Spectrum Health System Master Plan

Ambulatory Care Models And Example Spaces

March, 2020

Healthcare Delivery Is Evolving To A Population Based, Digitally Enabled System Widely Distributed In The Community

Since the end of the Hill-Burton Act and the opening of the first ambulatory surgery center in 1970 how and where care is provided has disaggregated into multiple types of facilities and modes of care.

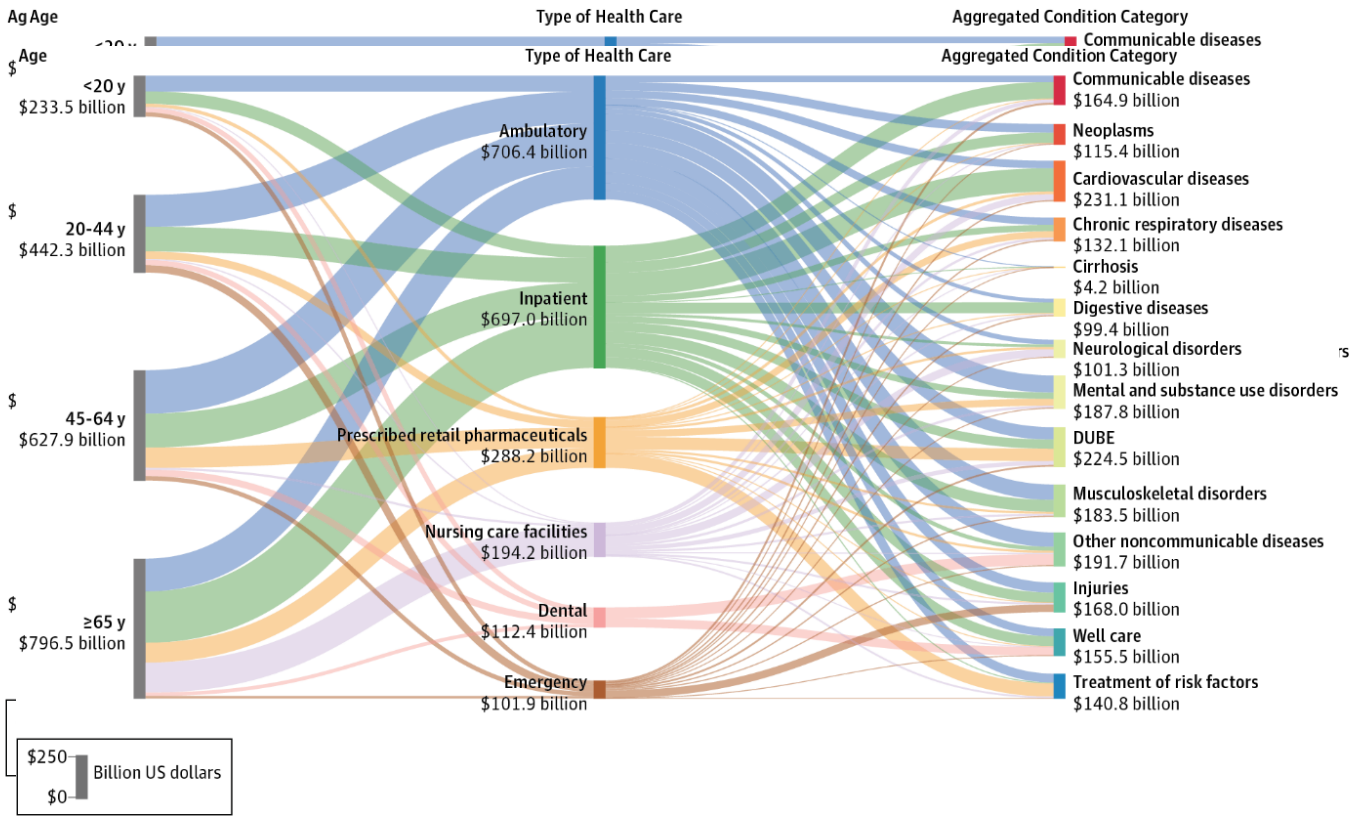
With the advent of digital health powered by artificial intelligence and genomic science medical care will become personal and portable.

“Population health management is a strategy that keeps patients as healthy as possible, reducing the need for hospitalizations, emergency room visits and medical procedures.”

https://www.henryford.com/hcp/hfpn/purchasers/value-based/population-health

Image: Cerner

While different demographic groups consume health care differently, they all share one thing in common – a desire for convenience, access, and affordability.



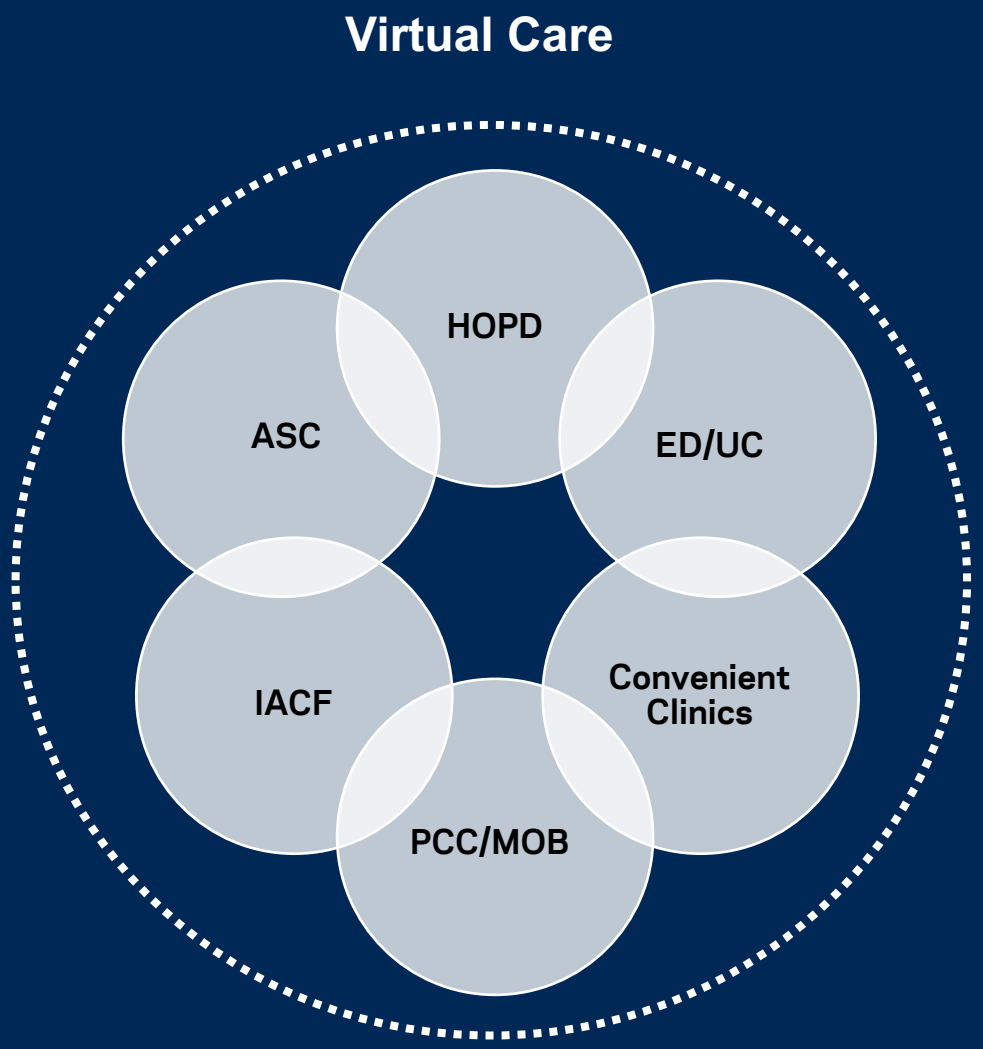
Not all populations use health care in the same way.

Understanding local demographic and health data and social determinants of health is key to designing an ambulatory response that optimizes health in the communities HFHS serves.

The Ambulatory Care Ecosystem

Each program must match the strategy and market to be served.

- All health care and especially ambulatory care will have a digital component
- Design must ensure it's proper integration into the ecosystem
- There are no firm physical boundaries among the typologies



Ambulatory Care Typologies

Intense Ambulatory Care Facilities

Procedure and surgery heavy, specialists, emergent/urgent care, some beds for observation and recovery.

Continued growth and blending of IACF and micro-hospital.

Ambulatory Surgery Centers

Single and multi-specialty.

Continued growth as they outperform HOPD's on cost and new procedures move to ambulatory: Hip, knees, cardiac cath, e.g.

Hospital Outpatient Departments

Under pressure from payers to reduce costs to match freestanding centers.

Freestanding Emergent/Urgent Care Centers

Continued growth for urgent care. Emergent care dependent on state CoN laws.

Expect Mobile Integrated Health to be a key part of the emergency response/connected health continuum.

Medical Office Building

Classic MOBs will adapt to the emerging typologies listed here.

Primary Care Centers/ Medical Home

Manage chronic disease and promote wellness.

They begin to integrate with the 'healthy communities' movement and adopt a wide range of digital technologies to provide connected care and promote well-being.

Convenient Clinics

Plateauing or slow growth as retail pharmacies decide whether they want to be in the seasonal cough and colds business or full urgent/chronic care management.

Virtual Care

Rapid growth as payers continue to approve new use cases and technology improves.

Especially valuable in risk-based plans so will follow the volume to value adoption curve.

Primary care and virtual care will be indistinguishable.

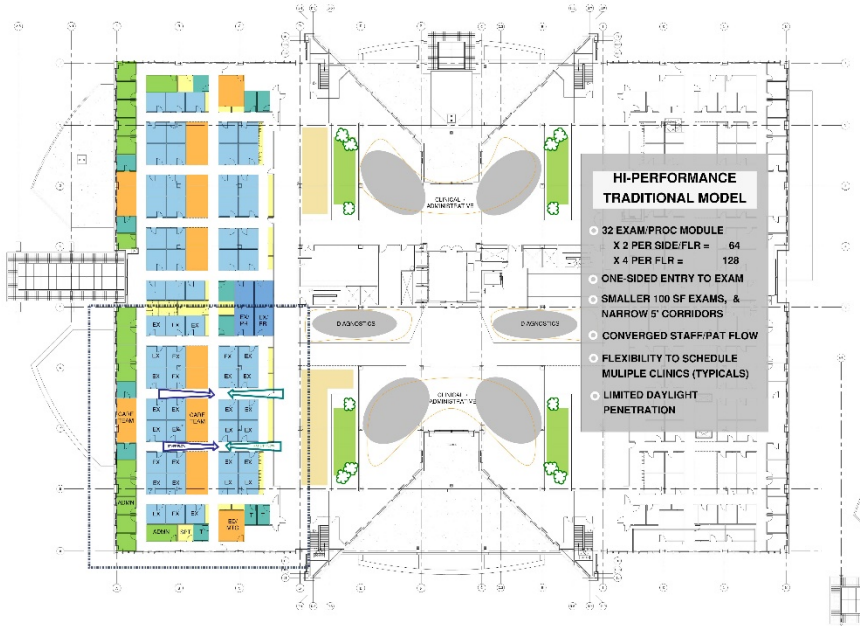
Ambulatory Care Exam Room Module Considerations

OUTPATIENT CARE MODULE - RANGE (assumption 6 pts/day / exam room average
250 days/year at 8 hours per day
MODULE: 8/10/12 Exam/Tx Rooms - 8,000 DGSF - Visit Range 12-18,000 Visits

Visits	12,000	15,000	Visits	16,000	18,000
Days/Year	250	250	**Days/Year**	250	250
per day	48	60	**per day**	64	72
Exam rms	**8**	**10**	**Ex/Procedure**	**10**	**12**
pts/d/x	**6**	**6**	**pts/d/x-proc**	**6**	**6**
Procedure	2	2			
Consult	4	2	**Consult**	4	2

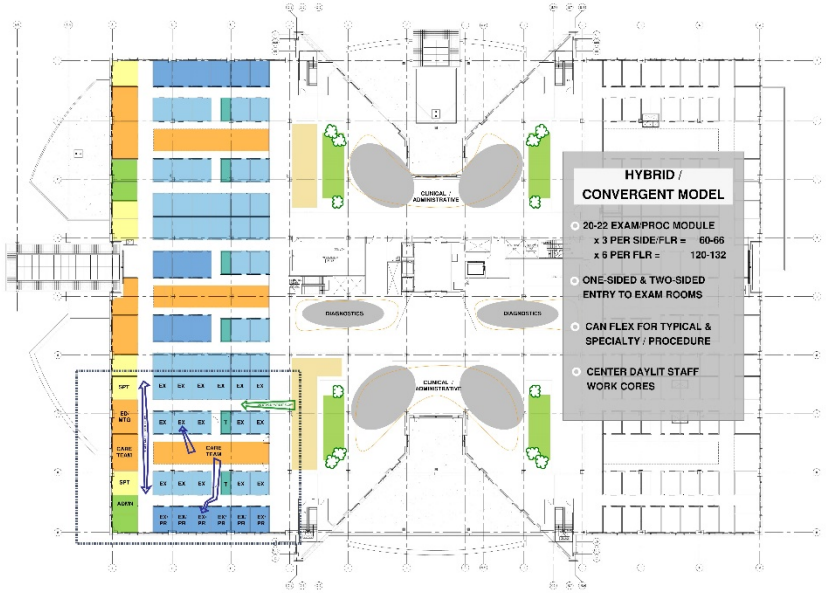
Workrooms	2 @ 320	Teams (MD, NP,RN,Res, Fellows)
Workstations	6 @ 30	MA/other distributed
Phleb	2@ 60	or shared between 2-3 practices
Workstations	4	(others- CM, CRN, CRA, SW, et al)
Check in/out/Sched/Ref	2:3 ratio	dependent on Model (1:3 / 1:4 e.g. #4 could be pt edu)
Waiting seats	2:01	x/procedure rm
Toilets, Patient	2	
Offices		
RN/NM: Business/Practice	2	priv/shared
NPs/PAs	3	shared
Conf.Rm/Pt Edu	1	(240 nsf)
Support		
Clean Supply	1	or shared between practices
Equipment Storage	1	or shared between practices
Soiled Utility	1	or shared between practices
Equipment Alcoves		per practice
Linen Alcove		per practice
Emergency Equip/Stretch Hold		Shared on floor
Lounge/Kitchenette Staff		Shared on floor
Lockers, Staff		Shared on floor
Toilets, Staff		
Soiled Holding		1 per floor

Ambulatory Care Models: Performance & Operations



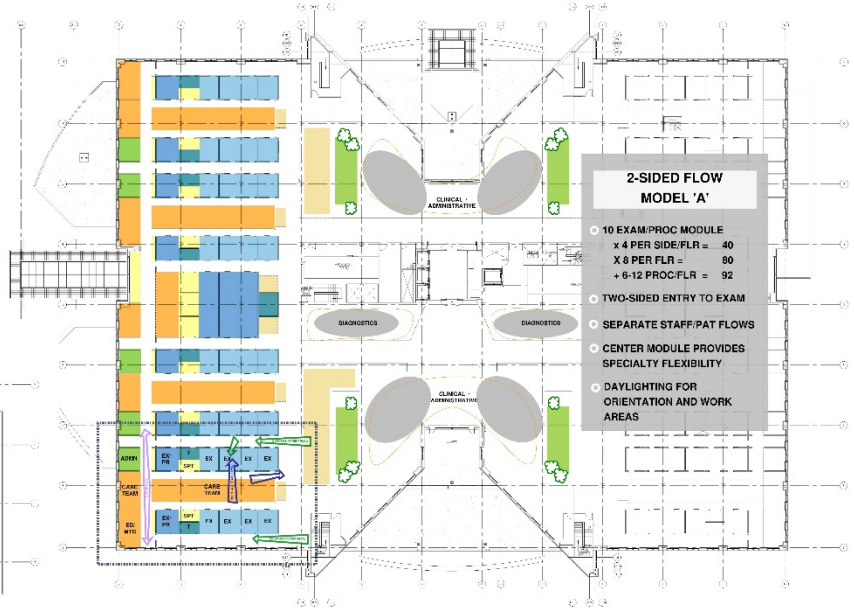
HI-PERFORMANCE TRADITIONAL MODEL

- 32 EXAM/PROC MODULE
  X 2 PER SIDE/FLR = 64
  X 4 PER FLR = 128
- ONE-SIDED ENTRY TO EXAM
- SMALLER 100 SF EXAMS, & NARROW 5' CORRIDORS
- CONVERGED STAFF/PAT FLOW
- FLEXIBILITY TO SCHEDULE MULIPLE CLINICS (TYPICALS)
- LIMITED DAYLIGHT PENETRATION



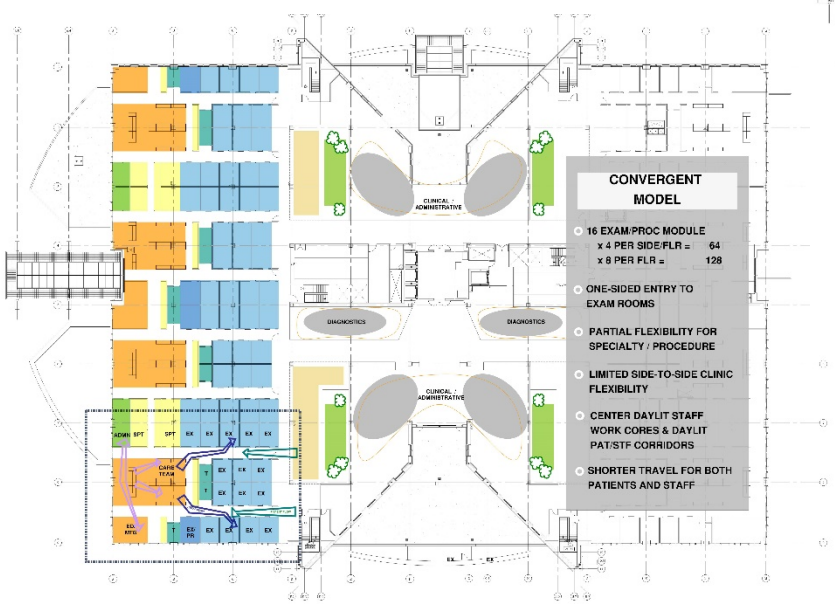
HYBRID / CONVERGENT MODEL

- 20-22 EXAM/PROC MODULE
  x 3 PER SIDE/FLR = 60-66
  x 6 PER FLR = 120-132
- ONE-SIDED & TWO-SIDED ENTRY TO EXAM ROOMS
- CAN FLEX FOR TYPICAL & SPECIALTY / PROCEDURE
- CENTER DAYLIT STAFF WORK CORES



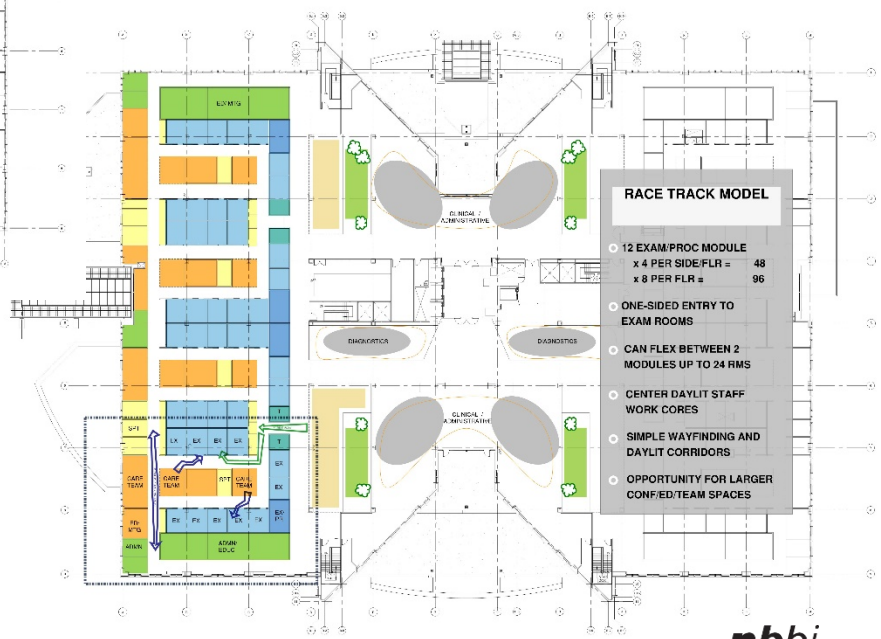
2-SIDED FLOW MODEL 'A'

- 10 EXAM/PROC MODULE
  x 4 PER SIDE/FLR = 40
  X 8 PER FLR = 80
  + 6-12 PROC/FLR = 92
- TWO-SIDED ENTRY TO EXAM
- SEPARATE STAFF/PAT FLOWS
- CENTER MODULE PROVIDES SPECIALTY FLEXIBILITY
- DAYLIGHTING FOR ORIENTATION AND WORK AREAS



CONVERGENT MODEL

- 16 EXAM/PROC MODULE
  x 4 PER SIDE/FLR = 64
  x 8 PER FLR = 128
- ONE-SIDED ENTRY TO EXAM ROOMS
- PARTIAL FLEXIBILITY FOR SPECIALTY / PROCEDURE
- LIMITED SIDE-TO-SIDE CLINIC FLEXIBILITY
- CENTER DAYLIT STAFF WORK CORES & DAYLIT PAT/STF CORRIDORS
- SHORTER TRAVEL FOR BOTH PATIENTS AND STAFF



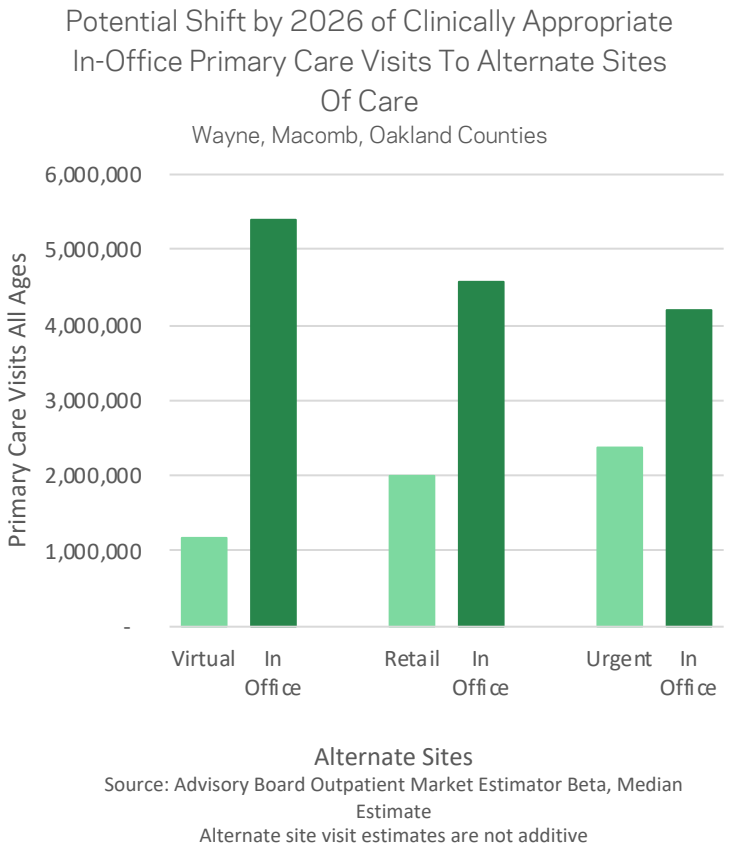
RACE TRACK MODEL

- 12 EXAM/PROC MODULE
  x 4 PER SIDE/FLR = 48
  x 8 PER FLR = 96
- ONE-SIDED ENTRY TO EXAM ROOMS
- CAN FLEX BETWEEN 2 MODULES UP TO 24 RMS
- CENTER DAYLIT STAFF WORK CORES
- SIMPLE WAYFINDING AND DAYLIT CORRIDORS
- OPPORTUNITY FOR LARGER CONF/ED/TEAM SPACES

nbbj NAVIGANT Spectrum Health nbbj

Strategic Planning: Designing For The Right Facility

This graph depicts the effect that alternate sites of care could have on the delivery of traditional in-office primary care. We projected in-office visits for general, family, internal medicine, OB/GYN, and pediatric primary care for Wayne, Macomb, and Oakland, Michigan counties resulting in an estimate of 6,600,000 visits in 2026.

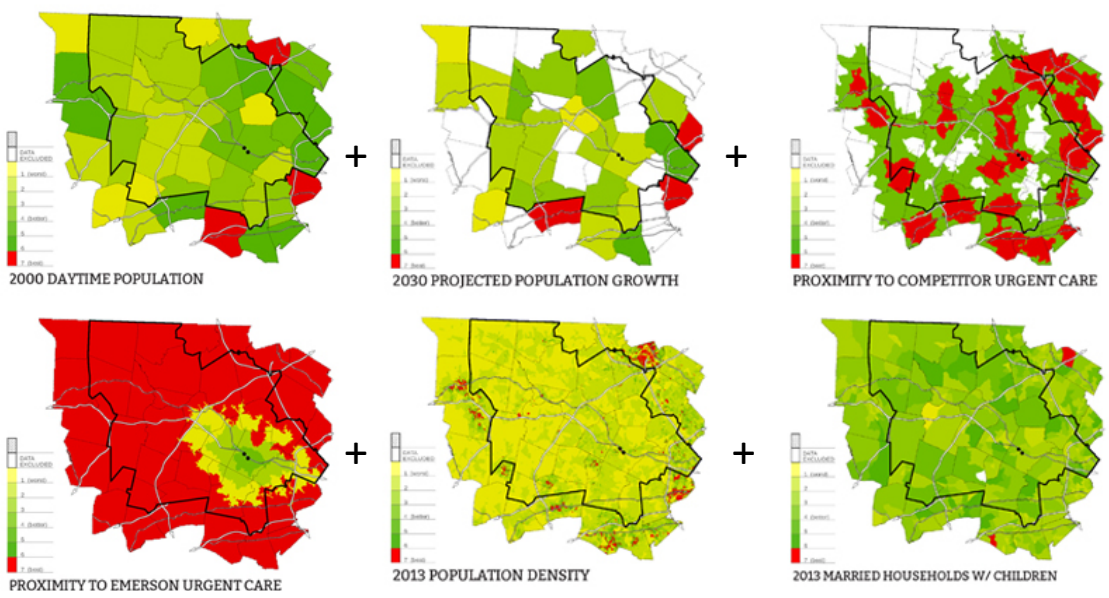


We then examined the effect alternate sites of care for clinically appropriate visits could have on that estimate. As the graph depicts urgent care has the largest substitution effect because generally this setting offers a wider range of services than either virtual or retail care.

Ambulatory planning must take into account these effects in order to ensure that the right type of facility is being built for the future.

Strategic Planning: Designing For The Right Place

The data for each criterion was drawn from a variety of sources, weighted per the client's preference, and analyzed through an algorithm resulting in the recommended locations.



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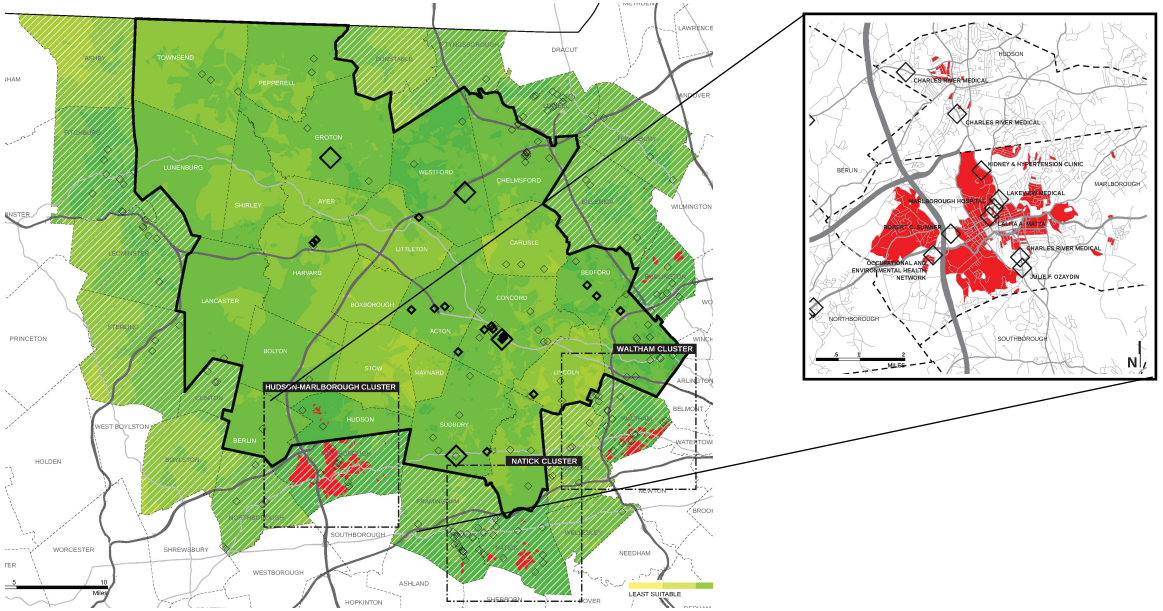
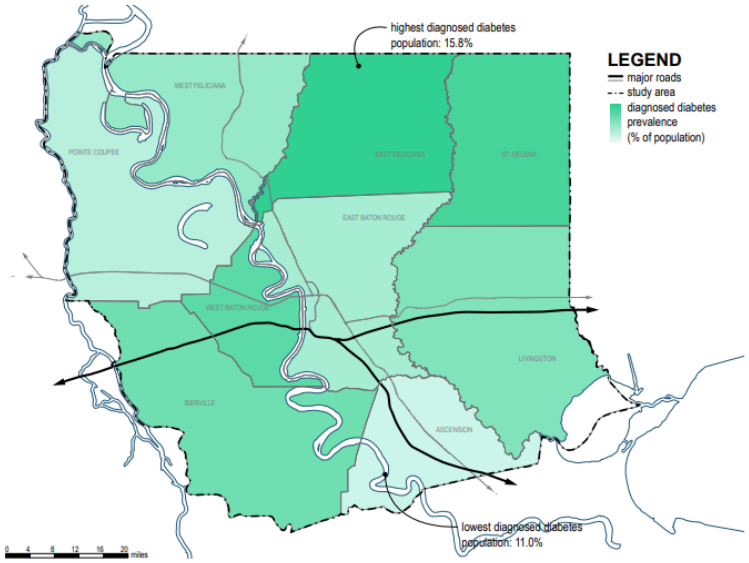


A health system, in a highly competitive market in Massachusetts, asked NBBJ to recommend locations for urgent care sites. We selected specific criteria to pinpoint these locations at the census block-group level.

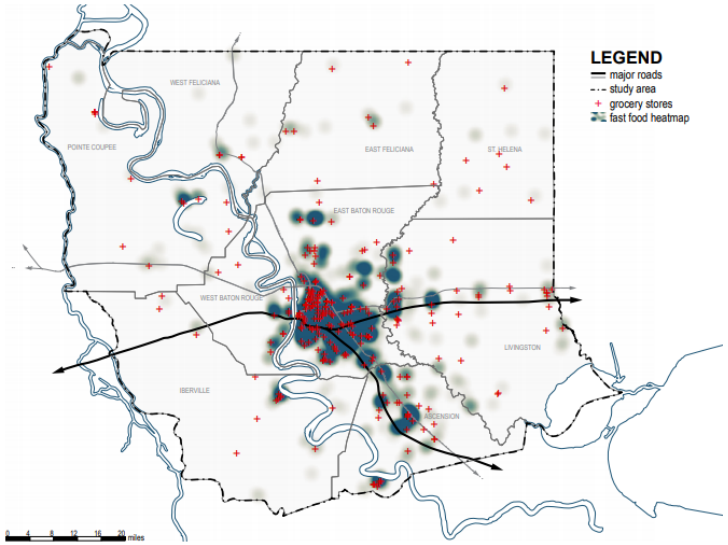
- **Growth criteria** included market projections for urgent care, population, and density of growth
- **Proximity criteria** included distance from competitors, the client's physician and urgent care affiliates, primary schools, major roads, and retail
- **Demographic criteria** included median age, number of employer insured, median household income, the client's existing patient density, married households with children, and daytime population

Strategic Planning: Designing For The Right Population

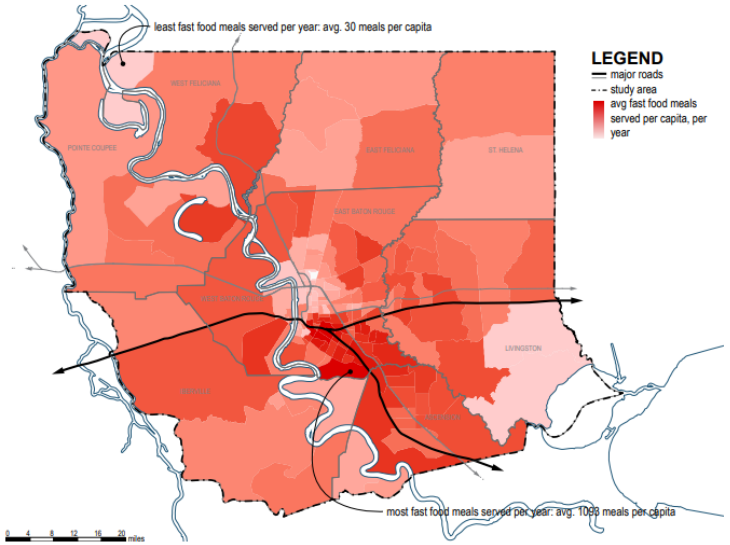
Diagnosed Diabetes Prevalence



Fast Food Restaurant Location Heat Map



3. Fast Food Meals Served per Year



These maps display diabetes in the Baton Rouge area and indicate that diabetes is more prevalent in areas with limited food access.

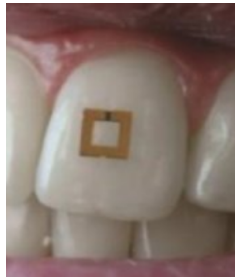
This can affect both the placement of medical services and where health interventions should first be implemented to positively impact the population.

For purposes of this study we used zip codes as the geographic unit, but it is our preference to use the smallest geographic unit whenever possible.

Technology Revolution: Designing for the human/technology interface

Abbott i-STAT Blood Analyzer

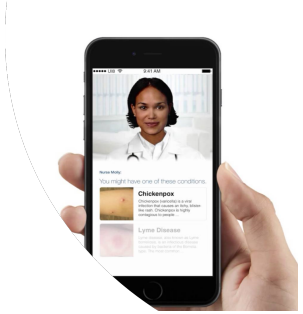
VitalPatch Vital Sign Monitor



Glucose, Salt and Alcohol Sensor

Seamless MD Pre & Post Op Engagement

Tytocare Home Physical Exam



Sensely Remote Monitoring and Episodic Care

MinION Portable DNA and RNA Sequencer

medically home

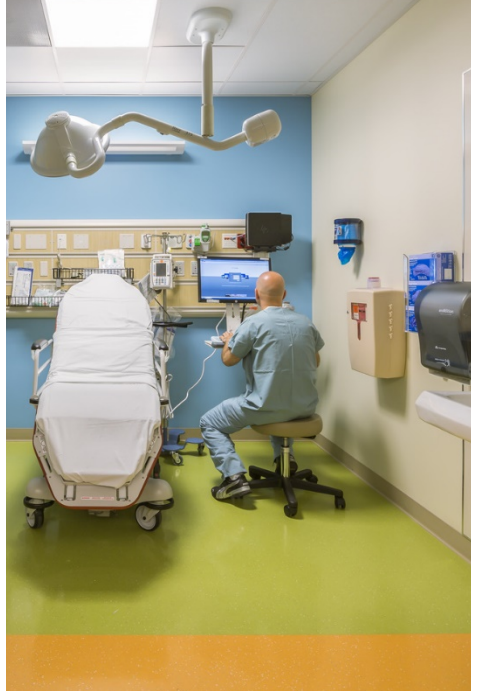
Hospital At Home

The ability to diagnose, treat, and manage care virtually is advancing rapidly.

- Point of care testing, whether in an ambulatory setting or home, has to be carefully implemented to ensure efficient workflows and low cost

Our human ability to incorporate and adapt this technology as rapidly as it evolves is challenging.

- People are linear while technology is exponential
- Designing for this human/technology interaction is a key aspect our practice



Innovation: Space Planning and Process Flow

Ambulatory Planning Principles
Best and Leading Practices

Ambulatory Care Planning Principles

1. Access: Care When I Want it and Need it

- Extended, level loaded hours on weekdays along with Saturdays and Sunday hours to improve access, to offer patient convenience and to reduce unnecessary ED visits. A typical ambulatory facility open 40 hours per week uses only 24% of available time.
- Accurate understanding of required visit times and scheduling allows for efficient room utilization, improved availability to see a provider, drives patient compliance and ensures revenue generation for the organization.
- Simplified follow-up care access for ED patients to eliminate unnecessary admits and reducing cost for the patient.

Ambulatory Care Planning Principles

2. Multi-disciplinary Team Centered Around the Patient

- Providers and equipment come to the patient back stage reducing patient movement and increasing satisfaction
- The entire multidisciplinary care team is available to each other and the patient providing timely consultation and results, avoiding the visit treadmill.
- Technology tools enhance communication, patient tracking and visit management
- Promote staff efficiency by minimizing distance of necessary travel between frequently used spaces

Ambulatory Care Planning Principles

3. **Creating Flexible Environments and Standardized Rooms**

- Follow modular design concepts by implementing standard room sizes based on function, reducing in highly specific spaces, and sharing support functions
- Create a more generous ratio of group visit and talking rooms (i.e. consult spaces) as compared to exam rooms
- Standardized procedural rooms emphasize flexibility with moveable equipment (US, EMG, EKG) allowing greater utilization potential

Ambulatory Care Planning Principles

4. Optimizing the Patient Experience

- As a rule, the shorter the visit the closer to the patient the facility should be
- Pre-visit planning to make the experience as meaningful and efficient as possible
- No, or minimal, waiting areas: Patients go directly to where they will be seen
- On-line and mobile technologies should be used as much as possible to eliminate trips to the ambulatory facility
- Personalized, branded and consistent patient journey steps across all care sites

Ambulatory Care Planning Principles

5. Delivering the Highest Value at the Lowest Cost

- Lower cost care should be in the lowest cost setting possible, including telehealth applications and remote patient monitoring
- Higher cost care should be in a multi-purpose ambulatory center that features complex procedures requiring sedation and/or extended stays, capitalizing on the higher construction costs
- Lower use functions can be aggregated into higher use facilities if it is necessary to serve a neighborhood, but careful consideration should be given to the cost and revenue per square foot for these functions in a higher cost facility

AMBULATORY EXAMPLES

	Model 1- Access	Model 2- Intermediate / Growth	Model 3- Advanced / Comprehensive	Model 4- Focused Hospital of the Future
				
Characteristics	• Small population or capture area • Can serve population health • 5-10 minute drive-time • 2,000- 12,000 GSF	• Growth/penetration strategy or community service need • Often suburban • 10-15 minute drive-time • 15,000-50,000 GSF	• Regional population draw • Specialist Office Space/Centers of Excellence • OP Surgery , FED • 20-minute drive-time • 35,0000-100,000 GSF	• Suburban or rural • 10-20 minute drive time; 18-20 miles to full-service hospital • Focus on low-acuity patients leaving more complex services and service lines to larger counterparts • 15,000-100,000+ GSF
Typical Services	• Primary, urgent care, extended hours, retail clinic, ER • Pediatrics and/or OB • X-ray (potentially mammography and U/S) • Lab draw, light diagnostics • Growing telemedicine capabilities	• PCPs (6-10) with select specialty • Extended hours, urgent care, retai clinic, ER • Imaging and therapy (PT, OT and Sports Therapy) • Cardiac testing and cardiac rehab • Retail pharmacy • Complementary alternative medicine	• Full physician complement • Comprehensive diagnostics • Wellness/ fitness center • Centers of Excellence • Surgery/ endoscopy • Complementary alternative medicine • Could complement ED or micro-hospital	• Inpatient • ED • Surgery • Imaging • Pharmacy • Lab • Attached MOB

Site Requirements	1-3 Acres	2-5 Acres	7-15 Acres	10-20 Acres
Population Base	5,000-12,500	15,000-25,500	40,000-60,000+	75,000-125,000

Neighbors in Health, Treating the Whole Person

Neighborcare Health, Meridian Center for Health

By unifying healthcare and human services in one place, Meridian Center for Health delivers comprehensive care to an under-served, low-income population. Patients can access multiple practitioners and services in one place.

Services include medical, dental, public health, mental health, chemical dependency, and human services. Community resources, such as housing placement and job training, address stressors that affect health.

Monumental Life - Enhancing Care and Revitalizing a Community

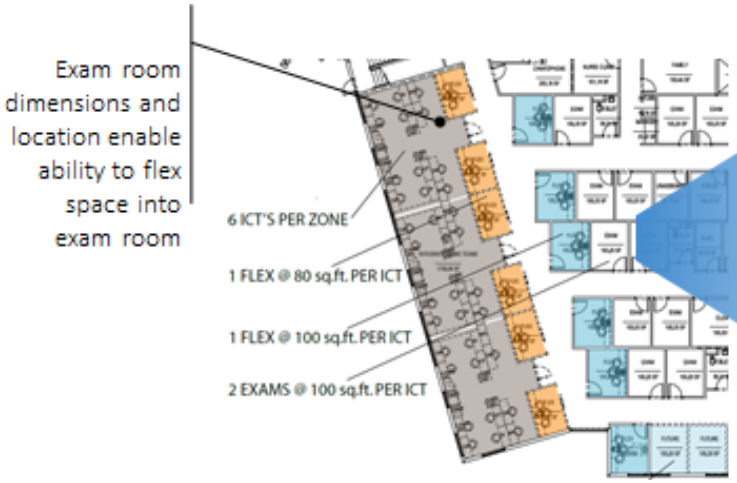
Chase Brexton Health Services (CBHS)

CBHS, a multi-site Federally Qualified Health Center, acquired the Monumental Life Insurance Building and transformed it into a health center to better serve the downtown Baltimore community.

Together, we redesigned the patient care experience, eliminating treatment silos, coordinating care, and personalized the relationship between patient and care team. New processes were tested virtually and real-time ensuring a seamless transition to a new way to work and give care.

Making Health a Lifelong Journey

Southcentral Foundation (SCF)



"Talking Room" Functions

- Less clinical setting for visits that do not require exam table
- Side-by-side consults that promote greater family participation
- Private clinician-clinician interactions
- Patient-clinician phone calls
- Accommodate waiting families

SCF, an early innovator in holistic, team based care, including tribal doctors and behaviorists. Each Integrated Care Team works on building a lifelong relationship with the patient and their family, bringing together mind and body and coordinating care across all boundaries.

Private physician offices were replaced with open team workspaces and "talking rooms" were designed to change the entire encounter—increasing respect, partnering, listening and joint health planning among care teams.

Hyperlocal Health Care – Bringing Care to Work

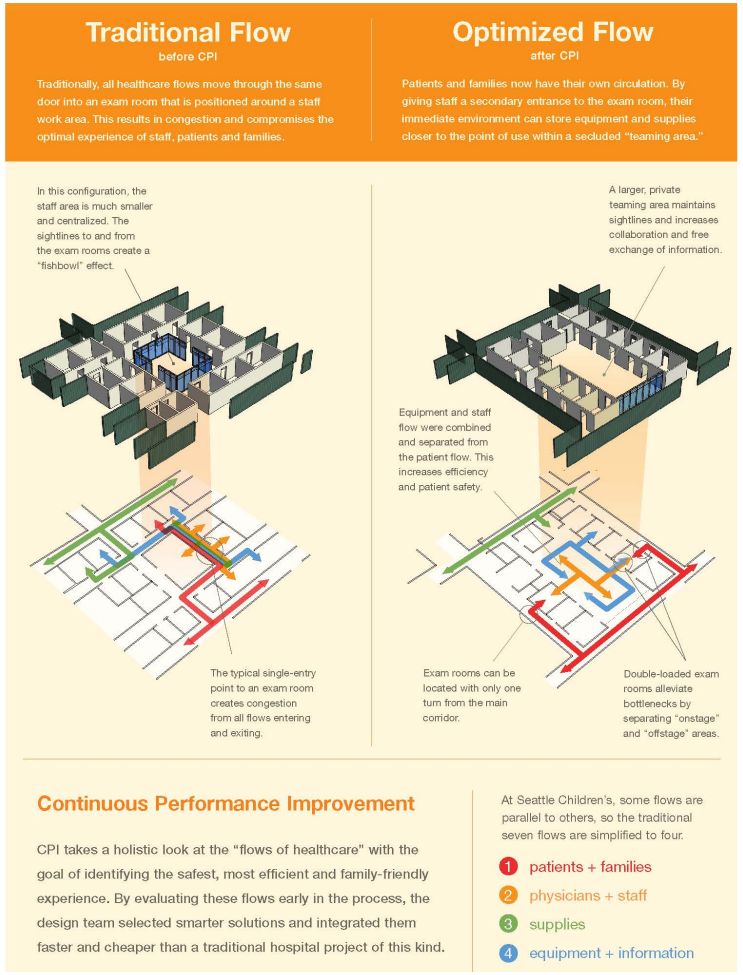
Microsoft Living Well Health Center

The center is Microsoft's first on-site health clinic, serving approximately 40,000 employees with primary care, chiropractic treatment, physical therapy, lab services, ergonomics counseling, pharmacy, and infusion services.

Located on the first floor of Building 21, the design supports employee wellness by making healthcare convenient, discrete, thorough, and easily accessible.

Efficiency Revolution – One Piece Flow

Seattle Children's Bellevue Clinic and Surgery Center

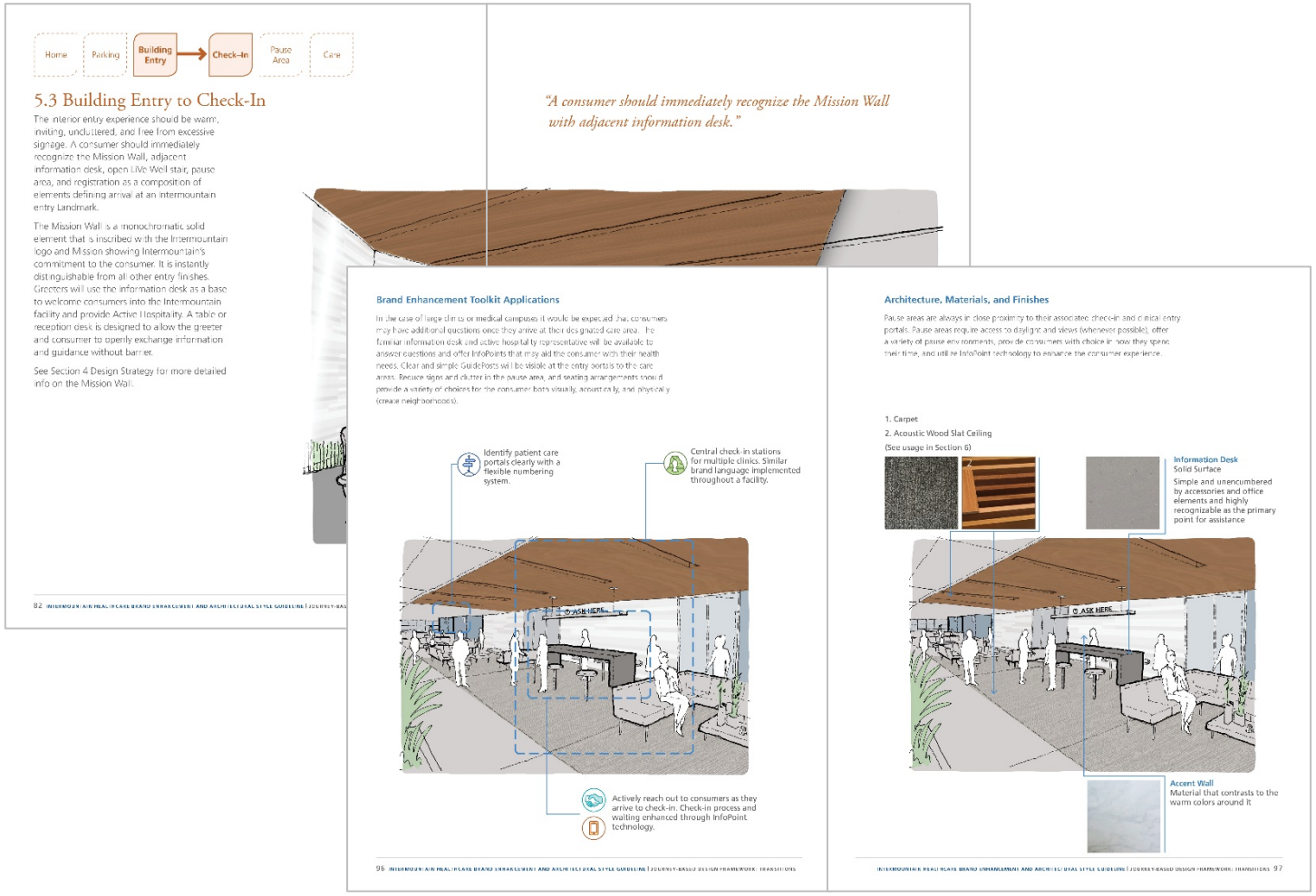


To lessen patient load at its core hospital, Seattle Children's formed a plan to offer ambulatory surgical care at a series of regional centers, of which Bellevue is the first. Using Continuous Performance Improvement (CPI) and Integrated Project Delivery (IPD) allowed the client and the design and construction teams to program more service in less space and build it more effectively.

A dual-circulation clinic model improved efficiency for the staff while offering a healthier, more pleasant experience for the patients. Bottlenecks were removed and care delivered quickly and seamlessly.

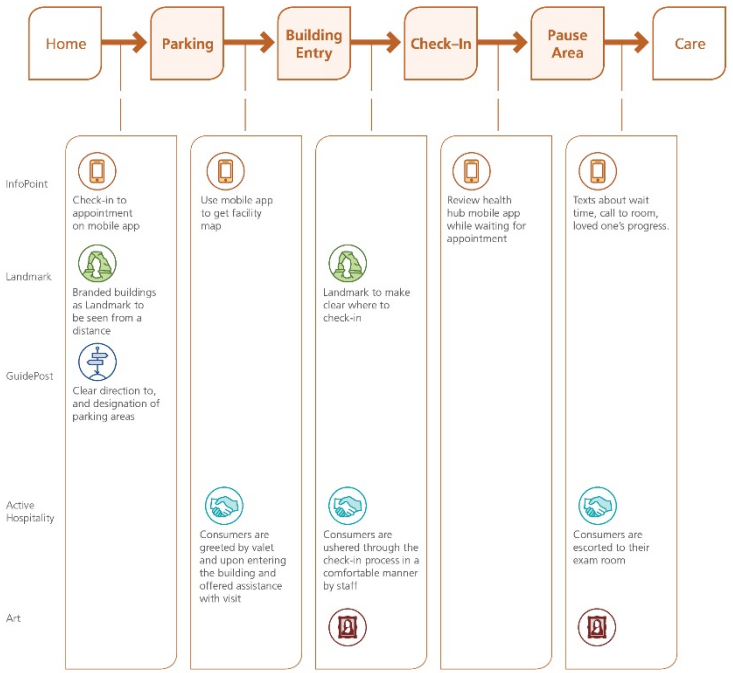
Intermountain Brand Enhancement

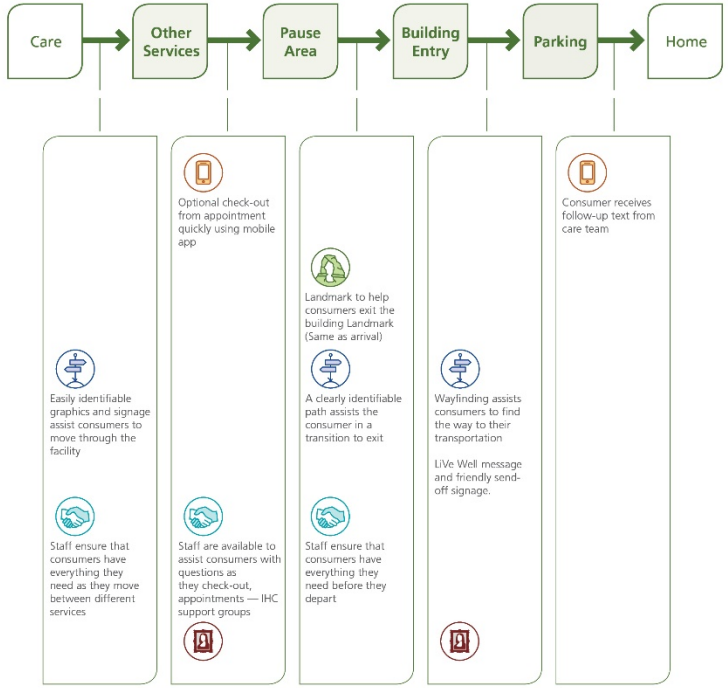
Creating a consistent brand experience in patient journey touchpoints and corresponding architectural expressions for all their ambulatory settings system-wide.



One Connected Experience

Intermountain Brand Enhancement and Architectural Style Guide





InfoPoint

Digitally relevant information provided to consumers at their convenience

Landmark

Purposeful, bold, memorable, and describable elements

GuidePost

Directional, clear, and recognizable information source

Active Hospitality

A place for welcoming, informative, empathetic, and engaging interactions

Art

Impactful to the individual, creates memories, and inspires

Using ethnographic research and human-centered design thinking, NBBJ collaborated with Intermountain to enhance their brand within the built environment, focusing on the consumer experience. The guidelines ensure physical, digital, operational and social aspects of care align with Intermountain's Fundamentals of Extraordinary Care.

For example, a patient experience map was created, starting from the time they leave their home for their appointment, to the time they return home. A system of icons define multiple touchpoints to create a positive, predictable, and simple journey