



FREEMANWHITE GUIDE

CONSIDERATIONS FOR SIZING INPATIENT ENVIRONMENTS

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As healthcare reform and other industry challenges continue to evolve, many acute care facilities struggle with aging and overbuilt environments that struggle to be cost effective. Will reform improve patient care? Absolutely, but only if it creates a well-coordinated delivery system with facilities that are efficient and competitive. Will volumes continue to grow in spite of ACA reforms? We examine several factors that could cause volumes to either increase or decrease.

In an environment where capital for facilities is scarce, providers seek the lowest cost settings for their physical assets. We help clients evaluate the costs and benefits of pursuing (or not pursuing) a capital investment, whether for a single building, an entire campus, or an ambulatory network. Prioritizing investment is a key to success in reducing operating expense and cost of care.

We specialize in analyzing not only infrastructure, but the people, processes, and systems housed within. Our team of experts is deeply experienced in analyzing each of these areas to alleviate the consequences of outdated building design, high volume, and other stressors on the operational environment.

## Strategizing Inpatient Bed Utilization in a Reformed World

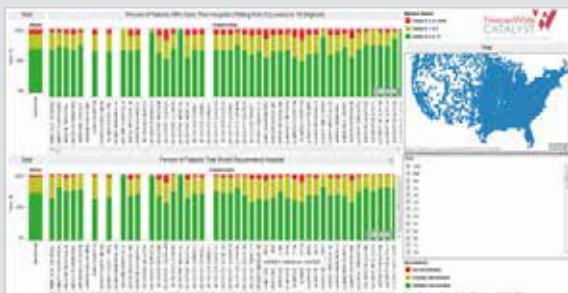
### TRADITIONAL DATA NO LONGER PROVIDES AN ACCURATE FORECAST

With the health care industry changing rapidly in response to health care reform, trending past utilization to create new projections is less reliable. The idea of “market share” may be completely re-envisioned as a result of a health system’s restructuring. As part of the push / pull strategy from the inpatient shift to the outpatient arena FreemanWhite analyzes “non-traditional” data such as prevalence and incident rates of common chronic diseases, payor incentives, behavioral indicators such as % smoking and % obesity, in order to forecast changes in patient care types, utilization, and care delivery models.



### Medicare Inpatient Charge Data

Cost variability for more than 100 DRGs between different facilities. We graphically display Medicare IP charge data as well as hospital info (total dcs, avg covered charges, avg total payments) and overall AVG charge, stdev, min/max for each DRG.



### HCAHPS Patient Satisfaction Summaries

Using patient satisfaction scores from every hospital in the country, FreemanWhite can compare the results from your facility for each of the ten metrics to those of your competitors to identify areas of improvement.

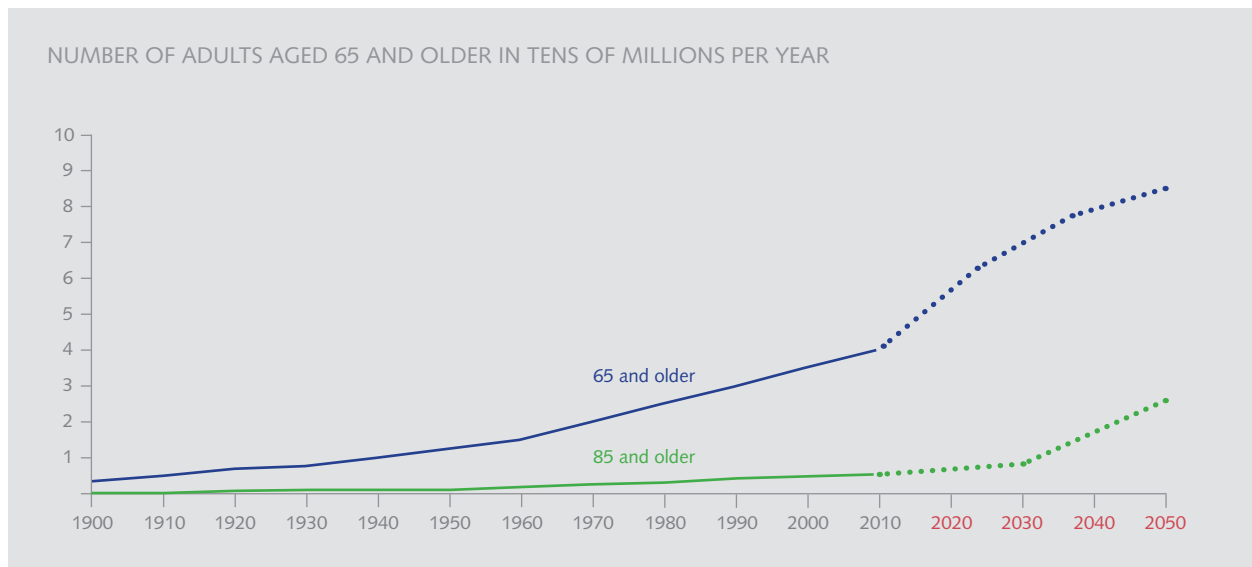


### CMS Readmission Penalty Estimator

This tool tracks both readmissions as a whole and specific diagnosis-related groups (DRGs) at the state level and for individual hospitals. Darker states have higher readmit levels. Individual hospitals can identify certain service areas that have higher readmissions and create custom peer groups so that they may compare themselves against similar facilities.

## REASONS WHY INPATIENT VOLUMES MAY INCREASE

### The Percentage of the Population Over Age 65 Will Continue to Increase



The aging of the population combined with the increased intensity of care that older people utilize suggest accelerated levels of inpatient care. (LLC., 2014)

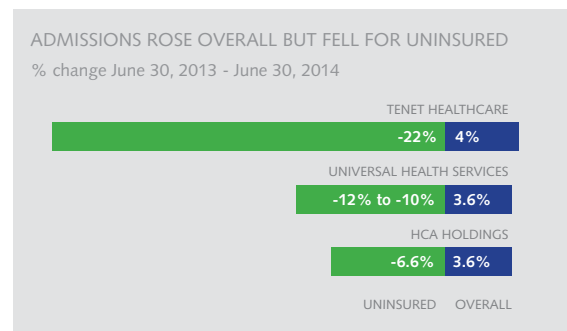
The segment of the population aged 65+ is expected to more than double between 2012 and 2060, from 43.1 million to 92.0 million. The anticipated increase in the number of the “oldest

old” is even more dramatic — those 85 and older are projected to more than triple from 5.9 million to 18.2 million. (Bernstein, 2012)

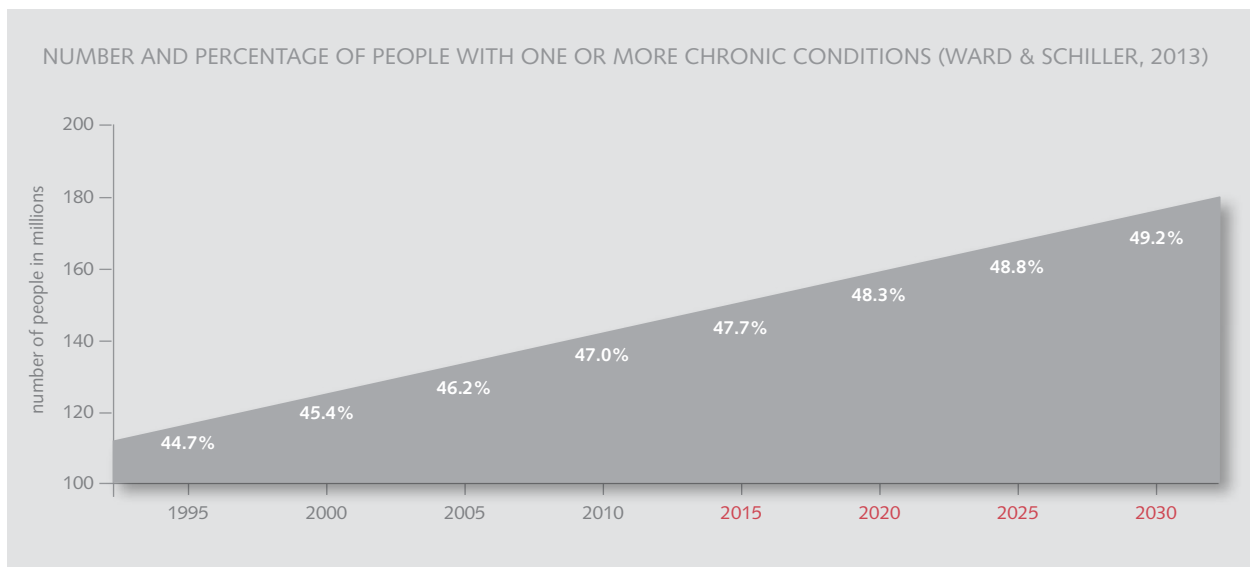
### 30M Newly Insured Patients Under the ACA are Expected to Use More Hospital Care

Early indications imply that these newly insured will use more hospital care. (Weaver, 2014)

Cigna told investors an initial wave of health-law enrollees used more oncology, orthopedic and maternity services than expected.



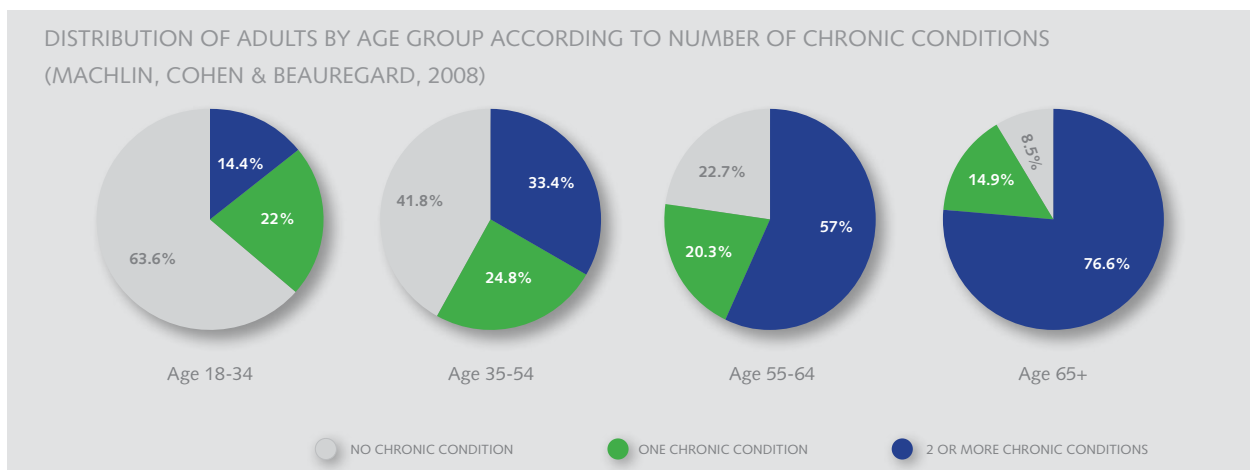
## The Percentage of the Population with Chronic Illness will Continue to Increase



The number of people with chronic conditions is rapidly increasing. (Ward & Schiller, 2013)

26% of Americans live with multiple chronic diseases, and the incidence of multiple, concurrent diseases is also on the rise. (Machlin, Cohen, & Beauregard, 2008)

91.5% of individuals over the age of 65 have one or more chronic conditions. (Machlin, Cohen, & Beauregard, 2008)



Chronic conditions impact more than the old and infirm. 36.4% of 18-34 year old adults have one or more chronic illnesses. In the 35-54 age bracket, this percentage increases to 58.2%. (Machlin, Cohen, & Beauregard, 2008)

Chronic disease accounts for 81% of hospital admissions. (Solutions, 2004)

## REASONS WHY INPATIENT VOLUMES MAY DECREASE

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### Early Data Shows that Managing Disease Reduces Inpatient Days

Current data from the ACO Medicare Shares Savings Program (ACOMSSP) has shown that proactively managing chronic conditions reduces the use of inpatient services. CareMore (an ACOMSSP and WellPoint subsidiary in Southern California) patients had 60% fewer diabetes related amputations than those in the average Medicare Advantage plan as a result of relatively simple and inexpensive management techniques. CareMore patients with End State Renal Disease (ESRD) had 62% fewer inpatient bed days than the national average. (Michael Kedansky MD)

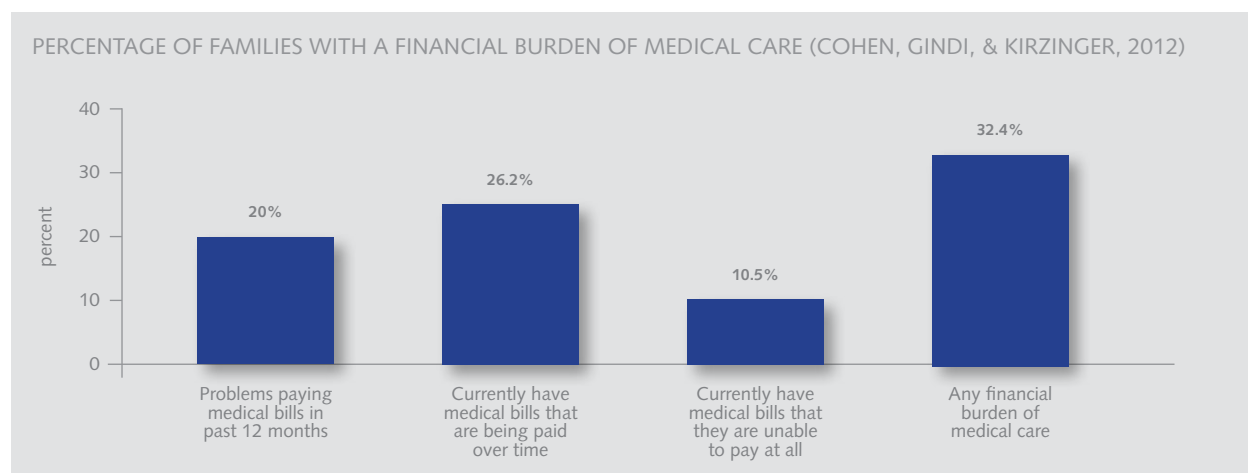
### Young Adults Place a Higher Value on Health and Wellness

Reduction of diet soda and fast food consumption among the young, the wearable technology revolution, and Apple Health suggest a population more aware of and proactively involved in its health and wellness.

### High Out-of-Pocket Costs and Medical Debt may Deter Use of Healthcare Services

The primary cause of personal bankruptcy is medical debt, according to a 2009 study. (Cohen, Gindi, & Kirzinger, 2012) The deferral or avoidance of care translates to fewer elective procedures and ultimately a decline in Med-Surg inpatient days.

Previous work has shown that in 2010, more than one in five Americans were in families reporting problems paying medical bills. From January - June 2011, that number increased to one in three persons. (Cohen, Gindi, & Kirzinger, 2012)



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## Retail Providers will Manage Chronic Disease

Retail entities will build upon the early chronic disease management groundwork established by ACOMSSPs to reduce inpatient demand. They will attempt to capture market share from traditional providers by offering increasingly complex services. Walgreens entered the chronic disease management arena last year. New services offered by 330+ Take Care clinics include assessment, treatment, and management of chronic conditions such as hypertension, diabetes, high cholesterol, and asthma. (Walgreens, 2013)

Quality-based reimbursements and technology that improves diagnostic precision will change the way providers diagnose and treat illness. As this technology curve continues it is conceivable that mid level providers, nurses, and technicians could execute standardized protocols based upon symptoms. When protocols enable medical staff to diagnose illness more consistently, the delivery of care will become more rote, commoditizing tasks to the degree that they can be performed by nurse practitioners rather than physicians. Walgreens Take Care and CVS Minute Clinic demonstrate that less complex cases can be managed and treated with less expensive caregivers, and position their organizations to capitalize upon this shift.

Further, Medicare Share Saving Programs have demonstrated that ACOs can reduce the cost of care, especially for some chronic conditions, through simple preventive practices such as washing a diabetic's feet to enhance circulation. These kinds of tasks can be performed by a Med Tech at the patient's home for less than the cost of a primary care visit and significantly less than the cost of a readmission.





## REASONS WHY OUTPATIENT VISITS TO INPATIENT FACILITIES CONTINUE TO MIGRATE TO OUTPATIENT LOCATIONS

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### Pressure from Retail Competitors

Many aspects of healthcare have migrated from the inpatient to the outpatient environment over the past generation, but informed patients with higher deductibles and available options from other providers accelerate market pressures.

According to a RAND study (RAND Corporation, 2012) of 1.3M retail clinic visits, 43% of young adults (ages 18-44) visit retail clinics compared to 23% who visit primary care physicians. A more recent study indicates that a growing number of seniors also frequent retail clinics. Fewer PCP visits translates to fewer hospital referrals. (RAND Corporation, 2012)

CVS MinuteClinic overturned the American marketplace as an alternative venue for routine care and shows no signs of retreat. CVS MinuteClinic President Andrew Sussman told attendees at the 2013 Forbes Healthcare Summit that the number of Minute Clinics will grow from 836 to more than 1,500 in 2017. (Japsen, 2014)

Retail providers will continue to move upstream with less expensive, non-physician administered diagnostic and treatment services. Minimally trained technicians and phone-based consultants will do the work once performed by hospital-based nurses. Nurses will provide the services formerly within the realm of Nurse Practitioners and Physician Assistants, and NPs and PAs the work of Primary Care Doctors. Primary Care Doctors will perform more diagnostic and procedural work in an outpatient setting than specialists currently perform in an inpatient setting. (Japsen, 2014)

### Downward Pressure on Imaging Utilization

Payors and providers enact pre-certification and incentive programs, among other mechanisms, to curb non-essential diagnostic imaging expenditures. Medicare spending on non-invasive diagnostic imaging declined 21% from 2006 peak levels, according to the Journal of the American College of Radiology. (David C. Levin, Vijay M. Rao, Laurence Parker & Andrea J. Frangos, 2012)

A recent study reveals MRI and CT imaging utilization rates in the emergency department have diminished since 2007. According to the study, the number of relative value units per 1,000 ED visits (RVU) attributable to ED imaging increased by 208% from 1993 to 2007, and then decreased by 24% from 2007 to 2012. (Raja, et al., 2014)

The cost and complexity of the equipment required to perform diagnostic analysis is a significant barrier for new innovators entering the market. Cheaper and faster alternatives such as genetic biomarkers and chemical identification of diagnostic evidence will eclipse bone and tissue imaging. New players (such as pharmaceutical companies) will capture market share in this arena.

Since the early Clinton era of healthcare reform, pundits have called for the demise of the hospital while data demonstrates it has done nothing but grow. The healthcare industry traditionally adopts change slowly, and few can predict the timing of market forces. Given this ridiculously complex puzzle, how is a hospital to plan for future space needs?

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FreemanWhite believes the answer lies in a holistic approach. A Strategic Master Facilities Plan will no longer suffice: hospital leaders should regard their enterprise as a comprehensive entity encompassing hospital, outpatient, and competitor landscapes. Because each patient population has varying disease prevalence, Medicaid coverage, and competitor options, planning for the future dictates a precise and customized analysis of its unique variables.

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## SOLUTION 1: DEVELOP A ROBUST AMBULATORY STRATEGY

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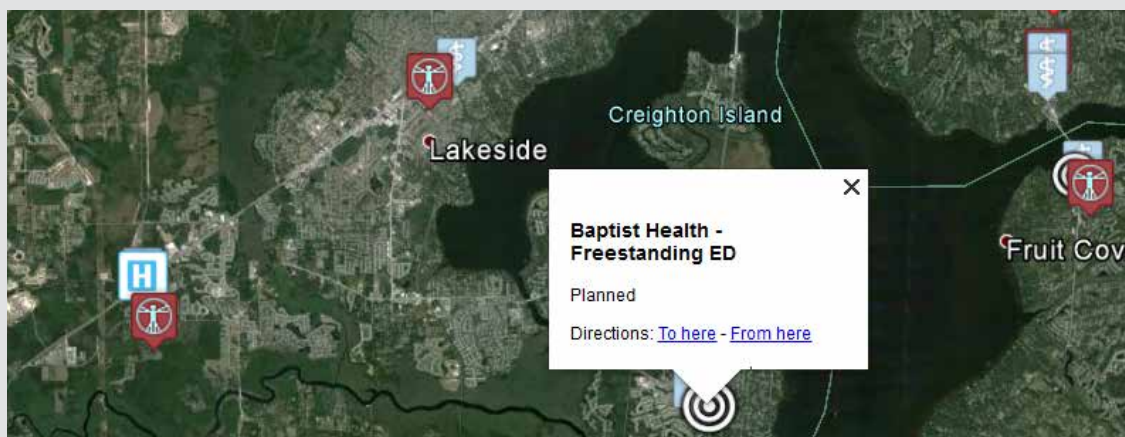
Providers have started to plan ambulatory networks that provide the right services to the right patients in the lowest cost settings available. From strategic service line bundling to operational and facility programming, planning in the ambulatory arena requires a distinct mental shift in approach to the market and capitalizing upon operational planning parameters.

At a granular level, FreemanWhite prioritizes appropriate services and locations for specific neighborhoods within the ambulatory network, analyzing variations between utilization and disease prevalence and quantifying both competitor presence and existing/potential provider referral patterns. Then, our team deploys ambulatory prototypes to maximize speed to market and cost saving opportunities.

It can be overwhelming to analyze an ambulatory landscape given its geographic area, patient volume, and complexity. Our analysts distill immense quantities of data into relevant decision-making criteria and present them in an interactive, easy-to-digest format. Our data visualizations enable leadership to secure buy-in on recommended changes within the system because the group can instantaneously grasp the impact of manipulating multiple variables.

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### CASE STUDY

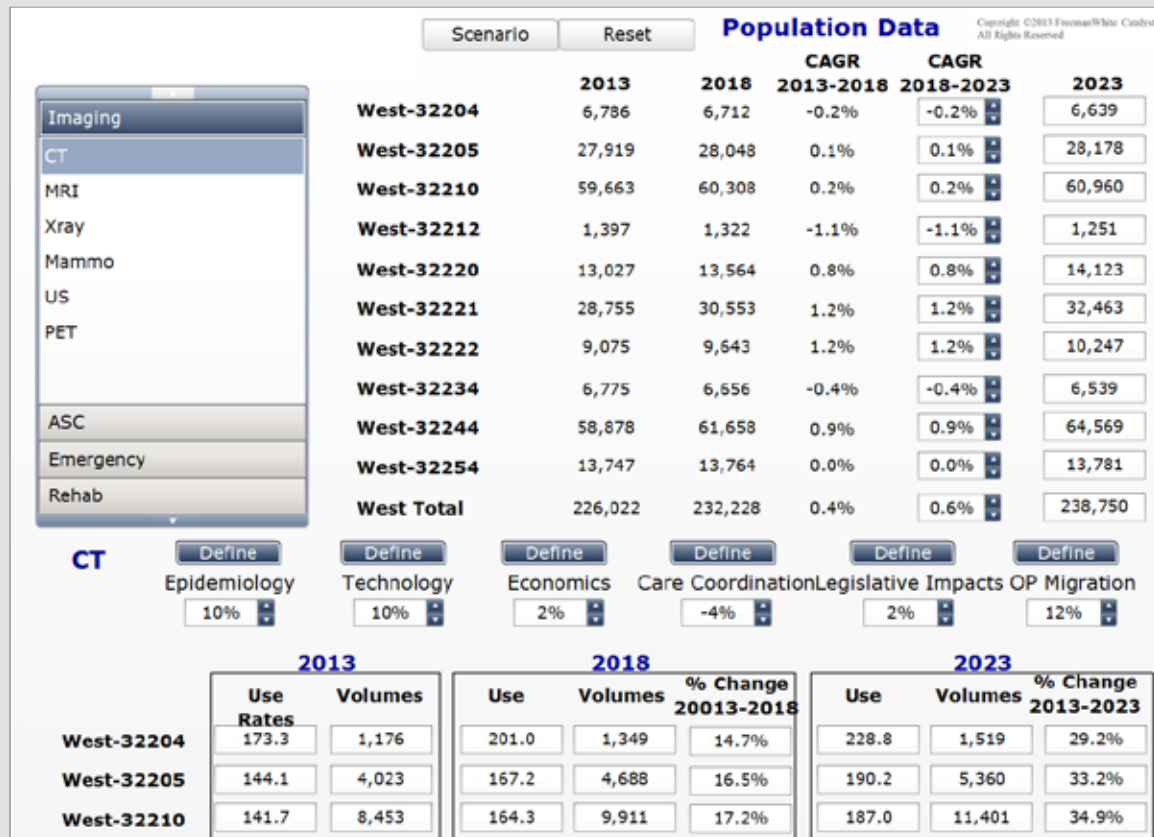


A competitor submitted a CON to build a hospital in a key service area that provided a large portion of our client's hospital referrals. With limited capital, our client sought a highly targeted strategy to protect their existing customer base and market share. FreemanWhite developed an outpatient services road map based upon our strategic assessment of their ambulatory market, which covered over 900 square miles with a population in excess of one million people. The study consisted of a detailed market utilization analysis for specific ambulatory components and a study of services offered by local competitors within a defined service area.

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## CASE STUDY, CONTINUED

We first calculated the additional patient volumes needed to achieve a desired market share at the individual zip code and service line levels. Consolidating demographic, disease prevalence, competitive, and utilization information allowed the client to instantaneously view key criteria for multiple service areas. We prioritized variables in an individual market depending upon whether an offensive (to gain new market share) or defensive (to protect existing market share) strategy was appropriate based upon the presence of competitors.



Our tools enabled the team to test and manipulate factors affecting patient volume, including legislative/ACA impact, economic factors, technology, outpatient migration, and other key variables. With the information generated by our analysis, we then correlated ambulatory market need into a facilities blueprint by translating anticipated ambulatory volumes into facility programming while also identifying specific real estate location recommendations.

## SOLUTION 2: FLEXIBLE USE OF INPATIENT SPACE AND CAPITAL

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The cost of energy, the momentum for sustainability, and requirements for robust MEP systems in I2 construction continue to mount. As providers consider the future need for hospital space in this evolving industry, a number of principles can guide investment.

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### Use Inpatient Space for Inpatients and Less Expensive Space for Outpatients

The logic is simple. According to an ASHE analysis done with TME, it costs nearly \$49/year to maintain one square foot of I2 hospital space, less than half that to maintain a business occupancy MOB, and a fraction to maintain the corner pharmacy where retail clinics operate.

The reality of choosing the most cost-effective location for caregiving is complex. American healthcare is stuck in the middle ground between fee-for-service sick care and capitated managed wellness, causing perplexing market and motivational dynamics. The Two Midnight Rule testifies to the complexity of categorizing inpatient and

outpatients inside the hospital. But change is coming. As reimbursement metrics mature, it could arrive more quickly than one might expect.

The safe bet is to size new facilities conservatively (in terms of delivery units and room sizes) and create allowances for a strong, flexible growth plan in the eventuality of increased patient volumes. FreemanWhite also recommends combining multiple building occupancies under one roof or in connected facilities that allow inpatient and outpatient volumes to grow and fluctuate independently.

#### CASE STUDY

At a 71-bed hospital in the Midwest, 80% of patients who come to the hospital campus do so as an outpatient, a trend that is expected to continue with healthcare reform. FreemanWhite right-sized the hospital based upon appropriate, future inpatient volumes and expansion/relocation of outpatient services to manage the health of newly insured patients as they join the system.

Differing substantially from the typical “Large Hospital/Small MOB” model seen on many hospital campuses, FreemanWhite proposed a disease-based “Small Hospital/Large MOB” solution to capture and manage patients with commonly treated conditions prevalent in the service area.

In the proposed solution, new and existing inpatient and outpatient buildings connect to one another through a retail concourse, enabling patients to treat the facility as a one-stop-shop rather than driving and parking to see multiple specialists on campus. An urgent care “instacare” is designed to supplement the emergency department by siphoning vertical patients to less costly treatment space.

A disease-based model promises economies of scale. Instead of individual clinics for each provider, each with their own exam rooms, support, and waiting, one large clinic is designed to house multiple providers with shared spaces. The clinic can accordion depending upon volumes.

## The Judicious Use of Demolition is Key to Rightsizing a Hospital for the Future

Older buildings are not only expensive to maintain and complicated to renovate, often the configuration of floor-to-floor heights, column grids, and proportions do not lend themselves to the delivery of 21st century medicine. So why do we continue to pour money into so many buildings on Hill Burton era campuses? Frequently, tearing them down is challenging. Community members, particularly those who went to great lengths to fund the construction, may view hospital administration as wasteful for demolishing a perfectly good building. Or the heirs of a generous philanthropic donor may expect it to remain.

Despite the challenge of internal politics, FreemanWhite recommends that hospitals demolish any building requiring significant investment to maintain its viability in order to reduce an institution's fixed cost. Typically, such buildings are more than 40 years old, although sometimes the physical makeup of newer buildings causes them to fall into this category as well.

### THERE ARE SEVERAL EXCEPTIONS TO THIS RULE:

- Campus growth patterns in a pinwheel or outward-radiating form often have the oldest buildings in the center of a complex medical center, making them impossible to demolish.
- Wayfinding-enabler buildings serve as key connectors for patient movement or utilities.
- The true programmatic need for strategically purposeful (be honest!) support programs that must reside on campus.

### CASE STUDY

Siocum Bldg.		Xavier Bldg./Dining		Sacred Heart		O'Brien Bldg.	
						Med	18
						Surp	0
						Med	12
						Surp	8
Demolished	Demolished & New Dining Expansion	Peds moves to OB4	Vitas Shifts to SH	Mechanical,	Electrical,	Facilities	
Quality	Administrative	ICU/CVU	12	10	ICU/CVU	16	16
			0			8	
Unassigned	Specialty	Vitas Hospice			Med	24	26
					Surp	2	
		Telem.	20	20	Med	26	26
			0		Surp	0	
Wood Care Administration	Department Administration	Cardiology, Cath Labs			Endoscopy		
Medical Data	Facility Construction	Registration, PAT			Behav. Health	5	12
Facilities	Facilities	Dietary	Dietary	ED Admin	ED - BH	MRI	IT
NA	New construction	NA			Facilities,	Mechanical, Elec.	
0 BGSF	0 BGSF	57,658 BGSF		174,703 BGSF			
Primary	0	0	0	0	30	30	102
by Build	0	0	0	0	0	0	16
					100% Priv.		88% Priv.

The site, capacity, and configuration of a large, urban campus with buildings dating to 1909 presented several challenges. Aligning data analytics with the Steering Team's overarching goals, our team developed a prioritized list of facility responses to create a more efficient footprint, reduce non-revenue producing square footage, and maximize the quality of care through lean operations.

We recommended smart demolition for three buildings to reduce the footprint of the campus and create a leaner and more efficient environment. Now that the demolition of two of the buildings is complete, the hospital has realized an annual operational savings of nearly \$1 million.

## SOLUTION 3: MAXIMIZE EXPENSIVE INFRASTRUCTURE

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### Optimize What You Have

Has the use of a space changed from the original design intent? Are systems tuned for optimal performance? Is the sequence of operations in controls systems written for maximum efficiency? Are air pressure relationships code-compliant to maintain infection control? Through streamlining infrastructure operations, retrocommissioning is an opportunity to reallocate dollars to patient care. Modifying controls systems and engineering components can significantly reduce energy costs, as well as extend the life of equipment.

#### CASE STUDY

Opening the corridor connections between a new hospital addition and the existing buildings led to negative pressure issues affecting both facilities - in spite of a functional, compliant HVAC system. Using retrocommissioning methods, we identified and resolved the source of the pressurization malfunctions in the existing hospital while simultaneously resolving a serious issue, enabling the new facility to open without delay.

### Judiciously Replacing I2 Systems in Inpatient Environments

For decades, consulting engineers have upgraded and replaced MEP equipment under the assumption that patient volumes will continue to grow as they have for the past 50 years. In light of the forces shaping the future in healthcare, providers must reconsider the infrastructure dollars spent on inpatient units.

A strategy that combines peak census analysis with the selective use of deferred maintenance may allow an institution to delay investment in older patient units until there is more clarity around the timing and direction of inpatient volumes. To determine the degree to which a facility can forestall capital investment, a facilities infrastructure study should identify the following:

#### PEAK CENSUS ANALYSIS

Historically, architects calculated the number of inpatient beds and operating rooms based upon peak census. Even though inpatient bed need can flex 10-30%, the highest end of that range dictated the size of most units. Given today's disinclination to overbuild, we now recommend fewer beds in conjunction with better discharge protocols, flexible observation tactics, and enhanced scheduling efficiency. Minimizing infrastructure costs allows hospitals to redirect capital investment to other needs.

#### LONG RANGE USE POTENTIAL

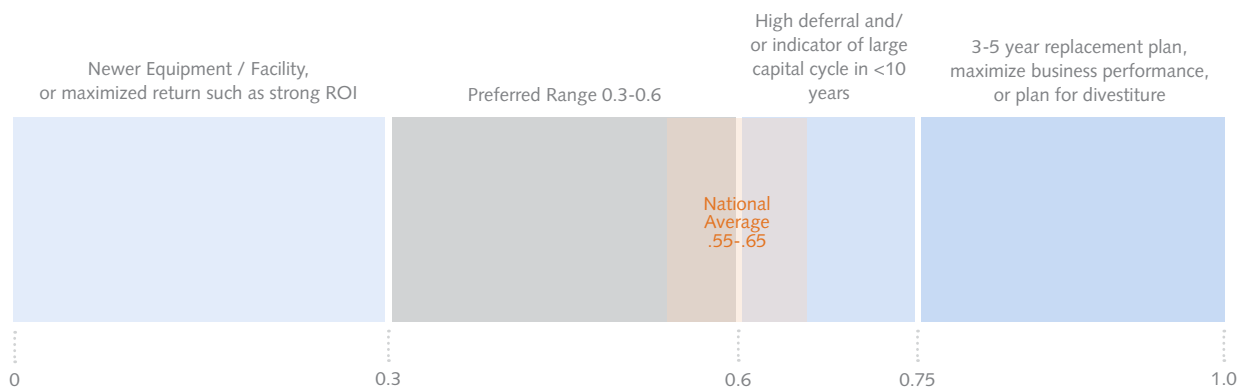
Organizations should evaluate and prioritize the long term potential of inpatient units, surgical departments, and diagnostic space. Even though inpatient space may have the shortest remaining lifespan, the future may reveal that lower utilization rates and lessened infrastructure burdens suggest minimal investment.

## DEFERRED MAINTENANCE RISK

Replacement costs for MEP equipment nearing the end of its functional life and the risks associated with deferring maintenance costs are important considerations for hospitals. One might choose to delay maintenance on air handlers that support the Administration suite and reprioritize those funds for the Surgical Department or Lab based upon risk of failure.

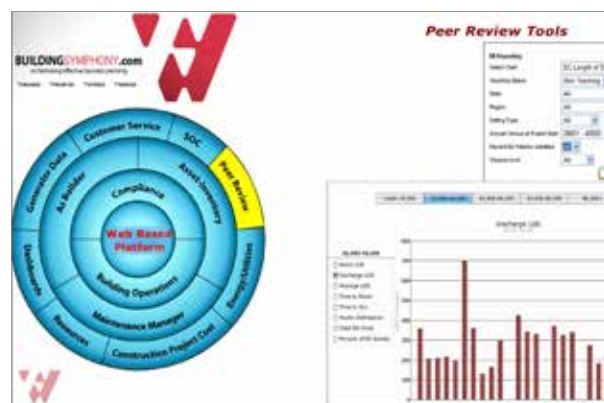
FreemanWhite uses a Facility Condition Index metric to evaluate this risk. The FCI is the ratio of the “repair needs” to “replacement value” expressed as a percentage. A low FCI is an indication of newer, low-risk maintenance items, while a high FCI indicates imminent failure of deferred items. As part of this metric, FreemanWhite considers the critical function of the deferred systems. For example, maintaining a life safety system component should take precedence over maintaining a non-critical system one.

### Facility Condition Index (FCI) Continuum



## Building Symphony™

One key to effective decision making is having a complete understanding of costly facilities infrastructure. This is often a challenge for large hospital campuses comprised of various building ages and infrastructure. Depending on the amount of deferred maintenance and infrastructure age, the cost to replace or upgrade could be as high as 1/3 to 1/2 of an organization's capital availability. Placing the right information, clearly depicted and ready for interpretation, into the hands of decision makers in a timely fashion is paramount.



## Measure, Measure, Measure

Don't automatically assume you must replace the oldest piece of equipment first. Frequently, hospital staff prioritize older equipment for replacement without a clear understanding of how the systems work together to account for total energy use. Sometimes, the energy savings from equipment performing well in concert outweighs having the newest or most efficient systems.

Investing in controls and systems that collect data is the first step in fine-tuning an infrastructure investment plan. Hospitals can analyze detailed information about granular MEP systems over time and use this information to improve performance and save energy every month.

Controls offer a holistic view of MEP systems. Hospitals that fine-tune microsystems around individual priorities

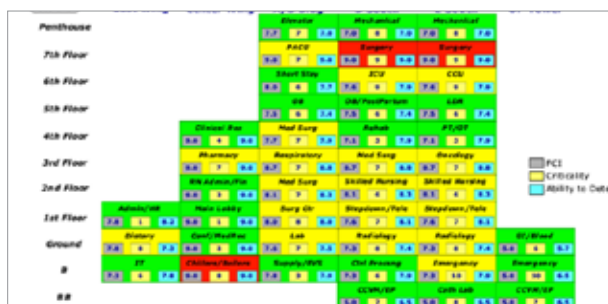
present one of the most challenging problems to address. (For example Dr. Smith, an orthopedic surgeon, prefers his OR to be 58 degrees on Tuesdays and Thursdays. Holistic controls help decipher the impact to rooms and systems that surround Dr. Smith's OR. FreemanWhite evaluates energy use from the data collected by the controls system and compares the results with baseline energy use benchmarks.

Instead of a typical "one-for-one" replacement of aged equipment, data findings may suggest that a hospital can save more money overall by investing in a different system type altogether. Often the combination of a short payback period and utility savings can fund a system upgrade. Our team encourages clients to make equipment decisions based on the life cycle cost instead of initial cost.

### CASE STUDY

We recently completed a hospital addition in a locale that once had some of the lowest utility rates in the country. Because of the lower initial cost and utility rates at that time, the hospital chose to use electric heat as the primary heat source. Boilers and a hot water loop system service

some areas of the hospital, and we extended the hot water loop to the new addition's HVAC system due to increasing utility rates. The energy savings from forgoing electric heat will ultimately offset higher upfront costs. As an additional benefit, this solution reduces the demand on the existing overtaxed generator.



### Facility Viability Index

This dashboard determines viability of buildings at the individual floor level by measuring the ability to detect failure and service line criticality. This tool allows the user to change floor occupancy, criticality and potential cost implications. Results are graphed and include a facility stacking diagram. This is an excellent tool to use when determining a change of "use" in your facility and the impacts of proposed renovations.



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It is critically important to develop a long range plan that incorporates all caregiving sites within the entire enterprise. If Clayton Christensen is correct, healthcare services will continue to evolve away from legacy healthcare providers. Innovators will continue to chip away at the simplest services like injections and ear infections, move up line to chronic disease management, and eventually expand their capabilities to offer simple procedures.

It stands to reason that even though the inpatient environment will see increasingly sick patients who will drive up SF/bed requirements, it is also quite likely that inpatient days will continue to decline. Not overbuilding at this critical time is a complex decision, but one that appears justifiable by the current environment. FreemanWhite can help hospitals achieve this balance through a spectrum of services that inform strategic priorities at an unusually detailed level.

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#### ABOUT THE AUTHORS



**MARK FURGESON** AIA ACHA  
Managing Principal

Mark Furgeson serves as a trusted advisor to healthcare clients, providing a deep understanding of the issues that impact this complex building type. He is vested in building client relationships and facilitating a more effective connection between policy and people.



**MICHELLE MADER** MBA MHA  
Principal, Director of Strategy

Michelle Mader empowers clients to navigate complex, fast-paced challenges. Her experience includes identifying growth opportunities and analyzing service line financial performance for large system healthcare providers.



**CHARLES HALL** PE QCXP  
Director of Engineering

Charlie Hall is skilled in complex healthcare campus engineering infrastructure and works effectively with teams to integrate engineering systems into project designs. His expertise in commissioning maximizes the potential for energy savings on our projects.

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## ABOUT FREEMANWHITE

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At FreemanWhite we seek to be an agent of change. We seek to help our clients succeed in one of the most dynamic and exciting periods in healthcare. For many providers, this is also a time of great challenge and uncertainty. That is why our team is often called upon to help providers understand and prepare for changes by providing critical data analysis and recommendations.

FreemanWhite is an integrated consulting and design firm with a diverse group of professionals dedicated to bringing our clients creative, focused solutions. Our holistic planning approach addresses strategic alignment, market position/location, operations, technology and facilities. Our unique process combines architectural design with a series of interactive tools that help to prioritize, test and define the client's vision of the built environment.

## SOURCES

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Bernstein, R. (2012, December 12). Newsroom Archive: U.S. Census Bureau Projections Show a Slower Growing, Older More Diverse Nation a Half Century from Now. Retrieved from United States Census Bureau: <https://www.census.gov/newsroom/releases/archives/population/cb12-243.html>

Cohen, R., Gindi, R., & Kirzinger, W. (2012, March). Burden of medical care cost: Early release of estimates from the National Health Interview Survey. Retrieved October 2014, from National Center for Health Statistics: <http://www.cdc.gov/nchs/nhis/releases.htm>

David C. Levin, M., Vijay M. Rao, M., Laurence Parker, P., & Andrea J. Frangos, M. (2012). The Sharp Reductions in Medicare Payments for Noninvasive Diagnostic Imaging in Recent Years: Will They Satisfy the Federal Policymakers? *Journal of the American College of Radiology* Volume 9, Issue 9, 643-647.

Japsen, B. (2014, June 5). CVC Doubles Up Walgreen In Retail Clinics As Obamacare Patients Seek Care. Retrieved October 17, 2014, from Forbes: <http://www.forbes.com/sites/brucejapsen/2014/06/05/cvs-dominates-walgreen-in-retail-clinics-as-obamacare-patients-seek-care/>

LLC., D. D. (2014). The Hidden Costs of U.S. Health Care for Consumers: A Comprehensive Analysis. Retrieved October 17, 2014, from Deloitte: [http://www.deloitte.com/view/en\\_US/us/Industries/US-federal-government/center-for-health-solutions/health-care-consumerism/efcc19ce7f3ce210VgnVCM100001a56f00aRCRD.htm](http://www.deloitte.com/view/en_US/us/Industries/US-federal-government/center-for-health-solutions/health-care-consumerism/efcc19ce7f3ce210VgnVCM100001a56f00aRCRD.htm)

Machlin, S., Cohen, J., & Beauregard, K. (2008, May). Health Care Expenses for Adults with Chronic Conditions 2005-Statistical Brief #203. Retrieved from Agency for Healthcare Research and Quality: [http://meps.ahrq.gov/mep-web/data\\_files/publications/st203/stat203.pdf](http://meps.ahrq.gov/mep-web/data_files/publications/st203/stat203.pdf)

Michael Kedansky MD, S. M. (n.d.). The CareMore Model. An Innovative Model of Health Care for Seniors. Tucson, Arizona, United States of America: CareMore Health Plan.

Raja, A. S., Ip, I. K., Sodickson, A. D., Walls, R. M., Seltzer, S. E., Kosowsky, J. M., et al. (2014). Radiology Utilization in the Emergency Department: Trends of the Past 2 Decades. *Journal of Roentgenology*, 355-360.

RAND Corporation. (2012, September 11). Special Feature: Retail Clinics Play Growing Role in Health Care Marketplace. Retrieved October 17, 2014, from RAND Health-Features: <http://www.rand.org/health/feature/retail-clinics.html>

Solutions, P. f. (2004, September 1). Chronic Conditions: Making the Case for Ongoing Care. Retrieved from Robert Wood Johnson Foundation: <http://www.rwjf.org/en/research-publications/find-rwjf-research/2004/09/chronic-conditions-.html>

Walgreens. (2013, April 4). Take Care Clinics Expand Scope of Health Care Services to Include Chronic Condition Management and Additional Preventive Health Offerings. Retrieved October 17, 2014, from Press Releases/General news: [http://news.walgreens.com/article\\_display.cfm?article\\_id=5730](http://news.walgreens.com/article_display.cfm?article_id=5730)

Ward, B., & Schiller, J. (2013, April). Prevalence of Multiple Chronic Conditions Among U.S. Adults: Estimates From the National Health Interview Survey, 2010. Retrieved from National Conference of State Legislatures: <http://www.ncsl.org/documents/health/ChronicDTK13.pdf>

Weaver, C. (2014, August 4). Hospital Cash In on the Newly Insured. Retrieved October 17, 2014, from Wall Street Journal: <http://online.wsj.com/articles/hospitals-cash-in-on-the-newly-insured-1407196639?KEYWORDS=newly+insured+will+use+more+hospital+care>

