DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

MDH Public Interest Review, Regions Hospital Proposal
Detailed Preliminary Findings

This document is intended to add detailed empirical context to MDH's April 2018 preliminary findings from its public interest review of the of the HealthPartners proposal to add 100 beds to Regions Hospital. These findings are contained in a letter, dated May 1st, 2018 to chairs and ranking members of Minnesota legislative committees with jurisdiction over health and human services issues.[1]

1. **The forecast of inpatient bed need in the proposal likely overstates actual future need by not robustly accounting for factors that are likely to affect future rates of hospitalizations and choosing an unusually long forecast horizon (greater than 30 years).**

   Inpatient hospital bed need is impacted by typical input factors such as change in population demographics, the broader economic environment and the prevalence of chronic conditions. Although like all projections they would be associated with uncertainty, these factors are reasonably easy to predict by drawing on historical data.

   However, the impact of other factors, like variations in clinical practice patterns; adjustments in care delivery induced by technology, including pharmacological treatments; and changes brought on by evolution of payment mechanisms and cultural norms, are much more difficult to predict and subject to even greater uncertainty. To reduce the potential for error, hospital expansion projects typically constrain their forecasts to a 5 to 10 year horizon. As such, the 30-year bed need analysis developed by Regions Hospital is likely not a strong basis for precise planning. Our own analysis, in which we modeled three different scenarios for future bed needs in the east metro area, shows that even shorter-term models (22 years) are highly sensitive to the choice of assumptions and likely imprecise.

   For example, MDH ran an additional three projection models for the east metro, with different assumptions for inpatient hospital utilization for specific age groups.[2] These models estimated that, by 2030, the east metro would need between eight and 49 medical/surgical and mental health beds. Small changes in how we assumed practice patterns would change led to large differences in bed need – and none of these models account for changes in the economy, such as a recession, which can have a significant downward impact on inpatient bed need (Figure 1).

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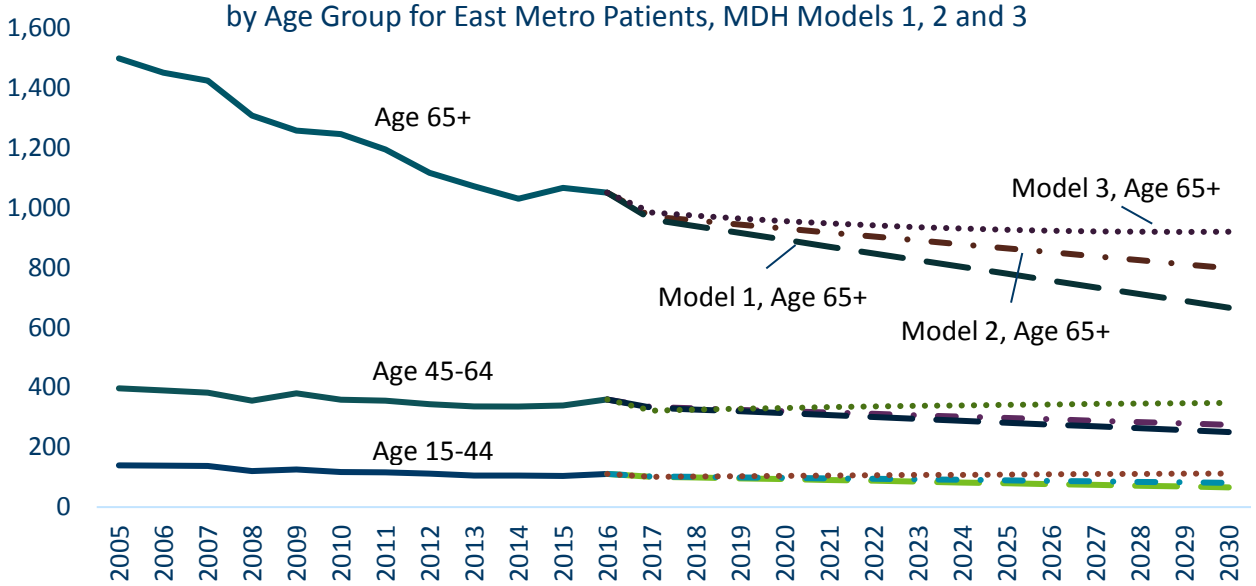
[1] Final findings from the public interest review will become available by May 31, 2018 or shortly thereafter. It will be accessible on MDH website specific to the review: http://www.health.state.mn.us/divs/hpsc/hep/moratorium/regions/index.html

[2] Model 1 assumes average annual change of inpatient days per 1,000 people derived from the previous 10 years. Model 2 uses a median rate of change of inpatient days per 1,000 people in the previous 10 years. Model 3 is a historical time-series regression model that uses a particular statistical technique to account for the assumption that historically observed trajectories of reductions in hospital use will cannot continue indefinitely.

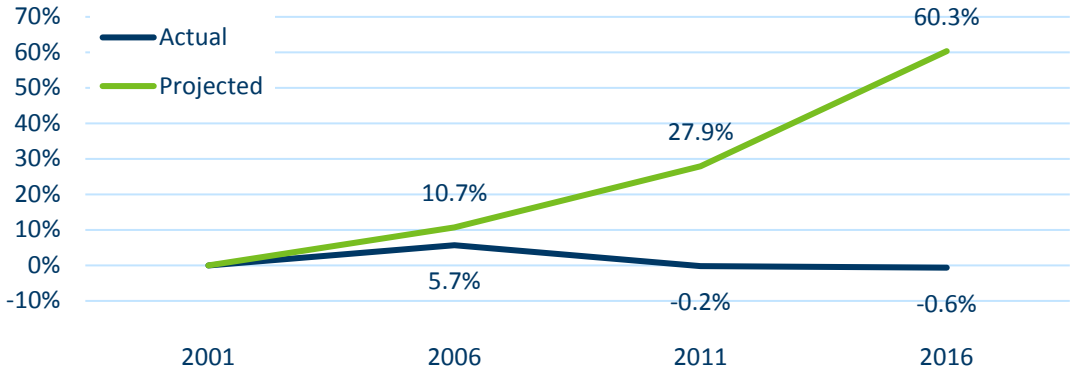
Figure 1: Historical and Projected Medical/Surgical Patient Days per 1,000 by Age Group for East Metro Patients, MDH Models 1, 2 and 3



Source: MDH/Health Economics Program analysis of hospital discharge data and data from the Minnesota State Demographic Center.

More importantly, by focusing primarily on demographic trends as a driver for bed need (with small adjustments for the potential that rates of use would decline), the proposal likely significantly overstates future bed need. We used the assumptions in the Regions proposal to model current bed need for people 65 years and older, the population with the highest rates of growth and hospitalization. For this, we projected population growth from 2001 and stable (slightly discounted) age-based rates of hospitalization to estimate expected 2016 bed need. As Figure 2 shows, the projected bed days far outpaced actual medical/surgical bed days for people over 65 (by about 60 percent). Looking across all types of hospitalizations and ages, these projections would have suggested a need for more beds, when available bed need actually fell during this period (by 37 beds).

Figure 2: Cumulative increase in Medical/Surgical bed days per 100,000 population 65+ in East Metro



Source: MDH/Health Economics Program analysis of hospital discharge data and population data from the US Census Bureau.

The proposal from HealthPartners provides two separate models to estimate bed need at Regions hospital between 2017 and 2050 (33 years). Over a shorter period, the proposal's projections are likely less imprecise; by 2030, Regions Hospital projects a need for between 33 and 41 beds.

2. **The proposal has the potential to negatively affect other east metro hospitals financially by changing the distribution of services at those hospitals and reducing their market share.**

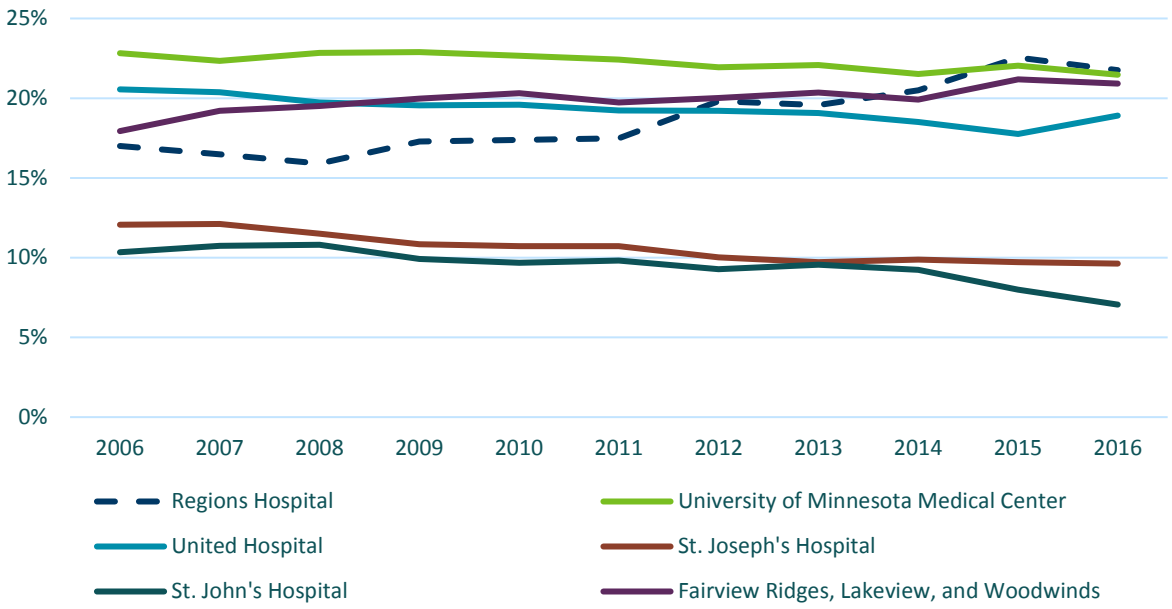
   The financial success of hospitals is generally determined by the ability to generate enough revenue to cover fixed costs (building and equipment), fund variable costs (staffing, utilities) and produce a profit. In the current payment environment, not all services produce similar levels of profitability, even when delivered at an average level of efficiency. Further, profitability for the same service may differ across payers, even across private payers. As such, it may be as important to understand the financial impact of both changes in the volume of admissions or bed days, and how the service mix at competing facilities may be impacted by Regions proposal. Our analysis suggests the proposal has the potential to affect both mix of services across facilities over time, as well as individual hospital market share.

   For example, data over the past ten years suggest that Regions Hospital has been gradually gaining market share of inpatient hospital stays with a major operating room procedure from 2006 to 2016 (increase of 5.6 percent), as shown in Figure 3.[3] These procedures are more likely to be delivered to patients with commercial insurance, and also generally result in high higher average reimbursement per stay, compared to admissions without a major procedure ($18,500 vs. $7,900).[4] The proposal suggests Regions Hospital is expecting to further strengthen success in this area by making investments in cardiac and neurology care. Commercial success from these efforts at Regions Hospital has the potential to result in further shifts of the share of admissions with major procedures from other east metro facilities.

[3] MDH analysis of hospital discharge data from the Minnesota Hospital Association using methods found in McDermott, K. W., Freeman, W. J., & Elixhauser, A. (2017). Overview of Operating Room Procedures During Inpatient Stays in US Hospitals, 2014: Statistical Brief #233.

[4] Ibid. McDermott, K. W., Freeman, W. J., & Elixhauser, A. (2017).

Figure 3: Share of East Metro Hospital Stays with Major Operating Room Procedures, 2006-2016



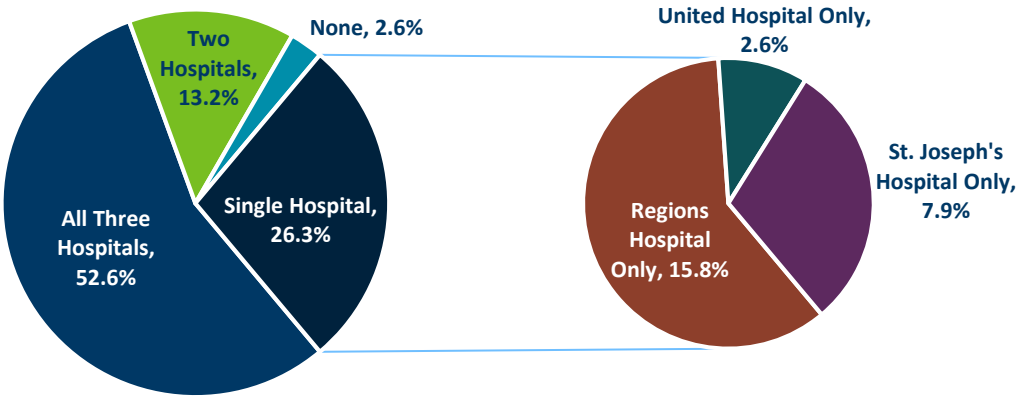
Source: MDH/Health Economics Program analysis of hospital discharge data

As noted, there is also the potential that Regions Hospital will attract a greater share of patients in the east metro and extended primary service area beyond admissions with major procedures. Although there is limited empirical data, there is some evidence to suggest that the vertical integration between the HealthPartners insurance function and the provider system has the potential to benefit Regions Hospital over time by shifting patients towards Regions. Under the trend towards greater use of advanced payment models for health care, there are incentives to create limited provider networks. This helps to control costs, more closely manage patient care, and negotiate discounts in exchange for more predictable business.

MDH analyzed 2018 health plan networks for small group and individual market plans, a small but likely indicative subset of the overall insurance market, to identify trends toward single or 2-hospital policies. We found Regions Hospital was included in 81 percent of networks, and was the only hospital in 15.8 percent of networks (an additional 2.6 percent of networks were limited to United Hospital and 7.9 percent to St. Joseph's Hospital, Figure 4). More importantly, two-thirds of HealthPartners' networks restrict patients to Regions Hospital alone. The combination of ongoing enrollment growth for HealthPartners (as a percent of the overall market and in absolute) and the trend towards single-hospital networks, has the potential to steer a greater share of hospital

patients towards Regions Hospital and affect the overall inpatient market share at the facility favorably.[5]

Figure 4: Access to Regions Hospital, United Hospital, and St. Joseph's Hospital in 2018 Provider Networks



Source: MDH/Health Economics Program analysis of 2018 Small Group and Individual Market Provider Networks

While these patterns may represent typical dynamics in markets with competing entities, two potential outcomes derived from economic theory and observations in hospital markets create public-interest concerns:

1. Loss of revenue as a result of a shift in market share or the service mix at individual facilities will likely result in more careful revenue management considerations across all facilities that may include curtailing the delivery of lower-profitability services, such as mental health and chemical dependency. This would reverse the recent improvement felt across the east metro system and exacerbate patient diverts, emergency room closures and wait times across the market.
2. In response to actual or expected financial impact, health systems might look to distinguish themselves more explicitly from each other, by duplicating investments in technology, services lines and capabilities. In addition to such activities in a "medical arms race" there may also be unnecessary additional capital investments in facilities, patient rooms and environment, which would add to the underlying cost of care and premium growth.

3. **The proposal would result in significant financial investments in a market with existing over-capacity of licensed beds.**

Any expansion in hospital capacity will result in additional health care spending from supplies and medical equipment, building and renovation, and on-going personnel and staffing costs. Similar to

[5] For the fully-insured commercial market, HealthPartners has seen an increase in market share of 5.1 percentage points in the past 10 years – from 25.5 percent in 2006 to 30.6 percent in 2016. MDH analysis of annual health plan reports to MDH (Health Plan Financial and Statistical Report)

the cost of competition noted in the previous item, these additional expenditures will add costs to the health care system – finding their way into premiums through growth in the underlying cost of care.

The Regions Hospital proposal did not enumerate the full cost of the proposed expansion, making it difficult to assess its full impact. The proposal includes estimates for new expenditures between 2018 and 2030 covering operations and staffing of $1.36 billion. Other costs, including to refurbish existing rooms, build out shelled space, accommodate patients during construction, and acquire and relocate equipment, could feasibly raise the project cost to $2 billion.

Such investment could be productive, if it served to deliver more timely access to critical services. However, at this point, the east metro area appears to already have substantial excess inpatient capacity in place, and is likely that it would be sufficient to address the expected modest future need. Most of the excess capacity, about 350 "banked" beds, exists at St. Joseph's Hospital (177 beds in 2016) and United Hospital (180 beds in 2016), both within about 2 miles of the Regions Hospital campus.

4. **Regions Hospital is critical to the east metro health care fabric because of its role in delivering key hospital services, including trauma and burn care; providing for vulnerable populations; seeking to address inequities in health care and acting as partner to community-based organizations. The hospital and its proposal enjoy strong public support across a range of stakeholders.**

   Regions Hospital plays a critically important role in the community. Compared to other east metro hospitals, the facility provides a larger percent of operating expenses for uncompensated care (2.4 percent compared to 1.2 percent). Regions Hospital also offers key services essential to the community, such as trauma and burn care. The hospital acts as leader in the delivery of care for vulnerable populations, educates medical and other professionals, and serves a public health function for Ramsey County. Regions Hospital also has worked toward improving the continuum of mental health care – including supportive housing. Regions Hospital's critical role to the community is evidenced by the strong support it and the proposal enjoys among local officials, community members and others.

   Of the 49 comments received by MDH by April 25, 2017, the vast majority have been in support of the proposal. The letters in support highlight the unique services that Regions provides. Letters from community members underscore Regions support of community events such as Rondo Days, and the hospital's commitment to helping high school students learn about health careers. Providers and local government groups also note the mental health services provided by Regions.

   Of the four letters received that do not support the proposal, three were from other health systems. One, in particular, expressed concern that the decision concerning an exception occurs follows an adequate review process. Two other systems, Allina and Fairview, expressed concern about the number of beds and the projection horizon of the proposal. Another community stakeholder, the Sisters of St. Joseph of Corondelet, was concerned about the proposal's potential substantial impact on St. Joseph's Hospital.

5. **While the review found the proposal in its current form was not in the public interest, like the proposal, the analysis identified existing capacity constraints at Regions Hospital.**

MDH found evidence of capacity constraints in medical/surgical areas at Regions Hospital, with occupancy regularly exceeding 85 percent and, at times, 90 percent. High occupancy rates can create operational challenges and have the potential to negatively affect health outcomes. In practical terms, high occupancy can result in patients being turned away or emergency department gridlock.[6,7,8,9] A smaller number of additional licensed beds at Regions would likely help to alleviate these access restrictions.

Most of the patients diverted from Regions Hospital are seeking inpatient mental health care, as availability of these beds is often insufficient across the community. Although the number of inpatient mental health beds may contribute to this at times, diversions and waits for hospital patients are mostly an outcome of recognized system failures in the overall mental health system in Minnesota.[10] Compounding this is a growing number of pretrial jail detainees that have been court-ordered into state operated facilities such as the Anoka Metro Regional Treatment Center, limiting the beds available at that facility and placing further strain on all hospitals that provide inpatient mental health services across the state.

Given that HealthPartners is a leader in improving the continuum of mental health care—including supportive housing – a small addition of inpatient mental health beds to Regions Hospital in the nearer future is likely a necessary step to meet the existing, and anticipated, needs in the area. To ensure that the additional licensed beds will be used exclusively to address mental health needs, may require Regions to obtain certification under the Centers for Medicare & Medicaid Services excluded psychiatric unit designation.[11]

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[6] Boyle, J., Zeitz, K., Hoffman, R., Khanna, S., & Beltrame, J. (2014). Probability of severe adverse events as a function of hospital occupancy. *IEEE journal of biomedical and health informatics*, 18(1), 15-20.

[7] Schilling, P. L., Campbell Jr, D. A., Englesbe, M. J., & Davis, M. M. (2010). A comparison of in-hospital mortality risk conferred by high hospital occupancy, differences in nurse staffing levels, weekend admission, and seasonal influenza. *Medical Care*, 48(3), 224-232.

[8] McManus, M. L., Long, M. C., Cooper, A., & Litvak, E. (2004). Queuing theory accurately models the need for critical care resources. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, 100(5), 1271-1276.

[9] Whelan, L., Burns, B., Brantley, M., Haas, T., Arthur, A. O., & Thomas, S. H. (2014). Mathematical modeling of the impact of hospital occupancy: When do dwindling hospital beds cause ED gridlock? *Advances in Emergency Medicine*.

[10] See Governor's Task Force on Mental Health—Final Report 2016. Retrieved from https://mn.gov/dhs/mental-health-tf/report/

[11] While hospitals can designate beds to be used for specific purposes within the hospital (such as obstetrics, intensive care unit, cardiac care, etc.) there are only two specific designations on both a state and federal level (the state uses federal designations in licensing.). These include "excluded psychiatric units" and "rehabilitation units." However, hospitals can provide psychiatric care, to address primary or secondary diagnoses, without using the federal designation. The federal designation provides different Medicare reimbursement; as Medicare is not a major payer of psychiatric services, a hospital may not choose to have beds certified under the federal designation. Regions Hospital has a specific closed psychiatric wing; however, this unit is not currently designated as an excluded psychiatric unit. For this reason, the only way to guarantee licensed beds would be used for mental health only (for any moratorium exception) would be to require that the beds be licensed under the federal excluded psychiatric unit designation.