jour” that patients should be treated like consumers, both millennials and boomers really consider themselves patients first. Eighty-eight percent of baby boomers and 85 percent of millennials stated that they think of themselves as patients needing health services, not consumers buying health services. This finding is significant, because it reiterates the need for a health system to take care of the patient, and respect the fact that most healthcare decisions are really need-based and not want-based.

Team-Based Care:
Even as the patient needs and expectations are rapidly changing, the provider structure is also evolving. There is a growing shortage of physicians, especially primary care physicians, and a need for a larger range of expertise, which is reflected in the shift to more team-based rather than physician-focused practices. Our survey with physicians shows that physicians work extensively with other care providers and, in fact, working with care teams is correlated to their overall satisfaction. Working with case managers was found to be a significant predictor of physician satisfaction. This implies that the trend toward coordinated health and team-based care is, in fact, sustainable. In fact, when polled on which trends physicians find trendy versus sustainable, coordinated care was rated just below telemedicine in terms of the most sustainable trends. Even so, physicians considered coordinated care as more trendy (2.3 on a scale of 1 to 3) than sustainable (2.1 on a scale of 1 to 3).

Technology Utilization, But Not Seamless Integration:
The large boom in technology has seen the rise of mobile devices, sophisticated and miniaturized diagnostics and large reservoirs of data. Electronic health records are the information spine of most systems. However, physicians remain extremely skeptical about electronic health records and the demand that it makes on their time, especially on the time that it takes.

Information Source: Couvillion, M., Kraus, S., & Waters, L. (2013) [15]
away from direct patient care. That said, telehealth is seen as a trend with considerable potential and deserves further discussion. Facilities are using mobile technology through patient portals, though other trends such as wearable technology and remote monitoring of health were found to be less prevalent. One of the most successful uses of technology seems to be digital tracking of the patient through the process, allowing the system to be more efficient. Some of the challenges include using different platforms for technology and integrating across platforms. Also, as more and more facilities are integrating information technology, the need is emerging for a new range of professionals who can use technology in the pursuit of delivering quality care.

Precise, Personalized, Managed Care:

Advancements in science, with the ability to do better diagnostics and manage larger reservoirs of information, have resulted in a push to more precise and personalized medicine – tailoring care plans to a specific individual. Primary care family practice physicians mentioned that their role is shifting to disease management and managing health. Follow-up care emerged as one of the top five concerns for physicians. A growing awareness of addressing health at the community and neighborhood level is evident in clinics today, and supported by the presence of life coaches, case managers and behavioral health specialists on site (especially within the Patient-Centered Medical Home model). In order to truly manage health, both the individual and the community, the clinic is a critical hub in the larger continuum of healthcare. In the figure on the previous page showing facility implications of the healthcare continuum, clinics fall under the diagnostics and health management segment, bookended by healthy individual lifestyles and communities on one end, and urgent care, EDs, acute care and long-term care on the other end. The success of this hub depends on the connectivity between the different segments.

Clinics – a Conduit Between the Cloud and the Community:

Our case studies and interviews with different care providers, combined with the results from our surveys with patients and physicians, revealed that of all trends, telehealth (and mobile health as part of telehealth) stands out as potentially the most sustainable trend. This is closely linked to population health, which is on its way to becoming the number-one priority for primary care physicians, and coordinated health – which is essential in order to achieve individual and population health goals. Understanding healthcare as a care continuum with rapidly evolving access points in terms of three key levels – the cloud (remote access and key functions happening in virtual space that enables wider reach and better care coordination), the clinic facility (the physical environment contained by a site and a building) and the community (continuous health and reach for the geographic region served) – is important. In many ways, the physical environment of the clinic serves as a conduit between the cloud and the community.

While undoubtedly retail clinics, retail concepts in primary care practices, hospitality-based elements and concierge medicine will see a rise in a choice-driven market, these are likely to see ebbs and flows in accordance with a dynamic market and a highly informed and difficult-to-please patient/consumer. Given that both millennials and boomers consider experience to be more important than simply having their health issue addressed, the focus on experience will continue. This will be discussed in the following sections.
REVISITING TRENDS

mHealth + Telehealth: A Question of Trust and Connectivity
According to physicians, telehealth is the most sustainable trend, followed by coordinated health and population health, which come together in the growing need for disease management, vis-à-vis episodic care. Fifty-five percent of physicians think that telehealth can replace some in-person visits. When asked, 48 percent of millennials state that they are likely to use virtual visits, while only 23 percent of boomers state they are likely. The current thinking for physicians is that telehealth wouldn’t replace the need for in-person visits altogether – especially for diagnostics and establishing patient relationships. It would be useful, however, for follow-up visits, disease management and mental health. Getting reimbursed for televisits (even being reimbursed for phone calls can be an issue), the precision of remote monitoring tools, and the ability to trust the technology and how it is being used represent significant physician concerns. For patients, the concerns are similar – patients don’t completely trust technology just yet and are unsure of how it would be used. Even so, facilities are now investing heavily in technology, and being tech-ready – providing Wi-Fi connectivity, call centers on-site, video capability on in-room monitors, e-kiosks for check-in, telehealth cart provisions, use of digital patient tracking and patient portals so patients can access services and information online. The challenge is the flexibility of spaces that can allow for rapid technology evolution, and integration/connectivity between different information systems.

Physicians are ready but don’t believe patients are ready for telehealth. Millennials are more ready than boomers. Trust in technology is an issue.

Telehealth implications for facility design include tech-ready and data-integrated facilities, but how the facility footprint will be impacted by more and more cloud-based services remains to be explored.

Population Health: Just Getting Started
Population health is a sustainable trend but does not have systemic support. Physicians consider it to be marginally more trendy than sustainable, but in general, it is considered a sustainable trend. It is arguably the largest opportunity for both providers and designers today. This is witnessed in the changing healthcare continuum and increase in access points for health services. While follow-up care was rated as a top-of-mind concern for physicians, and was a predictor for patient satisfaction, the larger issue of health management was not entirely evident beyond some key initiatives seen in case studies (such as presence of health coaches and behavioral health specialists on site, use of community education spaces, educational artwork, etc.). A large percentage of patients (63 percent) reported having some health apps on their phone – so the use of technology to improve healthy living is increasing. The challenge remains in the connectivity between people, place and technology to allow true integration and efficacy.

Coordinated Health: Integral and Codependent
Physicians consider coordinated care to also be slightly more of a trend than a sustainable initiative but rate it just below telehealth in being a sustainable trend. In their survey responses, physicians mentioned working extensively with different team members, with the largest interface with other physicians, medical assistants and office managers. Interestingly enough, although a relatively low percentage of physicians reported working with case managers, this was found to be a predictor of physician satisfaction and warrants further study. The trend toward open offices, collaborative work zones and on-stage/off-stage work areas is increasing. Given the rapidly evolving team structures, these work spaces need to be flexible and also include hoteling stations and touch-down stations, as well as areas for private conversations. The issue of noise is now becoming a more prominent concern and warrants further investigation. While care coordination is an integral component of healthcare today, it is a largely codependent initiative and relies on the connectivity between systems, people and providers.
Retail Health: All About Experience – But Not Necessarily Being a Consumer

The term retail in clinics has typically been associated with clinics owned by retail giants such as Walgreens and CVS. In this report, we took a different approach to this trend, to include the more consumer focused access points (retail clinics, but also virtual clinics, concierge services, urgent care centers and multi-specialty clinics that allowed a one-stop shop for outpatient needs). We also looked at the trend toward customer experience with a shift to more hospitality elements in the clinics, and the focus on ambience and experience overall. Facility trends that are supported by this approach are the on-stage/off-stage concept of having patient spaces with a better ambience, use of greeters and concierge services instead of the typical registration desks, using couches instead of the typical exam room chairs to accommodate family members, in some cases eliminating exam tables altogether to encourage better conversations, investing in artwork, wayfinding and daylight, etc.

It is not uncommon to see a more spa-like ambience in clinics, but when patients were asked to report on what would make a clinic more appealing, spa-like amenities were rated lower than more basic amenities like cleanliness, convenient hours and location, etc. Not surprisingly, spa-like amenities, use of mobile apps and access to fitness amenities were rated significantly higher with millennials, compared to boomers. Also interesting was the finding that a wider range of amenities was important to millennials – they do want more, and they want convenience above all. This would support the popular concept of treating patients like consumers in clinics. However, as discussed earlier, even though patients have certain consumer expectations, fundamentally, that is not how they view themselves.

When patients were asked whether they considered themselves a consumer buying health services or patients needing health services, a majority of them (88 percent boomers and 85 percent millennials) voted for the latter. Regardless of generation, we really don’t consider healthcare and outpatient care to be a service that we shop for. At the same time, a majority of patients (52 percent boomers and 62 percent millennials) also said they value experience more than just having the health issue addressed. It is evident that millennials value experience more but still do not consider themselves consumers. This is significant from a design perspective, and creating and branding facilities that attract and retain patients will be discussed in the following sections. However, an important take-away is that while the experience is still paramount, the healthcare experience is fundamentally different from other retail services, and a unique solution must be found to enhance user experience.
UNDERSTANDING THE PATIENT

The New Consumer: Still A Patient First
Our survey focused on baby boomers (born between 1946 and 1964) and millennials (born between 1981 and 2000). These age groups were selected because they represent the two largest groups in our current population. They also are perceived as being distinctly different groups to market to.

In recent market research, the thinking has shifted from considering the target patients to consumers. This is driven by an increasing need to attract and retain patients, keep them satisfied (which links to reimbursements) and encourage referrals. This is a worthy goal. But it is important to realize that patients do not consider themselves consumers. When asked, “What better describes you: a patient needing health services or a consumer buying health services?” an overwhelming majority of respondents, both millennials and boomers, opted for the former. Bottom line: patients don’t think of themselves as consumers. Shopping for healthcare is not as appealing as shopping for travel or leisure activities. This distinction is important to keep in mind as we make our decisions.

Experience Trumps Service; People Trump Information
Even though they don’t consider themselves consumers, they do value experience higher than simply service. Also, while millennials may trust information a little more than boomers do, overall, both millennials and boomers trust people more than information. Where we start seeing a shift is in the media and modalities that define our two populations. While the majority of boomers still think of the phone as simply a means of communication, a majority of millennials think of it as a lifeline and a portal to access health services.

The Patient Wants Time with the Physician
In rating their communication with care team members, boomers reported communication with physicians higher than communication with nurses, nurse practitioners, medical assistants, etc. However, for millennials, physician communication was rated at the same level as medical assistants and nurses. When asked with whom they have the most meaningful interaction, both boomers and millennials selected physicians. Enhancing the patient-physician encounter is key to a successful practice.
What Are the Top Three Considerations in Selecting Clinics?
Millennials and boomers also are surprisingly aligned in their top considerations in selecting clinics:

1. Logistics (coverage in the health plan)
2. Perception of cleanliness and hygiene
3a. The ability to get diagnostics done at the same location (for boomers)
3b. Proximity to home (for millennials)

Cleanliness and hygiene is an interesting finding, given that patients can’t really know how clean a facility is prior to visiting. But hygiene is a top-of-mind concern for anyone visiting a health facility and must be considered first and foremost in the design of facilities and in marketing the site. In open-ended responses, relationship with provider, reputation/referral and convenience/affordability emerged as the top considerations.

What Would Make a Clinic More Appealing to Them?
For both millennials and boomers, the top three considerations were cleanliness and hygiene, same-day appointments and walk-in appointments with a wait time of less than 30 minutes. However, while boomers valued a quiet environment and were open to waiting an hour, millennials prioritized 24/7 access, online registration and a spa-like environment (a spa-like environment was at the bottom of the boomer priorities).

Satisfaction and the Waiting Experience
Overall, millennials reported less satisfaction with their clinic visits than boomers. In analyzing the survey data, the research team analyzed how scoring of different questions was related to the scoring of the overall satisfaction. Patients who had a reasonable wait time in the waiting room and at the registration areas reported being more satisfied. This implies that the current trend of pushing patients into exam rooms as rapidly as possible and ensuring that the registration process is as seamless and effortless as possible (including, on occasion, online registration prior to clinic visit) is justified. For facility designers, understanding the workflow and processes around the pre-visit services is extremely important.

In asking patients about the likelihood of returning to a clinic, the significant predictors were interestingly diverse: one was about follow-up care, and the other was about Wi-Fi access. Not surprisingly, the more satisfied patients were overall with their visit, the more likely they were to go back.

To summarize, attracting patients is more a factor of convenience, affordability and the reputation of a clinic. Retaining patients, however, is about enhancing the experience in the clinic and also beyond the visit in streamlining the access, the flow and the efficiency of the entire process.
Physician Satisfaction
The survey conducted with physicians revealed that, overall, physicians are reasonably satisfied with their practices. Satisfaction was correlated to working with care team members. Also, physicians who used smartphones for patient engagement and documentation/information access reported higher levels of satisfaction. Working with case managers was also found to be a significant predictor of physician satisfaction.

Physicians were also asked about the one thing that they would change to improve their practices. Responses to this open-ended question were varied, but more than 20 percent of the physicians mentioned the following three considerations:

- More patient time
- Easier insurance/billing processes
- More efficient electronic medical records

Other considerations that were mentioned included less paperwork, better staffing, better efficiency and care coordination at the system level.

What Factors Make a Practice Successful? Physicians believe patient relationships are key to a successful practice, followed by ability to provide follow-up care, financial rewards and overall efficiency of practice. Interestingly enough, intellectual stimulation was rated higher than access to information and interaction with colleagues and other healthcare professionals.

Collaboration Needs
Patient-centered medical home features such as consult areas outside the exam room, mental health, life coaching, wellness amenities and community education space did not have consensus (which means they were not significant) and fell to the bottom of the priority list. This is contradictory to the findings discussed above regarding correlations between physician satisfaction and teamwork.

It is likely that although teamwork has some impact on physician satisfaction, this may be an inadvertent relationship, and physicians do not perceive a direct relationship. More research is needed to investigate this further. This also is evident in physicians’ preference for office spaces.

Private Versus Shared Offices
Physicians were asked about their current and preferred workspaces. While only 10 percent of physicians with a private office would consider a shared office, 43.8 percent of physicians in a shared workplace with other physicians and staff would be open to sharing their workspaces. Also, 62.5 percent of physicians who shared offices with other physicians are open to the idea of sharing their work environments with others. There is a significant correlation between physicians’ current and preferred workspace, which implies that physicians’ current workspaces bias their preferences for their future workspaces.
In the investigation of trends and how sustainable these are, concepts linked to retail and a consumer-oriented mindset did come forward: convenience, affordability and reputation. However, our findings that patients do not think of themselves as consumers compel us to argue that perhaps these expectations are what anyone would have from any basic amenity that is life-supporting. Healthcare is still a need-based, not a want-based, industry.

On the practical side, as more and more retail clinics and concepts are emerging, larger health systems are also entering the ring. New multispecialty ambulatory care centers (MACCs) are emerging to create regional hubs, with more satellite presence in the communities. How these affect the MinuteClinics from CVS or the Walgreens and Walmart clinics is not yet clear. However, if we look deeper, a cornerstone of the success of such initiatives is remote access and monitoring. Telehealth and mobile health – more extended and more available reach via technology – is the sustainable foundation of much of the shifting landscape.

In the feedback from physicians, telehealth was seen as the most sustainable trend. Although they were clear that telehealth visits cannot replace face-to-face interactions, they can more definitely increase the reach and reduce the need for in-person follow-up visits. Physicians also felt that telehealth visits had a huge potential to address the mental health needs of patients. Family care practitioners reported spending more time in disease management than routine care and urgent care. Those who are skeptical and undecided cite concerns of reliability, patient safety and reimbursements. Physicians also mentioned the lack of accuracy of existing remote monitoring instruments and the lack of training for patients to use them, making the reports unreliable. These challenges must be carefully considered.

For facilities, the implication of telehealth is really in creating data-integrated and tech-ready spaces. This implies more power outlets, Internet bandwidth and cable/data ports, as well as flexibility to incorporate changing technology via mobile and flexible technology. There may be a lower need for real estate for in-person visits, which could be offset with a larger need for call centers and private conference booths.

To keep up with these changes, and to make sure that the care delivered remains safe and efficient, process improvement must take place for both clinical processes and design and delivery processes. Lean process improvement and integrated project delivery are increasingly on the rise, changing the decision-making process, or perhaps making decisions change-ready.

Conventional stages of the clinic visit have changed to include consultation and education. Also, these activities are now happening in both physical and virtual space. In the figure below, we represent how some services and conventional clinic experience stages are moving to the cloud. In the table on the following page, we summarize how the traditional approach has changed with respect to common spaces, and extrapolate some key take-aways for change-ready facilities.
<table>
<thead>
<tr>
<th>Traditional</th>
<th>Innovations</th>
<th>Change-Ready Facilities</th>
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<tbody>
<tr>
<td>Registration at the office with paperwork to fill out and wait.</td>
<td>Online registration prior to visit</td>
<td>Touchpoint for check-in to enable a personal face-to-face interaction, while minimizing need for paperwork, wait and hand-offs, through optimum use of personnel and technology</td>
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<tr>
<td></td>
<td>Self-registration/kiosk</td>
<td>Connectivity between first touchpoint, admin staff and clinical staff in clinical destination area</td>
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<td></td>
<td>Greeter/concierge/check-in</td>
<td>Use of modular furniture (with ability to flex) for all frontline personnel</td>
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<td></td>
<td>In-room registration (by MA*/ PSR*/ PSA )</td>
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<tr>
<td></td>
<td>Challenges: need for a broader skillset and cross-training for staff, need for flexibility to accommodate changing registration/check-in models</td>
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<tr>
<td>Waiting Room with TV, magazines, vending machines</td>
<td>Eliminate need for waiting areas in lieu of pause areas</td>
<td>Pause spaces with comfort and connectivity to accommodate wait, but ability to add value to wait through engagement and education</td>
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<td></td>
<td>Waiting concourse spaces – smaller spaces for waiting instead of a large waiting area</td>
<td>A strong sense of place throughout the facility, based on selection of colors, materials, daylight, thermal comfort, acoustics, etc. that provides a positive experience, while ensuring efficiency, timely delivery of care and overall cleanliness and hygiene</td>
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<tr>
<td></td>
<td>Provision for well-designed educational material (e.g., educational and interactive art) directed at wellness and informed decision-making</td>
<td>Important to tailor the sense of place to the specific target demographic and be aware of the inter-generational acceptability – too much of a spa-like feel may be undesirable to more conventional baby boomers</td>
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<td></td>
<td>Community gardens that can encourage healthy living</td>
<td>Consider value-added wait so patients and families can be educated and engaged in the pauses that lead up to the clinical encounter</td>
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<td></td>
<td>Cafés that serve only healthy food, and provide small-group healthy cooking classes</td>
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<td></td>
<td>Spa-like ambience aimed at sensory comfort, visual appeal and personal control</td>
<td>Exam/consult family-friendly room set up for meaningful face-to-face interaction between patient and provider, with:</td>
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<tr>
<td></td>
<td>Use of white noise/pink noise/music as a noise buffer</td>
<td>• High connectivity (information access, ability to reach out to remote sites and connecting to support staff in the clinic)</td>
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<td></td>
<td>Challenges: scaling of waiting area is dependent on processes, which are constantly ebbing and flowing</td>
<td>• Flexibility to incorporate different needs/functions (for different clinic types)</td>
</tr>
<tr>
<td>Exam Room</td>
<td>In-room registration (as needed)</td>
<td></td>
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<tr>
<td></td>
<td>Consult areas/consult rooms</td>
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<td></td>
<td>Replacing the exam table with sophisticated exam chairs, including those that convert to a bed</td>
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<td></td>
<td>Grouping of rooms that flex between exam rooms and consult rooms, allowing physician and patient to move from one type of room to the other and enable patient access to range of care providers (Example – one exam, two consult interconnected)</td>
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<tr>
<td></td>
<td>Consult areas in addition to exam table in room</td>
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<tr>
<td>Traditional</td>
<td>Innovations</td>
<td>Change-Ready Facilities</td>
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<tr>
<td>Exam Room Cont’d</td>
<td>Use of couches instead of chairs (to allow family to sit together – couches can convert to beds)</td>
<td>• Wide range of people such as care team, family members, and people with varying mobility and space needs (geriatric, wheelchair, bariatric, etc.)</td>
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<td></td>
<td>Digital connectivity (telemedicine provision through computers and mobile carts)</td>
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<td></td>
<td>Sliding/barn doors for better access</td>
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<td></td>
<td>Dual entrances to accommodate on-stage/off-stage flow</td>
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<td></td>
<td>Computer location that facilitates patient-provider interaction</td>
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<tr>
<td></td>
<td>Mobile furniture to allow different types of technology and adapt to consult environment</td>
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<tr>
<td></td>
<td>Challenges: exam room utilization balanced with exam room availability</td>
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<thead>
<tr>
<th>Discharge Area</th>
<th>Check-out in consult/exam room using mobile technology</th>
<th>Flexibility to allow different modes of discharge</th>
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<tbody>
<tr>
<td></td>
<td>Provision for unassigned multi-purpose room in clinic areas as a backup for extended discharge/scheduling activities that can tee up to consult areas</td>
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<thead>
<tr>
<th>Private Offices and Nurse Stations</th>
<th>Physician and clinician workspace</th>
<th>Workspaces that have:</th>
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<tbody>
<tr>
<td></td>
<td>Workspaces and team stations set up with open offices and collaborative team stations, with systemic connectivity and flexibility to accommodate changing team configurations</td>
<td>• High physical connectivity (proximity) between physicians, case managers, medical assistants and other team members</td>
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<tr>
<td></td>
<td>Work stations for physicians and support staff in open work areas</td>
<td></td>
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<td></td>
<td>On-stage/off-stage separation to allow:</td>
<td>• High digital connectivity that allows patient tracking and information access at a systemic level</td>
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<td></td>
<td>• Separate staff and patient flow</td>
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<tr>
<td></td>
<td>• Enhanced patient experience (quiet, sedate, personal)</td>
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<td></td>
<td>• Better team collaboration (visual support and proximity)</td>
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<td></td>
<td>• Control the communication buzz in the staff areas and separate it from patients, allowing better privacy and lower noise</td>
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</tr>
<tr>
<td>Traditional</td>
<td>Innovations</td>
<td>Change-Ready Facilities</td>
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<tr>
<td>Private Offices and Nurse Stations, Cont’d</td>
<td>Hoteling stations and touch-down stations to accommodate flexing of care team members</td>
<td>A range of spaces that allow collaboration, while allowing private telehealth or phone conversations, which can be achieved through</td>
</tr>
<tr>
<td></td>
<td>Separate call centers to reduce load on the calls taken in clinician work area</td>
<td>• Using flexible and modular furniture</td>
</tr>
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<td></td>
<td>Work stations/hoteling offices for health coaches, behavioral health specialists, clinical pharmacists and case managers on site</td>
<td>• Having inherent flexibility in spaces to expand and contract for a variable care team</td>
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<tr>
<td></td>
<td>Proximity between different specialties, and to diagnostics, in larger MACCs</td>
<td></td>
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<tr>
<td>Conference Rooms</td>
<td>Group education spaces for community education (that can flex in size)</td>
<td>Group congregation spaces that can be flexed to different sizes to allow optimal utilization (can be used as backup for extended discharge or scheduling)</td>
</tr>
<tr>
<td></td>
<td>More touch-down and huddle spaces than closed conference rooms</td>
<td></td>
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<td></td>
<td>Larger consult areas to accommodate small groups in conversation</td>
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<tr>
<td>Single corridor shared by patient and staff</td>
<td>Patient movement/flow separated from staff movement/flow through the on-stage/off-stage configuration</td>
<td>Clear demarcation of patient and staff flow to allow parallel goals of enhanced patient experience and increased process efficiency</td>
</tr>
<tr>
<td></td>
<td>Open-plan teamwork core (not in patient corridor) that all physician and staff traffic move through</td>
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</tbody>
</table>
Five principles have emerged from the drivers and trends, case studies, and consumer and physician surveys that define this change-ready core. These also take into account the feedback from the research advisory and a think-tank meeting with clinicians, architects and interior designers.

**SPACE TYPE**

**Consult Space:** Care. Communicate. Educate. The exam area is the nexus of a successful clinic practice; however, the exam room is less about full-body exams and more about whole-health consults today (especially in primary care). While specialty clinics will have specific needs from the exam area, the notion that clinical services are now supplemented with lifestyle and mental health education changes the dynamic of the exam room. The need is now for consult spaces that incorporate patients, families, diverse care teams and advanced technology. Activating the patient to take ownership of his or her health and stay healthy means a fundamental shift from examination (where the patient is a passive recipient) to consultation (where the patient is an active participant). Evidence does not suggest that consult-only rooms can replace exam rooms, although the idea has been successfully implemented in this report’s case studies. Rather, the idea of having a range of spaces that allow different levels of conversation (one-on-one, family, group, etc.) needs to be considered.

**Workspace:** Efficient. Collaborative. Engaged. With the growing number of team members and complexity of roles, the workspace in clinics for providers and staff members is a driving facility concern. Spaces that can foster collaboration and care coordination, while also keeping in mind HIPAA considerations of patient privacy, are important. The debate between private offices and open offices is now entering the healthcare sector. It is important to know that, for physicians, the types of spaces they currently have bias their preferences. Many younger physicians who have experienced the non-office environment are supportive of the concept and how it enhances collaboration. For staff members to work as collaborative teams, centralized, shared workspaces - linked to a streamlined workflow that consolidates all care activities within the exam/consult room can be effective. The goal of the workspace must also be to simplify the patient/family experience and intensify the relationship between provider and staff.

**SPACE CHARACTERISTICS**

**Connected Space:** Access to Cloud, Clinic and Community. Regardless of how clinics evolve in the next few years, connectivity will be key. This includes digital integration, allowing data access and sharing of medical records across systems, as well as provision for remote monitoring and remote delivery of healthcare practices. Scheduling, registration, check-in, examination and follow-up care are all seeing a larger telepresence, which has implications for a redefined footprint and large cloud-print. Facilities will have to consider data ports, access to television screens, mobile furniture that can allow different kinds of technology access (tablets, desktops, etc.) and inherent flexibility. Facilities will also need better geographical access and strategic locations that allow convenient access and reach.

**Flexible Space:** Scalable. Adaptable. Modular. Flexibility is an absolute essential in clinics. As services move to the cloud and start bringing in the community, the clinics themselves will begin to shapeshift. Already, exam areas are transforming into talking rooms, cafés are converting to community kitchens and conference areas are becoming group education spaces. Clinics are rapidly rotating specialties, adding or removing units and accommodating a changing workforce. Key components are: modular design (where key units can be configured around set modules); modular furniture; and standardization so models can retain functionality and allow pre-fab construction when speed to market is a concern. Each health system must develop its modules based on its core values; modules can then be scaled and adapted as need.

**Sense of Place:** Brand. Recognition. Experience. In an exceedingly crowded marketplace, facilities can be a differentiator. To attract patients, a health system’s reputation is key, and reputation relies on perceptions crafted through different media, including the physical environment. Cleanliness and hygiene, ease of access and wayfinding, a pleasant waiting experience, positive distractions, daylight, comfortable furnishings and a comfortable sensory environment (temperature, noise, visual appeal) all add to the sense of place. There is an additional opportunity to cultivate a sense of place that is synonymous with developing trust and a relationship with a system. At the end of the day, people trump place, but a sense of place can help define and foster stronger relationships between people.
SPACE CHARACTERISTICS

CONNECTED SPACE
- To cloud. To team. To community.
- Easy access to site (physical + virtual)
- Strategic location
- Connectivity between key spaces (physical + digital connectivity) that allow optimum workflow
- Connectivity between key team members (physical + digital)
- Connectivity between patient and provider (physical + digital)
- Easy access to information
- Wi-Fi access

FLEXIBLE SPACE
- Ability to expand and contract based on varying needs
- Ability to rotate functionality
- Ability to accommodate rapidly changing technology

SENSE OF PLACE
- Materials, finishes and configurations that promote cleanliness + perception of cleanliness
- Configurations and ambience that support meaningful interactions between patient and provider
- Comfort (sensory)
- Quiet
- Visual Appeal
RECAP

Trends and Drivers: When we started our journey, we did not know where our investigation would take us. We deliberately started broad, to understand what was driving the trends we see in the clinic designs today. We identified five key drivers: a changing healthcare system spurred by healthcare reform; an emerging patient population that spans multiple generations and faces more complex and chronic conditions; new team-based care models in response to physician shortage and care management needs; advancements in technology and big data; and finally, the advancement in the field of medicine that is pushing us toward more precise and personalized medicine. We also identified five key trends resulting from the drivers: mHealth, telehealth, coordinated health, population health and retail health.

We then captured the facility implications for each trend. These included innovations in configuration (use of on-stage/off-stage concepts to separate staff and patient flow) in-room registration through discharge processes, use of greeters and concierge services to change the nature of touch points, open office spaces replacing the private offices, etc. For a complete list, see Table 5.a. “Key Take-Aways for Change-Ready Facilities” on page 76.

Case Studies and Surveys: We selected three case studies which exemplified key trends of coordinated care, population health and retail health. The research team interviewed senior leadership at each site and got their feedback regarding the innovations that they had implemented.

We also got their perspectives on what aspects of healthcare they thought would change, and what would stay the same. Physicians spoke about the growing need for follow-up care and managing health. While open to telehealth, their concern was getting reimbursed by insurance. Telehealth emerged as the most sustainable trend, beyond a passing fancy, in the large physician survey conducted. Insights from the case studies and the two patient surveys (with patients – boomers and millennials – and physicians) are summarized in the previous section.

Top Three Take-Aways: A big take-away for us was that patients, across all age groups, did not think of themselves as consumers. We also found that cleanliness was a top-of-mind concern across all age groups and with both physicians and patients. This implies that for a clinic, perception of cleanliness is key. Finally, we found that time with patients is the key to both patient and physician satisfaction. The relationship between the patient and the provider is the key to a successful practice – and while the provider may change and the structure may evolve, the role of the physician will still be key. This led us to conclude that one of the key areas in the clinic is the consult space – the space where patient-provider interactions are reinforced.

Two Key Spaces — Consult Space and Workspace: Regardless of how supporting functions like check-in, registration, diagnostics and discharge evolve – and whether or not a facility determines that they need an exam table in each room or just in a few key procedure rooms – the consult space will not go away. However, with changing technology and shifting care models, this space must have flexibility to grow, contract and/or change, and it must have the connectivity to enable telehealth and connectivity within the system for care teams. The trend of using large-group education spaces hasn’t yet been put to the test in terms of utilization. The flexing of spaces – for example, using health cafés to double as space for cooking classes, using conference rooms to flex and merge into larger education spaces, etc. – is perhaps more change-ready than assigning large real estate to functions that are not held on a daily basis.

This implies that the other core space for consideration should be the workspace. The workspace has to be designed around the dynamics of care teams and connectivity between them. Care models are still in flux, and different systems continue to experiment with the optimum care model. Medical assistants and case managers have a pivotal role in this evolving paradigm. However, there are also many new members to the team – the health coach, behavioral health specialist, nutritionist, etc., who do not keep the same hours as the rest of the staff. Some facilities provide assigned rooms where these professionals can visit with the patient. But, once again, utilization of such spaces has not been studied. Hoteling stations are a solution,
and have been tried, but can only be successful if enough flexibility exists in the consult spaces. The success of open offices in clinic settings has not yet been put to the test, but the case studies show that if a few challenges can be addressed (noise and privacy for non-team activities, including phone calls), this could be a solution that reduces the footprint while improving care coordination and management.

Three Key Characteristics: Connectivity, Flexibility and Sense of Place
Walking through the facility innovations and distilling from them what a change-ready facility may entail (based on insights from case studies and surveys), we identified three key characteristics of the clinic space.

1. **Connected Space**: Location of site that connects to the community, systemic connectivity in terms of key services and technology, online access to information and tracking patient flows, patient access to their own cloud space through Wi-Fi connectivity on site and sophisticated portals for mobile phones off-site, and connections between patient-providers and teams. This has strong implications for including IT early on in the design conversations.

2. **Flexible Space**: Ability of the clinic to expand and contract within reasonable expectations, and use strategies such as modular design and modular furniture to do so. It is not clear how prefabrication can help in flexibility, but it is worth further investigation. It is also not clear if facilities that did build structural flexibility do, in fact, use this (for example, does modular furniture ever get reconfigured; do walls get moved?). It is likely that functional flexibility (allowing spaces to serve multiple functions) may trump structural flexibility, but this warrants further investigation. That said, early conversations with general contractors and different trade partners, including FF&E, is important to exploring flexibility at every level.

3. **Sense of Place**: Much of the feedback from the surveys was around perceptions. For example, many patients stated that their decision to select a clinic for a first visit was based on cleanliness – but how can one know the cleanliness of a space prior to visiting? This implies that a system or a facility has a perception of cleanliness that must be enhanced. Many facility considerations that were prioritized – such as daylight, quiet environments, visual appeal and good wayfinding – are really about creating an overall ambience that connects with the patient. We capture this in an overall sense of place that must be designed based on the targeted demographic. Having clean, convenient and aesthetically pleasant environments that can help the patient feel comfortable, and be distinctive enough to be memorable, are all part of this sense of place. This is, to a large extent, an interior design concern but has to be coordinated with the exterior and access. While clinics may change in the coming years, one of the core functions of design will be to define a sense of place that makes the clinic more appealing to the patient, who has many choices, but will not necessarily exert that choice if he/she is satisfied on the first visit. Attracting patients is important, but retaining patients is even more important for clinics today.

Limitations and Next Steps
This study is just the first step of many in understanding how we can design for change, without being consumed by the myriad trends we see today. Our intent was to distill the findings to a few key principles that can stand the test of time. As with any study that tries to capture the pulse of the industry, by the time the report is written, it is already dated. It is important to remember that our review of the literature continued until the end of 2014, and this literature needs to be revisited periodically to keep it current. We are, therefore, considering Clinic 20XX a living document that will continue to be updated. Our sample size was also quite low (300 patients and 100 physicians) and did not include staff members who are a key part of the care team. In the next cycle of the report, we will poll staff members. The database of surveys will continue to be built upon, and updates to the surveys will be published at regular intervals as well.

Finally, the report did not address the intricacies of different care team structures that are emerging. In being a broad-based study, many opportunities for deep dive research have been identified, and will be a focus for the research team going forward. This is a collaborative project and we would welcome participation from both industry and academic partners as we forge ahead.
THE CHANGE-READY CORE

DRIVERS

D1 | SYSTEM
more access,
more accountability

D2 | PATIENT
four generations, changing
expectations, chronic
conditions

D3 | PROVIDER
physician shortage,
extender increase

D4 | FIELD
advanced diagnostics, precise
and personalized medicine

D5 | TECHNOLOGY
technology boom, big data and
construction advancements

TRENDS

T1 | mHEALTH
health at hand

T2 | TELEHEALTH
remote access

T3 | COORDINATED CARE
coordination between patients,
providers and systems

T4 | POPULATION HEALTH
community-based health

T5 | RETAIL HEALTH
choice-based health

FACILITY IMPLICATIONS

F1 | CONSULT SPACE
beyond exam to care,
communicate, educate

F2 | WORKSPACE
efficient workflow, collaborative
culture

F3 | CONNECTED SPACE
physical and virtual access and
connectivity between cloud,
clinic and community

F4 | FLEXIBLE SPACE
scalable, adaptable, modular

F5 | SENSE OF PLACE
enhanced experience through
features that promote safety,
cleanliness, sensory comfort,
ease of wayfinding and
emotional well-being
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**Retail Health**


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