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July 28, 2017

BY EMAIL ONLY (erik.bodin@vdh.virginia.gov)
Mr. Erik O. Bodin, Director
Office of Licensure and Certification
9960 Mayland Drive, Suite 401
Henrico, VA 23233-1485

Re: **Request for Additional Information dated December 22, 2016 – Response #18**

Dear Mr. Bodin,

Response #18 to the questions received from your office on December 22, 2016 has been uploaded to the Citrix ShareFile platform as "Cooperative Agreement Application Responses" under folder #18, dated July 28, 2017, for Request Dated December 22.

Amended responses to the following questions are submitted as part of Response #18:

Section V. Additional Information

    N.   Market Analysis
          8
          9

Please contact me if you have any questions.

Sincerely,

Jennifer L. McGrath

cc: Peter Boswell
       Allyson K. Tysinger

909042

RESPONSE #18

TO QUESTIONS

SUBMITTED DECEMBER 22, 2016

BY

VIRGINIA DEPARTMENT OF HEALTH

IN CONNECTION WITH

APPLICATION FOR LETTER AUTHORIZING COOPERATIVE AGREEMENT

Pursuant to Virginia Code § 15.2-5384.1

and the regulations promulgated thereunder at 12VAC5-221-10 *et seq.*

Submitted by: Mountain States Health Alliance

Wellmont Health System

Date: July 28, 2017

V.N.8. AMENDED JOINT RESPONSE #2

N. Market Analysis

8. **Please provide a copy of all requests or orders from the FTC, any other federal agencies and from Tennessee antitrust agencies.**

    JOINT RESPONSE: **Exhibit N-8.Am2** contains additional information related to the Parties' application for a Certificate of Public Advantage in Tennessee.

    The Parties believe that **Exhibit N-8.Am2** is proprietary. This Exhibit is submitted separately to the Virginia State Health Commissioner and the Attorney General for the Commonwealth of Virginia as proprietary information that is required to remain confidential under Virginia Code Section 15.2-5384.1.C.1 and Virginia's Rules and Regulations Governing Cooperative Agreements (12VAC5-221-40.D).

    INDEX OF DOCUMENTS:

    - Exhibit N-8.Am2   Tennessee COPA Additional Information 2 – **PROPRIETARY**

V.N.9. AMENDED JOINT RESPONSE #2

9. **Please provide complete copies of all submissions to the FTC or any other federal agency or to any Tennessee agency.**

   <u>JOINT RESPONSE</u>: Please see **Exhibit N-8.Am2.** In addition, pursuant to verbal requests from the Tennessee Attorney General's Office made at a meeting on May 24, 2017, the Parties have provided the following information to the Tennessee Attorney General:

   - Dr. Dennis Weaver with the Advisory Board prepared a report with further detail on the health IT component of Ballad Health's commitments. This supplemental report specifically addresses Ballad Health's plan to make a capital investment of $150 million over 10 years in a Common Clinical IT Platform and how this investment would benefit Ballad Health patients and the community at large. In preparing this supplemental report, Dr. Weaver performed a data review and conducted key stakeholder interviews at both systems to understand each system's current health IT capabilities and their plans for the Common Clinical IT Platform. This supplemental report concludes that the implementation of a Common Clinical IT Platform, as proposed by Mountain States and Wellmont, is a fundamental requirement and an essential step toward creating an integrated delivery system capable of delivering population health management. Specifically, the Common Clinical IT Platform will benefit public and private interests by positioning the combined system to enhance the patient experience, support the infrastructure for population health management, enhance coordination with community providers, facilitate health information exchange, and manage costs and reduce care variation. The supplemental Advisory Board report on IT is attached as **Exhibit N-9.Am1**.

   - Certain additional information relating to the Tennessee COPA application, which information is attached as **Exhibit N-9.Am2**.

   The Parties believe **Exhibit N-9.Am2** is proprietary, confidential and competitively sensitive under federal antitrust laws. This Exhibit is submitted separately to the Virginia State Health Commissioner and the Attorney General for the Commonwealth of Virginia as proprietary information that is required to remain confidential under Virginia Code Section 15.2-5384.1.C.1 and Virginia's Rules and Regulations Governing Cooperative Agreements (12VAC5-221-40.D).

   INDEX OF DOCUMENTS:

   - Exhibit N-9.Am1   JOINT Advisory Board Supplemental Overview of the Benefits of a Common Clinical IT Platform in an Integrated Delivery System
   - Exhibit N-9.Am2   Tennessee COPA Additional Information 3 – **PROPRIETARY**

Mountain States Health Alliance and Wellmont Health System
Responses to Virginia Department of Health Request #1 dated December 22, 2016

EXHIBIT LIST

SECTION V

Exhibit Number	Description
N-8.Am2	PROPRIETARY
N-9.Am1 JOINT PUBLIC	JOINT PUBLIC
N-9.Am2	PROPRIETARY

Supplemental Overview of the Benefits of a Common Clinical IT Platform in an Integrated Delivery System

Prepared for Mountain States Health Alliance and Wellmont Health System

June 28, 2017

Dennis Weaver, MD, MBA
Executive Vice President
Chief Medical Officer
National Partner

Supplemental Overview of the Benefits of a Common Clinical IT Platform in an Integrated Delivery System

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Introduction

Purpose, Summary and Methodology for Supplemental Assessment

Purpose of the Report

In April 2015, Mountain States Health Alliance and Wellmont Health System announced their intent to create an integrated delivery system serving the communities of northeast Tennessee and southwest Virginia. The combined system's stated goal is to generate savings through operational efficiencies and reinvest those savings to benefit the region, including through a focus on improving the overall health of the population.[1]

I was asked to lead a team of consultants to independently evaluate and report upon the likelihood that the merged integrated delivery system, known as Ballad Health, will be able to achieve its stated goals related to navigating the "narrow corridor" of successfully transitioning toward population health management and risk-based contracting.[2] To that end, in April 2017, my team provided a report that addressed the current and stated plans for future capabilities of both systems, critical success factors during the transition, and the likelihood for future operational success in achieving population health management and optimal risk-based performance as a merged integrated delivery system. Subsequently, I was asked to provide this supplemental report focusing in more detail on the health IT component of our assessment, specifically Ballad Health's plan to make a capital investment of $150 million over 10 years in a Common Clinical IT Platform that would benefit patients and the community at large.[3]

The state's questions arise from a concern that a substantial portion of the IT investment would be for the benefit of the merged parties rather than for the public good, or that the IT investment would occur regardless of the merger. While Mountain States Health Alliance already plans to invest in a new Electronic Medical Record, that investment will not result in a Common Clinical IT Platform if the merger does not occur. The benefits described in this report (and the $150 million capital investment) are merger-specific and pertain to the benefits of a **Common** Clinical IT Platform across both parties. Our supplemental report illustrates the degree to which the merged system will be able to leverage the Common Clinical IT Platform – a level of impact far greater than either organization could achieve individually.

Additionally, our supplemental report provides an assessment of the public benefit of a Common Clinical IT Platform for patients, payers and community providers by improving the overall efficiency of health care delivery in the region. The level of benefit described in my assessment is only achievable through the full integration and IT connectivity associated with a merged system.

1) Mountain States Health Alliance & Wellmont Health System. (2016). Application for Certificate of Public Advantage, State of Tennessee.
2) Aim high. (2012). Journal of Healthcare Contracting. ("As an organization moves along the corridor, falling off either way can hurt the organization… Unfortunately, in a fee-for-service world, if you're effective at reducing utilization, you can hurt yourself. On the other hand, if you assume risk but you're unable to coordinate care, financially, you can find yourself in a very difficult position.")
3) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted November 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.

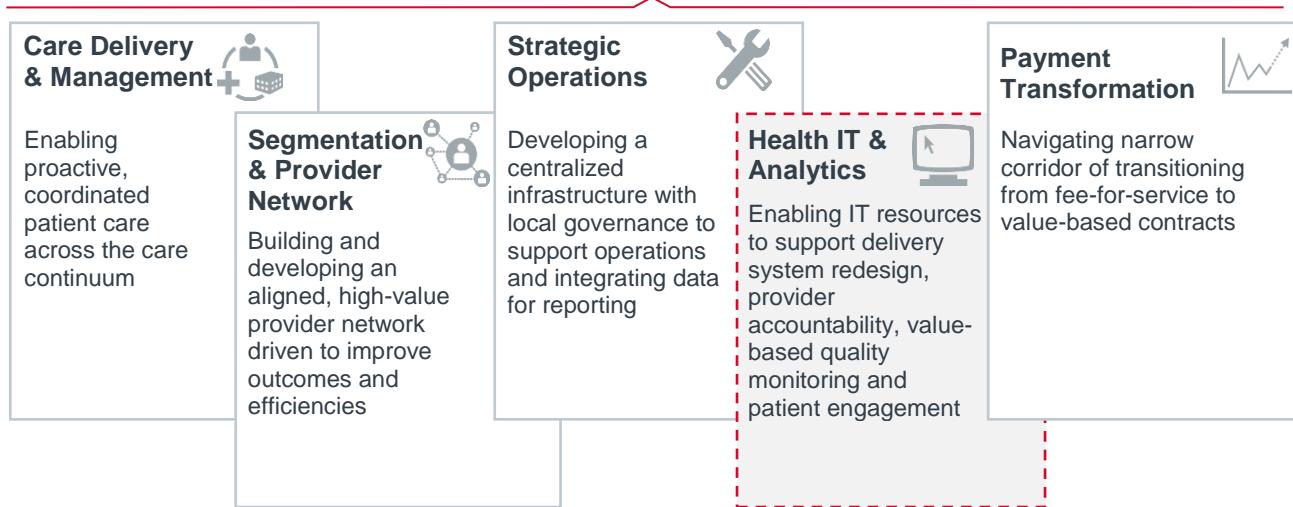# Methodology and Framework for Population Health Assessment

To produce this supplemental report, we conducted a data review and follow-up stakeholder interviews. Our data review included information on both systems' current health information exchange capabilities, the Electronic Medical Record landscape in the community, and each organization's vision and requirements for the Common Clinical IT Platform. We also conducted follow-up interviews to explore the present IT capabilities of both systems and their plans for a Common Clinical IT Platform as a combined system.

For our original assessment, our team conducted a gap analysis following a core methodology focused on the six areas we believe are necessary to be successful at population health management, as illustrated below. In this supplemental analysis, we focus solely on the Health IT and Analytics pillar, specifically as it relates to Ballad Health's proposed implementation of a Common Clinical IT Platform.

Pillars of Successful Population Health Management

Organization & Governance

Structuring the organization for success in a multi-payer, value-based care environment

Care Delivery & Management

Enabling proactive, coordinated patient care across the care continuum

Segmentation & Provider Network

Building and developing an aligned, high-value provider network driven to improve outcomes and efficiencies

Strategic Operations

Developing a centralized infrastructure with local governance to support operations and integrating data for reporting

Health IT & Analytics

Enabling IT resources to support delivery system redesign, provider accountability, value-based quality monitoring and patient engagement

Payment Transformation

Navigating narrow corridor of transitioning from fee-for-service to value-based contracts

Assessment Findings

IT Platform Stands to Benefit a Broad Range of Stakeholders

The adoption of a Common Clinical IT Platform by Ballad Health will strengthen the delivery of care and prepare the system to pursue population health management. Specifically, based on our analysis, we find that the common platform will benefit the communities of northeast Tennessee and southwest Virginia by:

- Enhancing the **patient experience**;

- Supporting the infrastructure necessary for **population health management**;

- Enhancing coordination with **community providers**;

- Facilitating **health information exchange**; and

- Managing **costs** and reducing unwarranted **variation in care**.

Importantly, these capabilities will benefit a number of stakeholders in the region, both inside the Ballad Health system and externally. As all the stakeholders in the health care ecosystem are closely connected, the return on investment in a Common Clinical IT Platform will be compounded as the benefits spread to multiple stakeholder groups. In this way, the Common Clinical IT Platform carries both public and private benefit: as care delivery becomes stronger and population health management more accessible, Ballad Health will clearly benefit – but of even greater benefit will be the improved health of the community and the involvement of public stakeholders in supporting that improved health.

Importantly, the process of integrating IT platforms across Ballad Health is the primary driver of the above benefits. While separate IT investments could achieve some community benefit, full integration and a Common Clinical IT Platform across the merged system will enable the achievement of all outlined benefits to the fullest extent. The merger will magnify the power of the Common Clinical IT Platform not only for the integrated network of hospitals, clinics and providers, but also for community providers, payers and patients at a scale and efficiency unachievable by Mountain States or Wellmont alone.

Stakeholders Impacted by a Common Clinical IT Platform

Patients

Ballad Health

Government

Employed & Community Providers

Payers

advisory.com

Enhancing the Patient Experience

One of the most quickly evolving trends in today's health care industry is consumerism. As patients become increasingly responsible for their health care expenses – via the shift of costs from employer to employee as well as high-deductible health plans – patients, in the traditional sense, are evolving to become consumers who shop for and actively participate in their own health care. Along with this increased patient responsibility and ownership, it follows that consumers want to have access to their own health data. A Common Clinical IT Platform will allow patients to log in to a single patient portal to view their records, which will include all encounters across the merged health system. In the portal, patients will be able to view their appointment history, current and past medications, vital sign statistics and lab results. The IT platform will also include functionality for appointment reminders, direct patient messaging and a platform to build telehealth capabilities.

From the perspective of the health system and for the benefit of the patient, a Common Clinical IT Platform is a powerful opportunity for providers to see a holistic portrait of the patient's continuum of care. Today, as an example, Mountain States providers only have complete information on a patient's interactions at their system. By contrast, with a Common Clinical IT Platform, a Ballad Health provider would be able to see a patient's interactions anywhere across the combined system – and even with participating community providers (to be discussed in detail below). In this manner, an important benefit of the Common Clinical IT Platform will be improved quality and coordination of care. As the Common Clinical IT Platform enables continuity across the continuum of care, it will enhance provider-to-provider communication and data-sharing, resulting in a team of providers working in partnership to deliver high-quality care for the patient. An additional benefit of increased data flow across the system and with community providers will be the increased accuracy of medication reconciliation and reduction of duplicative services, not only conserving resources for the health system and payer, but also improving diagnostic accuracy for the patient as well as conserving time and money for the patient.

Supporting Population Health Management Infrastructure

In our team's earlier assessment, we analyzed Mountain States and Wellmont for the core capabilities needed to be successful in population health management and optimal risk-based contracting performance. An essential element for success in this arena is a robust set of IT resources to support delivery system redesign, provider performance accountability, value-based quality monitoring and patient engagement. As we noted in our assessment, best practice use of IT should include ease of information flow throughout the system, transparency of performance with providers, decision support/analytic tools and robust reporting capabilities.

The systems have committed to invest $150 million over 10 years in Ballad Health's Common Clinical IT Platform.[4] This investment should be thought of not only as an investment in the health system itself, but as an investment in the community and Ballad Health's commitment to achieving its population health goals. Population health management is not possible without a strong IT infrastructure, so the investment is essential and will continue generating returns as the combined system journeys toward value-based care delivery. In addition to the benefits for Ballad Health, private and public payers will see a return on investment as Ballad's enhanced capabilities lead to a well-managed patient population across payers.

Ballad's significant commitment to enhanced IT capabilities will facilitate information-sharing, improved clinical decision-making and increased ease of access for patients. An investment like this is crucial for any organization seeking clinical integration across a multitude of stakeholders in the community, and the systems have indeed committed to pursuing clinical integration with independent providers in the region. From our experience building many Clinically Integrated Networks across the country,[5] we are familiar with the IT capabilities an organization must have in place for a Clinically Integrated Network to be operationally sound and aligned with FTC and Department of Justice guidance. In fact, the FTC recognizes a number of specific IT-related requirements necessary for Clinical Integration:

- The **ability to aggregate data to develop a holistic picture of the patient's full continuum of care**. In this regard, IT investment follows something more akin to the 80/20 rule – i.e., the ability to see the final bit of the care continuum (last 20%) requires substantially more investment (80%). As an example, the full continuum will require the processing and analysis of adjudicated claims data, which requires net new IT platforms to help process and analyze data as well as additional analytic FTEs to help support the new platforms. Further, the Common Clinical IT Platform will allow this clinical information to be available to the providers in their routine workflow – a distinct advantage to achieving the Quadruple Aim: improving population health, enhancing patient experience, reducing costs and improving the work life of clinicians and staff.[6]

- The **selection of quality metrics related to primary care, ambulatory specialties and practice transformation** that require consistent tracking and common data sources across all participating providers

- **Established disease registries across the network**, requiring seamless data exchange in order to help ensure consistency across providers

Ballad Health is wise to invest now in an IT platform that will allow it to pursue Clinical Integration in the future. Without these IT capabilities, the system is unlikely to be successful in partnering with providers in the community to work toward a common set of goals to improve quality and reduce costs. Employed and community providers will benefit greatly from this proactive investment that will enable seamless connectivity and clinical integration with the system. Additionally, payers will benefit from the performance improvements that are essential to a Clinical Integration program. Finally, Ballad Health's investment will generate a strong benefit for patients through enhanced care delivery.

Enhancing Coordination with Community Providers

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4) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted November 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.
5) Clinical Integration Consulting: https://www.advisory.com/consulting/clinical-integration-consulting.
6) Bodenheimer, T., and Sinsky, C. (2014). From Triple to Quadruple Aim: care of the patient requires care of the provider. Annals of Family Medicine, 12(6), 573-576.

Both Mountain States and Wellmont have experience leveraging technology to coordinate with community providers. As one example, Mountain States has established direct addresses for 940 providers and facilities in order to send C-CDA (Consolidated Clinical Document Architecture) files between organizations. These C-CDA links are used to provide Mountain States emergency department providers with timely and accurate problem lists, allergies, medications and immunizations along with other elements of the patient's ambulatory record. After a patient has an emergency department visit or admission, the notifications from Mountain States can be used to prepopulate work lists and/or set up follow-up appointment tasks. In February 2017, Mountain States received over 4,000 C-CDAs from community providers and set up almost 4,000 tasks in community providers' Electronic Medical Records (EMRs).[7] Thus far, there has been no monetary investment required for this level of data-sharing.

While this level of sharing is valuable, nothing can replicate the complete interoperability of a Common Clinical IT Platform. The Common Clinical IT Platform will allow Ballad Health to share its EMR platform with community providers at a significantly lower cost than an independent practice could afford on its own. This is a particularly important benefit in light of the burden on community providers as they struggle to pay for and maintain the technological capabilities required by MACRA.[8] Offering the EMR platform to community providers at a lower rate will result in cost savings outside the combined system's achieved synergies and improved data flow between community physicians and the health system.

Mountain States already has experience supporting independent community practices with their EMR and assisted ETSU and State of Franklin Healthcare Associates in their acquisitions of AllScripts EMR a few years ago. Mountain States technical teams work closely with ETSU staff, through a maintenance contract, to accomplish hardware and software upgrades, system optimization and reporting. Under this arrangement, independent practices are able to benefit from the extensive IT capabilities of an integrated delivery system. By offering Ballad Health's actual EMR instance to community providers through a program like Cerner's Community Link or Epic's Community Connect (as examples), Ballad Health would be able to further lower acquisition costs for community providers and increase interoperability between EMRs. Even if community providers are not on Ballad's Common Clinical IT Platform, interoperable links with community EMRs will be far easier to create when there is one shared IT platform across both local health systems.

Having community providers on the same platform as Ballad Health will establish one digital connection among all participating providers, which will greatly streamline communication and broaden access to patient data. For example, in today's environment, a Wellmont provider could request a patient record from a community provider, but the data will not be "interoperable" between the parties because they are on different platforms. In other words, the data cannot simply be plugged into the Wellmont EMR, but rather will appear in a different format and may not even be readable by the EMR system. By offering the same instance of an EMR to community providers, interoperability ceases to be a barrier for effective communication and benefits patients and providers.

With increased interoperability with participating community providers and the integrated delivery system, clinicians will be able to see a more complete picture of their patient's health. For example, today a community provider might have to ask a patient about his or her emergency department visit and rely on the patient's memory and accuracy in recalling important details during a stressful event; with a Common Clinical IT Platform in place, providers can trust the data before them and make more informed clinical decisions. The result will be less redundancy in services provided and improved clinical decision-making, leading to better outcomes, lower costs and an enhanced patient experience.

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7)   Stakeholder interviews.
8)   Medicare Access and CHIP Reauthorization Act of 2015.

Facilitating Health Information Exchange
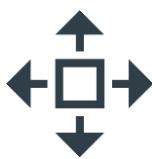
During our interviews, one stakeholder vividly stated that Ballad Health's goal will be to turn "health information exchange" from a noun into a verb. In our work around the country, we have found that Health Information Exchanges (HIEs) often fail to deliver on the promise of interoperability and certainly do not transform health information exchange into a verb. The challenges facing HIEs are numerous, often including the cost of data exchange, limited number of data elements exchanged, data integrity, limited number of providers using the service, significant volumes of patients opting out of data-sharing, and concerns over patient privacy/security. A study commissioned by the Office of the National Coordinator for Health Information Technology outlined the prevalence of these issues, and it appears that many of these issues serve as a barrier to the efficacy of the OnePartner HIE, in which both Mountain States and Wellmont participate as data contributors.[9]

During our interviews, stakeholders indicated that both systems' data exchange with OnePartner only covers a limited set of data points and does not include elements of the patient's clinical story contained in notes, attached documents and care plans. While both systems contribute data to the HIE, there is a fee for providers to view and transmit data, which has been a barrier to adoption at Wellmont, Mountain States and with community providers.[10] Even if there were not a fee and the HIE provided more comprehensive data-sharing, providers do not want to log in to "yet another system" to access data. A final issue is the significant volume of patients opting out of sharing data with a third-party HIE – in fact, more than 10,000 patients in a year for Wellmont. Since HIEs are not covered under provider-to-provider data-sharing, patients are more likely to opt out of sharing their data, which again limits the effectiveness of a third-party solution.

Fortunately, effective health information exchange is not dependent on an HIE. On a macro level, the health IT industry is showing increased willingness to focus on interoperability and collaboration, and the Carequality Interoperability Framework (among other initiatives) has helped facilitate greater data-sharing from provider EMR to provider EMR without a middle-man in between.[11] On a local level, both Wellmont and Mountain States already have extensive experience sharing relevant clinical data directly with other providers. For example, Wellmont has exchanged records for 250,000 patients with more than 1,000 hospitals, 1,200 emergency departments and 28,000 clinics through Epic's Care Everywhere interoperability application. Wellmont has also established direct interfaces through HL7 feeds with 169 organizations, facilitating almost 40 million messages in April 2017 alone. Finally, Wellmont engages in direct, secure file transfer (including over 500 data points) with 35 organizations through a solution called Go Anywhere. Mountain States, as described in the previous section, has designed a process by which local primary care clinics receive an alert of a patient's presence in the emergency department and the clinics generate and send a C-CDA to the emergency department physicians.

A robust exchange of health information will generate benefits for multiple stakeholders. As data-sharing leads to increased coordination among providers, care teams will be able to better manage patients and close care gaps. As described in the previous section, the sharing of information will help eliminate duplicative services, reduce costs and improve quality of care.

9) Dullabh, P., Parashuram, S., Hovey, L., Ubri, P., & Fischer, K. (2016). Evaluation of the State HIE Cooperative Agreement Program. NORC at the University of Chicago.
10) Stakeholder interviews.
11) Miliard, M. (2016). Epic, athenahealth, other EHR vendors sign on for Carequality Interoperability Framework. Healthcare IT News.

Managing Costs and Reducing Care Variation

As described in the section related to population health management infrastructure, there are specific IT requirements for clinical integration. In addition, there are other elements of clinical integration that require their own corresponding IT investments: one, a focus on management of costs; two, a focus on high-quality care rooted in evidence and practice.

First, clinically integrated organizations are focused on managing costs, reducing total cost of care and bending the cost curve. With the Common Clinical IT Platform, Ballad Health will be well-positioned to identify redundancies across the system, cutting overall system costs. A consistent cost accounting platform will support the identification of system-wide variation to bring internal costs closer to a system-wide median.

Second, a clinically integrated organization should be focused on consistent, high-quality care driven by evidence-based practice and practice-based evidence. Ballad's goal to improve the health of the region will rely on the reduction of care variation through the implementation of the latest evidence-based standards across the system, as well as internally identified best practices that help improve patient care. A Common Clinical IT Platform will allow for the rapid implementation of evidence-based standards, as well as the sharing of ideas, data and practice variation that helps identify practice-based standards. Additionally, functionality such as standardized order sets and alerts will increase provider adoption of clinical standards. As quality outcomes are measured, the Common Clinical IT Platform will support more streamlined reporting capabilities, providing a direct benefit to governmental agencies monitoring quality performance.

Ballad Health has identified its future needs for clinical integration and population health management and is prepared to invest in IT in order to support these efforts. The Common Clinical IT Platform will enable a unified workflow across the system, driving efficiency in the way care is delivered and increasing consistency at all points in the health system. Ballad Health will be well-positioned to reduce costs and variation in care – benefiting all stakeholders across the health care ecosystem.

Common Clinical IT Platform Implementation Planning

IT Infrastructure Timing, Development Plan and Level of Investment are Appropriate for the Road Ahead

In addition to understanding the benefits of a Common Clinical IT Platform, my assessment evaluates the current documentation and planning surrounding the IT developments in the event of a merger. In particular, this assessment addresses three crucial questions:

- Is the **level of committed investment sufficient** to achieve the new system's desired goals?

- Is the **timing of the investment** appropriate?

- Does the development plan include the **appropriate considerations** to ensure the highest possibility of success?

Level of Investment

Ballad Health has committed to an investment of approximately $150 million over 10 years to ensure implementation of a Common Clinical IT Platform and interoperability among the new system's hospitals, physicians and related services. Establishing an exact price is difficult, as prices vary based on selected IT vendors, flexible staffing needed to support the implementation and address unforeseen issues, and additional IT platforms that may be needed to support interoperability that sit alongside the primary EMR. EMR implementation costs vary widely within the industry, with implementations for similarly sized organizations in 2015 ranging from $160 million at Lahey Hospital and Medical Center to $200 million for Lehigh Valley Health Network.[12] For Ballad Health – a system made up of six hospitals on one EMR and eleven hospitals on another – the consolidation of EMRs will require a substantial investment of time, energy and capital; however, this investment has been meticulously budgeted and planned for in terms of both capital expense as well as long-term operating expense.

Mountain States has prepared a thorough Request for Proposals (RFP) to gather and compare cost estimates and implementation plans from various EMR vendors, and this RFP could be broadened to include Wellmont if the merger is approved. The RFP includes sections for inpatient, ambulatory and revenue cycle management product information, vendor support details, implementation approach, documentation and training, and strategic direction. Although the precise budgets for RFP responses will not be finalized until the proposed merger is approved, IT vendors typically include contingency costs to account for unforeseen barriers as high as 30% of total capital costs and have historically experienced implementation costs in line with expected budgets. For example, Epic touts that 87% of installations are on or under budget, while another 10% are within 10% of the budget.[13] Health systems that experience implementation issues and cost overruns do so because of planning issues, sequencing issues and unreasonable timelines. Both Wellmont and MSHA have experience with hospital and ambulatory EMR installations and have set realistic timelines. Ballad Health's combined resources will be well-equipped to manage the EMR implementation required to achieve a Common Clinical IT Platform.

Timing and Considerations

Ballad Health has provided a strategic development plan outlining the system's goals and approach for IT. Ballad Health's development plan includes an initial IT assessment, an outline of the desired IT infrastructure, an IT governance structure and a roadmap for implementation.

Common pitfalls for large-scale IT implementations include ineffective use of IT governance, aggressive timelines with little room for flexibility, and inappropriate sequencing that causes delays or unforeseen issues. First, many organizations lack a formalized data governance structure that is enabled to manage

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12) Jayanthi, A. (2015). 8 Epic EHR implementations with the biggest price tags in 2015. Becker's Hospital Review.
13) Jayanthi, A. (2016). Unpacking hospitals' EHR implementation costs: What's behind the million-dollar price tags? Becker's Hospital Review.

large-scale IT changes. The goal of data governance is to create standards by which an organization will guide new entries and reconcile existing data structures, definitions, uses and security. With a merger between two large health systems, the reconciliation of existing structures and addition of new systems is critical to the overall success of the merger. To that end, Ballad Health plans to create an Information Technology Governance Committee (ITGC) to support the development of a Common Clinical IT Platform. The ITGC will be co-chaired by physician and management leadership, include leadership across all geographic markets and have cross-functional representation, including operations, finance, information technology, legal and subject-matter experts.[14] While impossible to guarantee Ballad Health's success with its proposed governance model, I believe that the appropriate stakeholders are knowledgeable and involved in the ITGC. Further, both systems have IT leadership with the broad experience, deep expertise and a proven track record needed to successfully transition to a Common Clinical IT Platform.

Second, many organizations push for aggressive timelines without leaving room for the inevitable roadblocks that occur in every IT implementation or data migration project. The systems have estimated implementation to be completed within three years of Ballad Health's formation.[15] However, once the combined system is formed, it will develop a more detailed timeline for implementation based on its IT assessment. The planning efforts that have already been completed, combined with the future assessment that will result in a more detailed timeline, give me confidence that Ballad Health will develop a timeline that allows it to avoid pitfalls and appropriately address issues as they arise.

Finally, cost issues, timing delays and strategic inconsistencies occur for health systems that do not have appropriate sequencing for their IT initiatives. Appropriate sequencing references both the timing of IT initiatives to ensure seamless data transitions and interoperability as well as the alignment with current strategic priorities. Ballad Health is slated to begin with an initial IT assessment to catalogue existing IT infrastructure and data sources and provide a holistic recommendation to accomplish Ballad Health's stated goals. The assessment will be performed by an IT Functionality Team comprised of both health systems' IT resources. Ballad Health also provided a development plan that reassures me it has an appropriate blueprint for success. The plan organizes the data requirements and systems necessary for population health goals related to Population Identification, Population Tracking, Cross-Continuum Care Management, Care Delivery, and Performance Monitoring and Reporting.

14) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted November 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.
15) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted April 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.

Conclusion

Common Clinical IT Platform Drives Multiple Benefits for Patients

In summary, I conclude that the implementation of a Common Clinical IT Platform, as proposed by Mountain States and Wellmont, is a fundamental requirement and an essential step toward creating an integrated delivery system capable of delivering population health management. Specifically, the Common Clinical IT Platform will benefit public and private interests by positioning the combined system to enhance the patient experience, support the infrastructure for population health management, enhance coordination with community providers, facilitate health information exchange, and manage costs and reduce care variation.

This investment in a Common Clinical IT Platform should be viewed as a down payment for benefits that will subsequently accrue to constituents across the region. I truly believe that all stakeholders in the ecosystem – patients, providers, Ballad Health, payers (both public and private) and government – will benefit from the adoption of a Common Clinical IT Platform. It is an essential step that, if successfully and cost-effectively implemented, will have only positive consequences for the region.

Stakeholders Impacted by a Common Clinical IT Platform

Patients   Ballad Health   Government

Employed & Community Providers   Payers

With patients at the center of the health care system, it is only appropriate to conclude by emphasizing the impact of a Common Clinical IT Platform on the patient population. It is important to note that patients are the ultimate beneficiary of all improvements to the overall health care system. As illustrated on the following page, patients will experience multiple positive implications from each of the benefits outlined in this report.

Enhancing the Patient Experience

- By having access to a unified patient portal, patients have greater ownership over their health care data.
- Transparency of health information for providers leads to reduced duplication of services, conserving time and money for the patient.

Supporting Population Health Management Infrastructure

- A Common Clinical IT Platform accelerates population health management capabilities, enabling the health system to keep patients well and out of the hospital.
- Patients benefit as providers become increasingly accountable for the quality of care delivered.

Enhancing Coordination with Community Providers

- Patients are supported by a unified care team, working in tandem to deliver high-quality care to the patient.
- Interoperability among providers prevents patients from having to repeat information, recall conversations with other providers and possibly omit important clinical details.
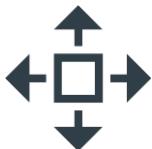
Facilitating Health Information Exchange

- Data-sharing equips care teams to close care gaps by seeing a full picture of the patient's health.
- Information exchange from EMR to EMR expands the number of access points where patients can seek care, yet still have their health information accessible to the provider.

Managing Costs and Reducing Care Variation

- IT-driven efforts to identify and reduce variation in care result in more consistent experiences and outcomes across the patient population, as well as lower total costs of care.
- As providers strive to develop care standards based on both evidence and practice, patients benefit from consistently delivered, high-quality care.

In conclusion, the implementation of a Common Clinical IT Platform will improve the overall health care system in northeast Tennessee and southwest Virginia, benefiting all stakeholders and especially making health care better for the patients and communities served by Ballad Health.

My team and I offer our thanks to the individuals that participated in stakeholder interviews to inform our analysis.

Appendix

Health IT and Analytics

Enabling IT resources to support delivery system redesign, provider accountability, value-based quality monitoring and patient engagement

Health IT and Analytics involves the supportive technology that is essential to advance population health management and risk-based contracting strategies.

Strong Health IT and Analytics should include ease of information flow throughout the system, transparency with providers, supporting business intelligence tools and reporting capabilities. More detailed best practices (which were evidenced during our interviews with Mountain States and Wellmont) include:

- Common clinical information technology roadmap that spans the enterprise

- Technology that monitors and supports provider performance, accountability and data transparency

- Aligned providers and associated patient data connected through HIE/data warehouse

- Informational continuity and interoperability across settings to enable seamless, scalable care management activities across delivery network

- Business intelligence tools that support population health management activities, including risk stratification, claims analysis, referral management, quality reporting and care manager support portals

- Robust clinical and financial reporting on discrete populations

- Value-based revenue/contracting/actuarial reporting and cost management tools to support analytics

Findings and Building Blocks for Success

Mountain States and Wellmont have a number of Health IT and Analytics capabilities in place that will position them for success post-merger.

1. **A Common Clinical IT Platform across both organizations will facilitate true interoperability and robust exchange of health information versus limited data-sharing**. Currently, Wellmont has migrated to a single EMR system, but Mountain States utilizes a host of different IT systems independently knitted together. This structure creates barriers to data exchange and a sub-optimal impact on internal operations. By contrast, in the combined system there will be a Common Clinical IT Platform, which will enable interoperability across the system and real-time health information exchange.

   Today, Mountain States and Wellmont both participate in a Health Information Exchange that has limited information exchange functionality. Both systems contribute data to the HIE, which only covers 20 data points and requires a fee to view data.[16] Ballad Health's expanded use of a Common Clinical IT Platform for the entire system and community will allow for informational exchange across all EMR data points with no additional fees required. Both organizations have significant experience with health information exchange (e.g., Wellmont has exchanged patients records with more than 800 hospitals, 1,200 emergency departments and 21,000 clinics for over 200,000 patients), but still feel that a Common Clinical IT Platform is absolutely essential in order to turn "Health Information Exchange" between the systems from a noun into a verb.[17] Throughout multiple stakeholder interviews, IT leaders at both organizations expressed the need for continued investment in these areas to ensure that Ballad Health is prepared for future risk arrangements and becomes a leader in the use of clinical IT systems.

16) Stakeholder interviews.
17) Stakeholder interviews.

The Common Clinical IT Platform will allow for Ballad Health to share its EMR platform with community providers at a significantly lower cost than an independent practice could afford on its own, resulting in cost savings outside the combined system's achieved synergies and improved data flow between community physicians and the hospital. Additional benefits of moving to a single IT platform include improved satisfaction from providers, as the platform enhances their communication channels with each other, and from patients, as they benefit from a single access point to their health information across the system (instead of logging into separate patient portals).[18] A unified patient portal will also allow the combined system to more effectively build telehealth capabilities with direct patient messaging. Additionally, the system's migration to a Common Clinical IT Platform will enhance multidisciplinary communication, which can magnify the value of a single point of contact through integration of the EMR and the patient portal.

Successful integration to a single IT platform will lead to integration of two mandatory data sets for optimal results – clinical data and financial data. In a way no community-based exchange can provide, an integrated IT platform will enable the system to standardize clinical data while also benefiting from clarity in the contributing cost variables. This is absolutely essential for any system that expects to enter into full risk arrangements, as lack of clarity or continued variation in this data can lead to failure in risk-based models.

A Common Clinical IT Platform will also be necessary to achieve the new system's goal of improved clinical standardization through the deployment of best practices. Mitigation of variation requires the use of standardized order sets and commonality of data definitions – making a common governance structure essential. A community-based HIE can help achieve sharing of limited data, but will fall short of providing the integration in order entry, drug utilization, patient flow and data consumption necessary for optimally effective population health management.

A major factor for successful population health management is the establishment of an infrastructure that allows for transparency of data and access to information at the point of care.[19] Ballad Health's commitment to a Common Clinical IT Platform will satisfy those needs and become the foundation on which a successful population health management program can be built.

2. **Both systems utilize IT tools to understand and analyze data across the care continuum**. As discussed under the Care Delivery and Management pillar, business intelligence tools are in place in both systems and would be enhanced through the increased resources generated by the merger. Both systems utilize risk stratification tools and will continue their evolution in this capability with the inclusion of elements such as social need screenings, health risk identification and immunization delivery.[20]

Wellmont utilizes many business intelligence capabilities from its Epic EMR and has established multiple layers of robust analytic solutions atop its enterprise data warehouse. Core capabilities include predictive modeling, risk scoring, compliance and safety monitoring, clinical quality reporting for over a dozen different programs, disease registries, quality benchmarking and analytics, cost accounting data, and self-service analytics with an accessible data mart of measures. Wellmont has established a centralized IT and analytics department that manages quality reporting and supports all clinical standardization efforts within the system. These activities will be scalable across the new system and arm Ballad Health with the experience necessary to undergo new areas of population health management and analytics.

Both organizations have invested in Crimson Continuum of Care (CCC), a multifaceted quality and performance improvement tool that allows physicians, administrators and performance improvement teams to analyze severity-adjusted quality and cost data. CCC allows Mountain States and Wellmont to compare their performance by physician group to cohorts of other hospitals and historical performance at their own hospitals. As a combined system with shared access to CCC, Ballad Health will be able to use cohort and system-wide comparisons on quality and cost to identify areas with the greatest opportunities for clinical standardization and cost savings.

18) Epstein, J. (2014). Creating a single EHR: During a merger, or later? Hospitals & Health Networks.
19) Hinman, A. R., & Ross, D. A. (2010). Immunization registries can be building blocks for national health information systems. Health Affairs, 29(4), 676-682.
20) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted November 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.

As discussed under the Care Delivery and Management pillar, Ballad Health has committed to investing in fully integrated population health management tools as part of the Common Clinical IT Platform.[21] Having a common set of business intelligence tools will facilitate consistency and continuity in care management across the system and will enable the organization to focus its staff outreach to high- and rising-risk patients and engage low-risk patients through a common patient portal and virtual access points.[22]

3. **Mountain States and Wellmont bring extensive expertise in different, complementary areas related to health IT**. A common theme throughout this assessment is the merging of complementary strengths held by Mountain States and Wellmont. The meshing of skillsets and assets is particularly strong in areas related to Health IT and Analytics.

Wellmont has demonstrated exceptional use of its EMR with strong data governance, clinical workflow optimization, and integration with ambulatory and community providers. Wellmont is one of the country's most advanced users of Epic's EMR and has demonstrated particular expertise in the rapid implementation of EMR instances for its own hospitals. In fact, Wellmont was one of only eight Epic users in the world to achieve Epic's level 8 out of 10 for its success in implementing the EMR's functionality.[23] Wellmont uses its EMR to ensure clinical standardization across the system and has a well-defined process for identifying, building and implementing new clinical pathways. During interviews with Wellmont stakeholders, it was clear that the organization felt great pride for its historical EMR accomplishments and an overwhelming enthusiasm for the possibilities of EMR integration across the merged system.

For Mountain States, AnewCare Collaborative brings experience with claims analysis, risk stratification and contracting analytics that can be leveraged across the new entity. Success under value-based contracts relies on access to timely, reliable and actionable data for the appropriate stakeholders. AnewCare has experience in population health management analytics and has a proven approach for how those analytics can be integrated into a caregiver's practice to help achieve total cost of care savings. Using claims data, AnewCare Collaborative has visibility into the entire care continuum, which is crucial in understanding a population's health care pain points and where quality improvement and cost reduction strategies can best intervene. Additionally, AnewCare Collaborative has experience working with multiple EMRs at independent practices to collect and report on quality data for value-based contracts. AnewCare Collaborative established a strong audit process for reporting early in its inception and was able to report on 100% of measures with all practices in the first year – a feat not often achieved by new ACOs.[24] These reporting processes and standards will be valuable for the combined entity.

21) Mountain States Health Alliance & Wellmont Health System. (2016). Response by applicants to submissions of Federal Trade Commission staff, Amerigroup Tennessee Inc., professors and academic economists, Kenneth Kizer, M.D., MPH, and Holston Medical Group to the Tennessee Department of Health regarding Certificate of Public Advantage application.
22) Aranow, M. & Kilbridge, P. (2014). Analytics for Population Health Management. The Advisory Board Company.
23) Mountain States Health Alliance & Wellmont Health System. (2016). Responses to questions submitted November 22, 2016 by Tennessee Department of Health in connection with application for a Certificate of Public Advantage.
24) Stakeholder interviews.