CONDUENT

Ballad Health Population Health Improvement Plan

Capacity and Preparedness
Assessment and Recommendations

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Executive Summary

Mountain States Health Alliance (MSHA) and Wellmont Health System (WHS) have proposed the creation of Ballad Health, a single integrated delivery system in Northeast Tennessee and Southwest Virginia. Ballad Health would agree to comply with certain commitments to the State of Tennessee and the Commonwealth of Virginia, and the compliance with the commitments would be actively supervised by each state. Specifically, the two health systems have committed to applying a substantial portion of the synergies generated by this merger and reinvesting those funds in specific efforts to enhance and benefit the region, including, but not limited to, $75 million to improve the overall health of the population over ten years.

The region of Northeast Tennessee and Southwest Virginia, served by MSHA and WHS, is experiencing a health crisis driven by the issues of Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse. Changing the health status with respect to these issues, which contribute to the leading causes of death and disability nationwide[1], requires a monumental shift in the level and sophistication of population health efforts. To address these four issues, Ballad Health has proposed to implement population health best practices for collaboration, community engagement, communication, and sustained improvement results, that will align with the Tennessee State Health Plan's[2] focus on the "Big Four" (physical inactivity, excessive caloric intake, and tobacco and nicotine addiction, plus other substance use disorders).

Healthy Communities Institute (HCI) was engaged to assess the capacity of Ballad Health to develop and implement an effective population health strategy to improve community health in this region over the next ten years. The region faces significant challenges in addressing the "Big Four" and there is a unique opportunity for the health systems to leverage, coordinate, and build upon existing efforts to improve population health outcomes. Despite these significant challenges, based upon our assessment of current capacity and expertise, corporate commitment, stakeholder engagement, partnership potential, existing programs, and proposed resources, from our national experience we believe Ballad Health can successfully move the needle on population health over the next ten years and beyond.

In the past several years, the two health systems have demonstrated significant aptitude individually for population health collaboration, community engagement, and communication, but finite resources and minimal infrastructure have resulted in limited impact. In preparation for the merger, the two health systems have actively engaged community members in strategic and diverse community partnerships and community health programs. Individuals from the two health systems and their community partners are excited and perceive that the systems are ready for the proposed population health improvement efforts. Individually, MSHA and WHS have limited resources, but as a combined entity, Ballad Health has the core capacity, fundamental competencies, and necessary resources to build community momentum around a comprehensive population health improvement strategy.

While the momentum and foundation for population health improvement are tangible, Ballad Health will need to employ key strategies to successfully attain sustained improvement results in its population health goals:

- Target a small number of key focus areas for improvement
- Strategically focus on the different levels of interventions in the key focus areas
- Collaborate across sectors for maximal effect
- Leverage existing resources and community assets
- Apply financial investments thoughtfully and look for strategic opportunities for capacity building and sustainability

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[1] Chronic Disease Overview. (2016, February 23). Retrieved https://www.cdc.gov/chronicdisease/overview/
[2] *State of Tennessee 2015 Edition of the State Health Plan* (Rep.). (n.d.). Retrieved
https://www.tn.gov/assets/entities/hsda/attachments/2015_Edition_of_the_State_Health_Plan_(Final_Final_9-28-16).pdf

Key next steps include coming to a consensus with stakeholders on metrics that would best hold the health system accountable for performance long-term and developing implementation and evaluation plans with its partners to achieve those metrics using best practices.

Through this assessment, it is apparent that, although MSHA and WHS have had successful efforts individually, neither has been able to achieve population-level health outcomes, as this requires a more comprehensive approach and larger investment. If the health systems are able to jointly leverage their resources and invest in a regional strategy as Ballad Health, it is clear that, following best practices for population health improvement, the initiative can be successful.

Introduction

Purpose

In their applications for a Certificate of Public Advantage (COPA) with the State of Tennessee and Cooperative Agreement in Virginia, Mountain States Health Alliance (MSHA) and Wellmont Health System (WHS) have committed to a plan to improve the quality and cost effectiveness of healthcare provided in the Northeast Tennessee and Southwest Virginia region. The implementation and funding of this plan would be made possible upon approval of the COPA, and includes a comprehensive population health improvement effort that aims to significantly improve community health over a ten-year period and sustain it beyond. This report is intended to serve as an assessment of the capacity of the proposed new system, Ballad Health, to develop and implement an effective population health strategy – and to improve the community health of this region.

This assessment of capacity and readiness for population health improvement was commissioned by MSHA and WHS. The report was authored by a team of public health professionals at Healthy Communities Institute (HCI). The focus for this assessment is on current infrastructure and steps already taken, as well as the readiness of stakeholders to embark on population health improvement efforts that draw on best practices and strategies proven successful elsewhere. In addition to observations on capacity and readiness, this document includes recommendations on next steps and considerations to maximize the likelihood of success.

Methodology

This assessment was conducted utilizing information from several sources, as listed below. Documents identified as "Public" are available online on the Tennessee Department of Health website[3]. "Other" documents were provided to the assessment team by MSHA or WHS, some of which contain confidential and/or proprietary information. While many of these documents include content pertaining to all facets of the Cooperative Agreement, for the purposes of this assessment the review was focused on elements relevant to the proposed population health improvement plan.

Public Documents

Community & Stakeholder Certificate of Public Advantage/Cooperative Agreement Pre-Submission Report	Context for the proposed merger of WHS and MSHA to form a new health system *Prepared by Wellmont Health System and Mountain States Health Alliance, January 2016*

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[3] COPA Application Proceedings. (n.d.). from https://www.tn.gov/health/article/certificate-of-public-advantage-application-proceedings

Application, Certificate of Public Advantage, State of Tennessee	Application for COPA outlining goals for change, benefits and advantages to parties and the public, description of how Cooperative Agreement better prepares and positions parties to address anticipated future changes in health care, and potential disadvantage of Cooperative Agreement *Submitted by Mountain States Health Alliance and Wellmont Health System, February 16, 2016*
Responses to Questions Submitted November 22, 2016 by Tennessee Department of Health in Connection with Application for a Certificate of Public Advantage	Overview of Ballad Health's transformation from two systems to a fully integrated and aligned health care delivery system, addressing individual requests for information from TN DOH *Submitted by Mountain States Health Alliance and Wellmont Health System*
COPA Index Advisory Group - Index Recommendations	Findings from four public listening sessions conducted to collect public opinion on service area health care needs *Prepared by COPA Index Advisory Group, May 31, 2016*
Independent Assessment of the Proposed Merger between Mountain States Health Alliance and Wellmont Health System	Opinions on the likelihood of New Health System yielding benefits claimed and how much they would be due specifically and directly to the merger *Prepared by Kenneth W. Kizer, MD, MPH, November 21, 2016*
Response by Applicants to Submission of Kenneth Kizer, M.D., MPH to the Tennessee Department of Health Regarding Certificate of Public Advantage Application	Responses to objections to merger *Submitted by Mountain States Health Alliance and Wellmont Health System, December 19, 2016*

Other Information and Materials

Key Priorities for Improving Health in Northeast Tennessee and Southwest Virginia: A Comprehensive Community Report	Regional health assessment, community health roundtable meetings, steering committee reports (listed below), and recommendations on next steps *Prepared by College of Public Health, East Tennessee State University, March 2017*
Population Health and Healthy Communities Steering Committee Report	Identification of high impact interventions that merged system, its partners, and the region could pursue to most effectively improve the health status of the region's residents *Prepared by Population Health and Healthy Communities Steering Committee, March 2017*

Research and Academics Steering Committee Report	Identification of opportunities to maximize the impact of the merged system on health and economic growth through bolstered academic training and supply of qualified health professionals and support of research programs that enhance healthcare services and community interventions targeting priority health issues *Prepared by Research and Academics Steering Committee, March 2017*
Mental Health and Addictions Steering Committee Report	Identification of aspects of an effective mental health and addiction prevention and treatment system of services *Prepared by Mental Health and Addictions Steering Committee, March 2017*
Healthy Children and Families Steering Committee Report	Identification of programs and services to support a resilient and healthy family environment in order to positively impact the life course of children *Prepared by Healthy Children and Families Steering Committee, March 2017*
Mountain States Health Alliance (MSHA) Hospital Implementation Strategies	Proposed actions to address priority areas identified in the community health needs assessment *Prepared by MSHA and Hospitals (Virginia: Dickenson Community Hospital, Johnston Memorial Hospital, Norton Community Hospital, Russell County Medical Center, Smyth County Community Hospital; Tennessee: Franklin Woods Community Hospital, Indian Path Medical Center, Johnson City Medical Center, Johnson County Community Hospital, Sycamore Shoals Hospital, Unicoi County Community Hospital), 2015*
Wellmont Health System (WHS) Hospital Implementation Plans	Proposed actions to address priority areas identified in the community health needs assessment *Prepared by WHS and Hospitals (Bristol Regional Medical Center, Hancock County Hospital, Hawkins County Memorial Hospital, Holston Valley Medical Center, Lonesome Pine Hospital, Mountain View Regional Medical Center), 2016*
Discussion Regarding Department of Health COPA Index Proposed Methods and Data	Draft metrics, comparisons, and index methodology discussed between MSHA, WHS, and the TN Department of Health Division of Health Planning, February 2017
Discussion Regarding the Proposed Mountain States / Wellmont COPA Index	Draft metrics with service area value, comparison values, and data source (when available) discussed between MSHA, WHS, and the TN Department of Health Division of Health Planning, February 23, 2017

Discussion Regarding the COPA INDEX: DRAFT Population Health Methodology Summary	Draft methodology for index calculation including scoring method and 'Clear and Convincing' score ranges discussed between MSHA, WHS, and the TN Department of Health Division of Health Planning, January 26, 2017

Key Informant Interviews

In order to gain further insight, interviews were conducted with key individuals from the staff of MSHA, WHS, and external partner organizations. Key informants were identified by MSHA and WHS as having the background knowledge and understanding relevant for this assessment. Interviewees were asked about their familiarity with the vision/goals of the population health improvement effort, their role and relevant experience, existing resources and infrastructure that may be leveraged, perspectives on previous and future partnerships, and opinions on readiness and capability. Interviews with 31 key informants were conducted either in-person during the Healthy Communities Institute site-visit on March 14-15, 2017 or by phone. A complete list of key informants with their titles and affiliations can be found in the Appendix B.

Best Practices for Community Health Improvement

This assessment and recommendation report is also informed by national perspectives of successful community health improvement as experienced by health systems and their partners from across the nation. The report authors have direct experience working with many organizations and collaboratives in assessment, planning, and implementation of community health improvement efforts.

About Healthy Communities Institute (HCI)

Healthy Communities Institute is a multi-disciplinary team of public health experts, including healthcare information technology veterans, academicians and former senior government officials. HCI uses collaborative approaches to improve community health and provides web-based information systems to public health, hospital and community development sectors, to help them assess population health. Our team works with clients across 38 states to drive improved community health outcomes by assessing needs, developing focused strategies, identifying appropriate intervention programs, establishing progress monitoring systems, and implementing performance evaluation processes. Working with diverse clients nationwide has contributed to HCI's national knowledge base of population health solutions. In addition, by engaging directly with clients and communities through the primary data collection process and final workshops, HCI works on behalf of our clients to build trust between and among organizations and their communities.

More information about this report's principal author, Deryk Van Brunt, is included below. For bios on other report authors, please see Appendix A.

Deryk Van Brunt, DrPH
Clinical Professor, UC Berkeley School of Public Health
President, Healthy Communities Institute, a Conduent Company

Dr. Van Brunt is a national leader in community health improvement, and a contributor to the evolution of the health information industry. Van Brunt is President of Healthy Communities Institute, a Conduent Company, and Clinical Professor in the School of Public Health at the University of California at Berkeley, teaching Health Informatics. Dr. Van Brunt is also Chairman of the Healthy Communities Foundation.

The Healthy Communities Institute is part of Conduent, a $6.5 billion global business process improvement firm. In the United States, Conduent works with over 2,000 hospitals, 20 health insurance companies, dozens of health departments and hundreds of large employers, to help improve health outcomes and improve business efficiency.

Within Conduent, Van Brunt is responsible for providing community health improvement solutions that integrate within the broad health industry. This includes providing the leading web-based platform to support hospitals, health systems, local and state health departments and community collaborations with community health improvement data, best practices and evaluation tools, as well as services to help with all aspects of community health improvement.

As President of Healthy Communities Institute, Van Brunt is responsible for overseeing all aspects of the company. Headquartered in Berkeley, California, the Institute works to improve the health, economic vitality and environmental sustainability of communities, counties, and regions in the US. The Institute was the 2013 winner of the Health and Human Services "Best Community App" award, and the 2012 winner of the Health and Human Services *MyHealthyPeople* Award-helping attain the health goals of Healthy People 2020; both awards were presented by Assistant Secretary for Health, HHS, Howard Koh.

Van Brunt's principal work involves providing web-based information systems to the public health, hospital and community development sectors, to help them assess population health and use best practices to improve community health. Van Brunt's corporate work also includes strategic planning, mergers and acquisitions, health editorial and content management, engineering development, evaluation research, finance and operations, and privacy issues.

Van Brunt works with hospitals, health systems, health departments, insurers, ACOs and community coalitions to understand the health risks in the communities these organizations serve, and plan best practice interventions. He has authored articles and commentaries on population health and community health information management and communication technology and serves on healthcare committees and advisory boards. Van Brunt was recently a member of President Obama's Council of Advisors on Science and Technology Systems Health Care Working Group, and a contributor to the *Report to the President: Better Health Care and Lower Costs: Accelerating Improvement through Systems Engineering* (May 2014).

Most of Van Brunt's career has focused on using new technologies and communication systems to improve health care systems, disease management, and the health and well-being of the general public. He has worked to empower both physicians and patients with high quality health information and decision support, and helped many companies in their migration towards improved health information management. He has substantial industry knowledge and experience in health care policy, systems analysis, health information systems and interactive communication technologies. Van Brunt's recent research is in the areas of chronic care management, and improving health and environmental sustainability of communities.

Van Brunt's background includes co-founding three technology companies, teaching Health Informatics at the UCB School of Public Health, conducting various research into health informatics, and authoring and presenting a number of articles and commentaries on health information management and communication technology. Van Brunt's most recent article (American Journal of Public Health, 2017) is a national call for the implementation of community health records in the United States. Van Brunt received his DrPH in Health Informatics from the University of California at Berkeley.

Current State of Key Focus Areas for Improvement

The region of Northeast Tennessee and Southwest Virginia served by MSHA and WHS is experiencing a health crisis driven by the four issues of Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse.

The community health needs for these four key focus areas for improvement have been well documented within the East Tennessee State University College of Public Health report *Key Priorities for Improving Health in Northeast Tennessee and Southwest Virginia: A Comprehensive Community Report*[4]. The findings for each area are summarized in the table below.

Obesity	**Service Area:** ● 31% of adults in Northeast Tennessee and 31.4% of adults in Southwest Virginia were obese as of 2013. The rates of obesity among adults in the service area counties range from about 28% to 34.5% as of 2012. **State Level:** ● In 2014, rates of obesity were highest among the 45-64 year old age group, though even for 18-25 year olds the rates were near 20% in both Tennessee and Virginia. In 2013 the obesity rate among high school students was higher in Tennessee compared to the U.S., but slightly lower among Virginia high school students compared to the national average.
Physical Inactivity	**Service Area:** ● 39.5% of adults in Northeast Tennessee and 32.8% in Southwest Virginia reported engaging in no physical activity or exercise other than their regular job in the last 30 days in 2011. By county this percentage ranged from 23% to 39%. **State Level:** ● Physical inactivity rates were higher in Tennessee and Virginia high-school students compared to the U.S. in 2013.
Tobacco Use	**Service Area:** ● By county, the adult smoking rate ranged from 21.1% to 39.6% in 2006-2012, signaling that even the counties with the lowest smoking rates are higher compared to the U.S. rate of 19% in 2013. More recent data from the Tennessee Department of Health has a U.S. rate of 16.8%.[5] **State Level:** ● Current smokers are more likely to be male, between the ages of

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[4] East Tennessee University College of Public Health. (n.d.). Key Priorities for Improving Health in Northeast Tennessee and Southwest Virginia: A Comprehensive Community Report.

	25-55, have lower educational attainment, and have lower income.
	● The self-reported rate of smoking was higher in 2015 for Tennessee youth compared to the U.S. Smoking was specifically defined as current tobacco use (cigarette, smokeless tobacco, cigar, or electronic vapor product use on at least 1 day during the 30 days before the survey).[5]
	● 14.9% of women reported having smoked at any time during pregnancy in Tennessee in 2009, and the correlating rate was 8% in Virginia in 2013.
Substance Abuse	Service Area: ● In Northeast Tennessee, 7.17% of youth aged 12-17 were identified as having a dependence or abuse of illicit drugs or alcohol in 2010-2012. In Southwest Virginia, 4% of middle school students and 16% of high school students reported having taken prescription drugs without a prescription in 2013. State Level: ● In Tennessee, 2.3% of residents aged 12 or older were dependent on or abused illicit drugs in 2013-2014. In Virginia, approximately 2.5% of residents aged 12 or older were dependent on or abused illicit drugs between 2009 and 2013. ● 30.4% of treatment admissions in Tennessee in 2014 were for opioids other than heroin. ● In 2010, prescription opioids were involved in over half of drug-related deaths in Virginia. ● In Tennessee, the age-adjusted overdose mortality rate increased by 7.7% between 2013 and 2014.

These findings reflect a nationwide trend of chronic diseases representing the leading causes of morbidity and mortality. Moreover, health risk behaviors such as poor nutrition, inadequate physical activity, tobacco use, and substance abuse (which are significantly influenced by a range of socioeconomic factors) contribute to many chronic diseases[2]. Based on HCI's experience working with hospitals, health systems and community groups nationwide, prioritizing these key focus areas and developing multi-component strategies that also address social determinants of health will increase the likelihood of success in achieving demonstrable changes in health outcomes.

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[5] Tennessee Department of Health, Division of Health Planning (February 2017), COPA Index Proposed Methods and Data

Readiness for Population Health Improvement

Introduction

Through public and internal documents as well as key informant interviews, HCI examined the readiness of Ballad Health to develop a plan to successfully impact the health and well-being of community members in the four key focus areas: Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse.

As described by CDC's Community Health Improvement Navigator[6], the success of community health improvement efforts necessitates working together, engaging the community, communicating, and sustaining improvement results. With these criteria in mind, and to assess Ballad Health's potential for implementing and sustaining health improvement in the region, HCI sought to learn more about: the perceived readiness of Ballad Health and the community for population health improvement; current capacity and expertise; partnership potential through stakeholder and community engagement; and resources available to addressing the four key focus areas.

Overview

- Internal and external stakeholders expressed their confidence in the readiness of MSHA, WHS and the community to implement population health improvement efforts.
- MSHA and WHS have:
    - Existing competencies and expertise that can be leveraged for a regional population health improvement effort.
    - Engaged community members throughout the COPA process and can sustain the momentum to establish an Accountable Care Community.
    - Existing partnerships with diverse community groups and agencies on health improvement efforts in the region that can be expanded upon and developed further.
    - Experience with programs that address Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse; lessons learned can be incorporated into a more comprehensive and impactful population health strategy.
    - Committed resources to advance a population health strategy for the region, including $75 million over ten years for population health improvement, $140 million towards the expansion of needed services ($85 million of which will be for mental health and addiction recovery), and up to $150 million towards the implementation of a Common Clinical IT Platform.

Perceived Readiness for Population Health Improvement

Overview: Key informant interviews with internal and external stakeholders revealed a high level of confidence in the health systems' readiness to implement a population health improvement strategy in collaboration with community partners and agencies.

To gauge Ballad Health's readiness to implement population health strategies in the region, HCI conducted 23 interviews with a total of 31 internal (MSHA, WHS) and external stakeholders using a semi-structured discussion format to elicit individuals' comments on Ballad Health's vision, plan, partnerships, and resources (see Appendix B for the full list of individuals who were interviewed). Interviewees were encouraged to focus their responses based on their specific area(s) of expertise and interest; as a result,

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[6] Tools for Successful CHI Efforts. (2015, August 19). Retrieved from https://www.cdc.gov/chinav/tools/index.html

each conversation progressed differently and covered distinct elements of Ballad Health's population health improvement plan.

At the start of each discussion, interviewees were asked to assess both institutional and community readiness for population health improvement efforts. On a scale of 1 to 5 (with 1 being "not ready" and 5 "very ready"), stakeholders rated MSHA and WHS readiness for population health improvement as 3.97 (average) and the community's readiness as 3.84 (average). Both internal and external stakeholders expressed confidence in Ballad Health's likelihood of success - with internal stakeholders' average rating at 4.3 and external stakeholders' average rating at 4. Stakeholders pointed to the need for a more integrated regional strategy to address the broad range of socioeconomic barriers impeding health improvement.

Interviewees noted that to successfully move the needle on the four key focus areas, the tremendous barriers and challenges faced by community members will require much more robust strategies, partnerships and resources than those currently in place. Specifically, interviewees called for the need to pursue more focused strategies, increased information sharing in partnerships, and efficient use of resources. Interviewees believed that if both health systems come together, Ballad Health would then have the capacity, infrastructure and ability to leverage resources for a coordinated regional approach to population health. Some viewed the merger as a "catalyst" for population health, and one external interviewee stated, "If the merger occurs, the chance to improve population health is the best chance that we'll ever have because of the resources that will be available and the commitment will be more focused."

Competencies and Expertise

Overview: MSHA and WHS have appropriate knowledge, experience and skills to drive population health improvement efforts, such as multi-sector collaboration, policy and systems change, program implementation, community and provider engagement, and EHR system deployment.

The executive staff at MSHA and WHS are experienced in designing, implementing and facilitating collaborative efforts with a range of stakeholders including local, state, and federal agencies as well as providers, payers, businesses, and universities (See Exhibit A of "Responses to Questions Submitted November 22, 2016 by Tennessee Department of Health in Connection with Application for a Certificate of Public Advantage."[7]) Of particular note were the executive staff's experiences driving policy and systems change to increase access, enhance quality and coordination of care, and improve health outcomes.

Interviews with internal and external stakeholders also reflected MSHA and WHS strengths, areas of expertise, and skills as indicators of Ballad Health's potential for having impact on the health of the region. Both health systems were lauded by both internal and external interviewees for their leadership, physician engagement, and clinical excellence, but each has unique differentiators. WHS specific strengths included its wellness program and programmatic experience in obesity and physical inactivity prevention. MSHA specific strengths included its successful ACOs and programmatic experience in targeting tobacco use and substance abuse. These strengths would complement each other in a combined health system.

Stakeholders discussed the importance of having an integrated health system to ensure the quality, coordination and continuity of care inside and outside the clinical setting. They noted the existing relationships and collaboration of each health system with community partners and agencies. They also emphasized the opportunity for Ballad Health to leverage these partnerships and draw on the large regional footprint of community-based programs focused on lifestyle and prevention efforts – from diabetes prevention offered through the YMCA to awareness campaigns led by Healthy Kingsport (see "Partnerships and Collaboration") – to increase the likelihood of success. To date, the two competing

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[7] Mountain States Health Alliance, & Wellmont Health System (n.d.). Responses to Questions Submitted November 22, 2016 by Tennessee Department of Health in Connection with Application for a Certificate of Public Advantage.

health systems have had little incentive to work together and have lacked the resources to collaborate on a regional approach to population improvement.

Ballad Health has committed to working with providers to expand the integrated population health model by improving the delivery of care, advancing prevention efforts and activating patient engagement. This will be a critical factor in Ballad Health's success. Through close interface with patients, providers have an intimate view and understanding of poor health experienced by community members. Both MSHA and WHS have experience engaging providers in planning, decision-making, and implementation activities. MSHA's Physician Council for Clinical Excellence is an example of provider engagement to effectively identify, disseminate and implement best practices. Furthermore, in the COPA process, providers have been active participants in the Integration Council and Joint Board Task Force. The parties have committed to forming a Ballad Health Clinical Council made up of independent and employed physicians to influence physician practice patterns and to receive and incorporate best practices across the system. All of these physician engagement efforts will assist Ballad Health in successfully improving population health inside and outside of the clinical setting. We believe the Clinical Council, which will report to the Quality Committee of the Board of Directors, will be a change agent for population health efforts, in part, because the single governing structure of Ballad Health will effectively force a unity of effort across the system. This is a particular strength which would not be likely with two separate health systems governed by two separate boards with fiduciary interests not aligned. The combination of the commitments to the States, a single governing structure and an integrated Clinical Council composed of a variety of community-based and employed physicians, geographically diverse and supported by the medical staffs of the hospitals, will be a powerful alignment.

Efficient and effective coordination and delivery of care will also require an integrated information technology platform to make population health data readily accessible. The parties have committed up to $150 million towards the adoption of a Common Clinical IT Platform which will serve as the backbone of Ballad Health's population health strategy. WHS' success in the last three years with the installation and deployment of its EHR system (Epic) is a strong indicator of Ballad Health's potential for improving population health through a coordinated and systematic approach. WHS staff involvement in the design process ensured that the system reflected practical processes rather than installing a predetermined system that does not support existing workflow procedures and operations.

Stakeholder and Community Engagement

Overview: MSHA and WHS have actively engaged internal and external stakeholders throughout the COPA process and have delineated how stakeholders will be engaged in the establishment of an Accountable Care Community.

"If health is socially determined, then health issues are best addressed by engaging community partners who can bring their own perspectives and understandings of community life and health issues to a project. And if health inequalities are rooted in larger socioeconomic inequalities, then approaches to health improvement must take into account the concerns of communities and be able to benefit diverse populations."

- Centers for Disease Control and Prevention[8]

MSHA and WHS have actively engaged community members in the COPA planning process to gather input on health priorities, share information on the planning and vision, and discuss concerns and questions related to the proposed joint system. Between April and December 2015, over 45 community events and presentations were held to hear the perspectives and ideas of communities in the region. In addition, over a dozen announcements and over 25 media interviews/statements were conducted. A portion of the events consisted of gathering community input through ten roundtable meetings, which were attended by 225 community members. In the roundtable meetings, attendees discussed what could

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[8] Centers for Disease Control and Prevention (2011). *Principles of Community Engagement: Second Edition*. CDC/ATSDR Committee on Community Engagement.

be done to improve community health. The input gathered in these events helped validate the key focus areas areas that Ballad Health will focus on and will be integral in shaping the population health strategies in the region.

In addition to community events, over 140 stakeholders representing 84 healthcare, civic and social service agencies participated in Steering Committees focused on four topic areas: Healthy Children and Families; Population Health and Healthy Communities; Mental Health and Addiction; and Research and Academics. Steering Committees were tasked with identifying health priorities, proposing evidence-based approaches to address these, and identifying collaboration opportunities across sectors.

MSHA and WHS have outlined plans to engage various stakeholders, including clinical partners, public sector partners, private sector partners and payers, in establishing an Accountable Care Community. The Accountable Care Community will focus on the Community Health Improvement Plan, gathering stakeholder and community input on population health improvement initiatives to target specific communities and populations. This approach has been shown to be an effective means of improving population health.[9]

Partnerships and Collaboration

Overview: MSHA and WHS have existing partnerships with diverse community groups and organizations, which will be critical in the development of a comprehensive population health improvement strategy.

Many sectors of the community will need to be engaged and current partnerships will need to be strengthened in both Tennessee and Virginia for the population health plan to be a success. The two organizations have already begun engaging key partners in the merger preparation period, including academic research partners, community-based initiatives, nonprofits, and local health departments, whose continued support and involvement will be necessary in developing the population health improvement plan.

MSHA and WHS have developed and fostered strategic community partnerships throughout their history. Further cooperation and collaboration between Ballad Health and its partners will be required to develop a culture of health in the region these organizations serve. Ballad Health has specifically outlined its strategy for recruiting and working with its accountable partners, plans to align the goals of partner organizations, and strategy for coordinating partners and resources.

The following is not an exhaustive list, but are some highlights of MSHA and WHS's current partners and coalitions to be leveraged going forward.

East Tennessee State University (ETSU)

Both MSHA and WHS have strong relationships with the Quillen College of Medicine and College of Public Health. The College of Public Health is fully accredited, community focused, and provides expertise on population health, collaborative research and evaluation, and partnership. The document *Key Priorities for Improving Health in Northeast Tennessee and Southwest Virginia: A Comprehensive Community Report* was commissioned to help Ballad Health identify potential community-based approaches to improving health in the region. The ETSU project team oversaw key processes and community engagement efforts to produce the report: four working groups composed of topic area experts from around the region; ten community roundtable meetings held at locations in both states; and considerable research and analysis conducted by the project team in the College of Public Health. This systematic, organized process began essential work to build collaborative networks capable of supporting sustainable health initiatives in the region. Ballad Health will be able to build upon this process and the existing relationships both systems have with ETSU. ETSU currently partners with MSHA in multiple

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[9] Hostetter, M. and Klein, S. (2012). Improving Population Health Through Communitywide Partnerships. *Quality Matters*. Feb/Mar. Retrieved from: http://www.commonwealthfund.org/publications/newsletters/quality-matters/2012/february-march/in-focus

areas, including research, training, collaboration in clinical programs, and most recently, implementation of a community-based drug treatment center utilizing medication assisted therapy. ETSU also recently partnered with WHS to expand the university's nursing education and clinical training opportunities. It is the stated intent of Ballad Health to further leverage the College of Public Health at ETSU for its expertise in population health research, monitoring and evaluation of metrics, and securing research funding from external sources. Both organizations are highly involved with the College of Medicine through residency programs, with the university through allied health programs, and with the College of Public Health through volunteer leadership and teaching roles.

Healthy Kingsport

Healthy Kingsport was repeatedly referenced during key informant interviews as a model for effective community engagement and collaboration. Using a collective impact approach comprised of 50 community partners, the community-based organization has activated Kingsport residents to take charge of their health and wellbeing through community-wide events such as fitness challenges and sugar-free campaigns. Interviewees praised the organization for its community-led and -supported framework. Healthy Kingsport credits its success to its approach: the community has ownership of the initiatives; pilot projects are incubated and tested before going to scale; and the organization is fully immersed in, and accountable to, the community. Both MSHA and WHS are current sponsors of Healthy Kingsport, but closer partnership could allow Ballad Health to take lessons learned from its successful collective impact model to increase reach and scalability in the region.

United Way of Southwest Virginia

To address needs in education, income, and health in the Southwest Virginia region, United Way partners with local organizations to create and invest in opportunities to improve the lives of children and families. In the area of health, United Way makes strategic investments in community-based programs providing adults access to health and wellness care, including the program FamilyWize, which makes prescription medication more affordable and accessible, and promoting youth health and wellness activities to combat childhood obesity. United Way has been working with MSHA and WHS on a collaborative effort called 2020, now branded Unite SW. United Way takes a multisector, collaborative approach and supports increased coordination among organizations providing services in the region, which is very well aligned with Ballad Health. There is potential cost savings to reinvest in this work, which is already well-established and proven effective in the community.

YMCA

The Y is a nonprofit, cause-driven organization that focuses on youth development, healthy living and social responsibility. In health, the national and regional YMCA are particularly focused on chronic disease management, including reducing diabetes, pre-diabetes and heart disease, making them a partner in weight management and increased physical activity. The YMCA has developed a relationship with ETSU in applying for research grant funding together, and is currently working on a proposal to study recruiting efforts of the YMCA's Diabetes Prevention Program (DPP). Such research on recruitment and retention strategies in the region for prevention programming may help address challenges related to implementation and sustainability. Based on documented success, the YMCA is currently expanding the DPP to local employers, including WHS, Eastman, LMR Plastics, B.T.L. Industries, and American Greetings, with onsite delivery to prevent travel barriers to participation in the program. The YMCA has scaled to 6 locations at WHS and is currently in conversations with MSHA to pilot with employees. YMCA's current prevention programming, utilization of evidence-based practices, and community-based infrastructure are in place, but a stronger partnership with Ballad Health could build capacity and scale activities throughout the region.

Frontier Health

Frontier Health has 65 facilities in 12 counties in Northeast Tennessee and Southwest Virginia, and is the region's leading provider of behavioral health services, including mental health and substance abuse

treatment. Frontier Health credits a flexible, targeted approach to implementation for their ability to meet the needs of local communities. For example, to successfully integrate services into the school system, the approach to school-based programming is responsive to grantees' community-specific needs, so while one area might be prevention focused, another might be intervention focused. In an example of current collaboration, Frontier Health has partnered with MSHA and ETSU to create a centrally located outpatient methadone clinic for which ETSU provides research and best practices, MSHA supports operations and administration, and Frontier contributes providers of care. Ballad Health can build upon the current partnership to fill mental health gaps in the region, such as residential treatment for substance abuse.

Healthier Tennessee

Healthier Tennessee is an initiative of the Governor's Foundation for Health and Wellness, which aims to improve Tennessee's position in evaluation systems such as the America's Health Rankings. The Healthier Tennessee initiative focuses on increasing physical activity, promoting nutrition, and reducing tobacco use in Tennesseans. Both WHS and MSHA have been involved with Healthier Tennessee since its founding and are fully supportive of its efforts. Healthy Kingsport is a collaborative regional partner with Healthier Tennessee and both systems support, take on leadership roles, and collaborate with this organization as well. WHS and MSHA work to advance the Governor's overall statewide efforts and goals by aligning regional efforts in Northeast Tennessee. For example, both health systems are certified as Healthier Tennessee businesses and endeavor to model the organization's principles, build awareness, and encourage participation. Ballad Health's areas of community health improvement focus are aligned with the efforts of Healthier Tennessee. Further, Ballad Health will have the funding and commitment to scale health improvement efforts in Northeast Tennessee that will directly support Healthier Tennessee's goal of improving the state's overall health rankings over time.

Health Departments

The proposed service area for Ballad Health includes 21 counties, with the opportunity for Ballad Health to collaborate closely with both local and regional health departments, as well as the state department of health. There is potential to align their Community Health Assessment cycles to better coordinate on assessment, planning, and implementation processes for increased efficiency in the region. Local public health departments experience with needs assessment, measurement, evaluation, and health promotion will be vital to the success of the Accountable Care Community. Local and regional health departments are already working on prevention programming and initiatives or providing services in the four topic areas, and will need to be actively engaged throughout the development and implementation of the population health improvement plan. Ballad Health can leverage the health departments' expertise, partnerships and networks, as well as knowledge of population health data.

Existing Programs

Overview: MSHA and WHS have experience implementing programs that address the "Big Four" and can combine and integrate their lessons learned into the design of a comprehensive population health improvement strategy.

Stakeholders identified a range of existing programs and strategies, system-led and in partnership with community organizations, which demonstrate the knowledge and experience of MSHA and WHS separately in the region. Moreover, stakeholders urged that the lessons learned and results, whether implementing community-wide campaigns, employee wellness initiatives or school-based behavioral programs, be taken into account when planning Ballad Health's population health improvement efforts as these experiences will greatly contribute to Ballad Health's success.

For example, the experiences and lessons learned of Wellmont Business Health Solutions (WBHS) provide a glimpse into Ballad Health's potential population health strategy. Through employee wellness programs, including screenings and health coaching, WBHS has documented improvements in health outcomes among members such as a 5% reduction in BMI and 40% reduction in high blood pressure.

Using a Policy, Systems and Environmental (PSE) approach, WBHS has instituted internal policies to foster healthier work environments. WBHS also has experience in mobile outreach, providing onsite mammography, heart screenings and physical exams. WBHS's successful experience with employee wellness programs could be expanded by Ballad Health to reach many more individuals.

HCI reviewed MSHA and WHS implementation plans along with responses from key informant interviews to create a preliminary inventory of existing programs and strategies that address one or more of the four key focus areas: Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse. The range of existing efforts reveals the potential for Ballad Health to draw on lessons learned, strengthen partnerships, and leverage community resources from both organizations to build community momentum around a comprehensive population health improvement strategy.

For example, WHS has extensive experience implementing programs targeting obesity and physical inactivity that could be expanded to a much larger population. MSHA has extensive experience implementing programs targeting Tobacco Use and Substance Abuse that could be expanded by Ballad Health. Without the resources and infrastructure provided by the merger it is unlikely that either system would be able to reach as many individuals.

Examples of Existing MSHA and WHS Programs	WHS	MSHA
Obesity		
Employee wellness (WHS Business Health Solutions)	X	
Healthy Kingsport (WHS sponsorship)	X	
Wellmont Health Coach	X	
LiveWell initiative	X	
Live SugarFreed (MSHA and WHS sponsorship)	X	X
Healthy cooking and physical activity classes	X	X
Healthy eating and drinking campus policies	X	X
The Wellness Center (An all-inclusive health and fitness center)		X
Morning Mile program		X
Health Resource Centers		X
Physical Inactivity		
Employee wellness (WHS Business Health Solutions)	X	
Healthy Kingsport (WHS sponsorship)	X	
LiveWell initiative	X	
Healthy cooking and physical activity classes	X	X
Nutrition Counseling	X	X

The Wellness Center (An all-inclusive health and fitness center)		X
Health Resource Centers		X
Tobacco Use		
Employee wellness (WHS Business Health Solutions and MSHA Medworks)	X	X
LiveWell initiative	X	
Health Resource Centers		X
Smoke-free campus policies	X	X
Smoking cessation and community education classes		X
Tennessee Quitline promotion and referrals		X
Substance Abuse		
LiveWell Initiative	X	
Health Resource Centers		X
Drug Take Back events		X
County It, Lock It, Drop It program		X
Maternal health education		X
Regional awareness campaigns through Just for Kids Program		X
Red Legacy Recovery Counseling for young women and mothers (financial support from MSHA)		X
Frontier Health (financial support from MSHA)		X
Pharmacist Continuing Education Credits		X

Proposed Resources

Overview: MSHA and WHS have committed resources to advance a population health strategy for the region, including $75 million over ten years for population health improvement, $140 million towards the expansion of needed services, and up to $150 million towards the implementation of a Common Clinical IT Platform.

MSHA and WHS have committed $75 million over ten years specifically focused on improvement in population health in the region. This investment would be funded by savings generated as a result of the merger. Based on our conversations with key informants it very unlikely that this type of investment in population health would occur in this region without the merger. While some activities such as the formation of a regional Accountable Care Community could be accomplished by MSHA or WHS without a merger, regional organizations do not have the financial capacity to drive the pace and scope of community health improvement proposed by Ballad Health. This financial commitment is critical to funding the proposed population health efforts.

Ballad Health has also committed $140 million towards the expansion of needed services which includes $85 million for mental health and addiction recovery. Based on the feedback received from key informants and the work done by the Steering Committees, mental health and addiction are significant issues in the region that need a comprehensive solution, and improvement in population health is not likely without the investment in mental health and addiction services. A successful approach to addressing mental health and addiction will require working closely with regional partners such as Frontier Health and others to develop and implement a comprehensive plan for prevention, crisis intervention and stabilization, accessible outpatient resources and community support and needed inpatient resources – all working in a more effective and cohesive continuum of care.

Ballad Health has also committed up to $150 million towards the implementation of a Common Clinical IT Platform to support Ballad Health's population health strategy. Through its more robust analytic capability, Ballad Health will have the capability to collect data from many sources, including from national and local sources and potentially from providers throughout the Geographic Service Area. The Common Clinical IT Platform will allow Ballad Health to build analytic capabilities to stratify, prioritize and track care management strategies and to manage/coordinate the care of populations served. The Common Clinical IT Platform will also be a valuable tool for tracking the progress of its population health improvement plan.

In addition to the financial commitments above, Ballad Health has committed to establishing an Accountable Care Community to reach beyond the traditional healthcare delivery system to impact community health improvement with its partners. As described in the Response to November 22 Questions, the Accountable Care Community is an organization that Ballad Health will establish and lead. This model extends the benefits of the critical transformation within the healthcare delivery system into specific partnerships and affiliations in the immediate community to better address specific population health needs. The goal is to create a model of self-sustainability and broad-based community ownership of these external initiatives. The Accountable Care Community will be essential to a successful fulfillment of the Community Health Improvement Plan and regionally coordinated and scaled efforts around common objectives. To facilitate coordination, Ballad Health has proposed that state or regional Department of Health leaders would serve in key roles for the Accountable Care Community.

Accountable Care Communities (ACC's) across the country are demonstrating the power of using a collaborative and integrated approach to manage and share responsibility among diverse community institutions and partners to improve community health. Some ACC's have documented significant improvements in health outcomes, such as reductions in BMI, healthcare costs, and ED visits. The ACC model has proven to be effective in coordinating patient care, improving quality, increasing efficiency, and streamlining efforts to track and evaluate population health outcomes.[10]

Ballad Health has also committed to establishing a new Department of Population Heath to bridge the healthcare delivery and clinical alignment efforts for the health system and the community health improvement efforts being expanded through the Accountable Care Community as described in the Response to Nov 22 Questions. The Ballad Health Department of Population Health Improvement will be overseen by a senior executive who reports directly to the President and Executive Chair of Ballad Health. This department will be instrumental in the development of the Accountable Care Community as well as serve as the primary liaison to all regulatory agencies and to the Ballad Health Board Committee on Population Health and Social Responsibility. The Department of Population Health Improvement will be staffed with key leaders whose roles will ensure that all relevant COPA commitments are fulfilled and supported by strong planning, implementation, and evaluation efforts driven both directly by Ballad Health and/or through the Accountable Care Community. Ballad Health has proposed that funding for community health improvement efforts will be managed through the Population Health Improvement Department.

Ballad Health also proposed the establishment of a Population Health and Social Responsibility Committee of the Ballad Health Board of Directors. This standing Committee will include regional and multi-sector representation and will be responsible for oversight and compliance with all COPA commitments and reporting requirements. It will also be responsible for governing the alignment of COPA

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[10] Janosky, J., PhD. (2013, September 9). Accountable Care Community: Shared Accountability for the Health of a Community. Retrieved from https://obamawhitehouse.archives.gov/blog/2013/09/09/accountable-care-community-shared-accountability-health-community

Funding, Social Responsibility strategies and COPA efforts to produce health improvement in the community. Members of the Committee will include Ballad Health directors and other community members appointed by the Ballad Health Board. It is envisioned that leaders from this Committee will also serve on the Accountable Care Community board.

The financial, infrastructure, and personnel commitments made by Ballad Health deliver synergistic resources for greater population health improvement than what would be possible without the merger.

Recommendations for Next Steps

The current momentum and foundation for population health improvement is tangible within the two organizations, and the next steps are critical to strengthening the combined organization and establishing a population health improvement plan for reaching Ballad Health's population health goals. This section will outline recommendations and considerations for next steps based on HCI's expertise with community health improvement in diverse settings and network of over 130 clients across the country.

Approach

For Ballad Health to successfully approach its population health improvement planning and goals, HCI recommends several strategies:

- Target a small number of key focus areas for improvement
- Strategically focus on the different levels of interventions in the key focus areas
- Collaborate across sectors for maximal effect
- Leverage existing resources and community assets
- Apply financial investments thoughtfully and look for strategic opportunities

Target a small number of key focus areas for improvement

To maximize the potential for success, HCI recommends that Ballad Health focus on a small number of key focus areas for long-term population health improvement. Ideally, this should include three to five key focus areas that drive other health conditions and poor health outcomes. Drivers of health are typically complex, and require truly comprehensive, multi-component strategies in order to truly impact population-level outcomes.[11] [12] Successful programs have strategically invested in different levels of prevention within limited focus areas and have thus far resulted in greater effectiveness and progress towards outcomes.[13] [14] HCI's experience in population health also indicates that focusing on a small number of focus areas allows resources to be funneled into more comprehensive strategies and used most effectively for the greatest impact. If an organization attempts to address too many measures, the resources and focus become diluted and result in less success over time. Based on the work performed by health departments, community partners, the Work Groups, the COPA Advisory Group, and research institutions, the four key focus areas identified by the two health systems for improvement (Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse) are excellent candidates for a targeted, multi-pronged approach.

Strategic Focus on Different Levels of Intervention

Because healthcare accounts for only 10% of factors going into health, to increase its likelihood of success, Ballad Health needs to strategically address the key focus areas through a broad range of intervention levels, including community programming and policy, systems, and environment changes.[15]

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[11] Frieden, T. R. (2010, April). A Framework for Public Health Action: The Health Impact Pyramid. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2836340/

[12] The Spectrum of Prevention. (n.d.). Retrieved from https://www.preventioninstitute.org/tools/spectrum-prevention-0

[13] Transforming Communities Initiative. (n.d.). Retrieved from https://trentonhealthteam.org/what-we-do/community-partnerships/transforming-communities-initiative/

[14] Prybil, L., Scutchfield, F., Killian, R., Kelly, A., Mays, G., Carman, A., . . . Fardo, D. (n.d.). Improving Community Health through Hospital – Public Health Collaboration (November 2014). Retrieved http://www.uky.edu/publichealth/sites/www.uky.edu.publichealth/files/Research/hospital-public%20health%20partnership%20report_12-8-14.pdf

[15] Heiman, H., & Artiga, S. (March 2016). Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity. Retrieved from http://kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/

As previously mentioned, in order to effect population-level outcomes, strategies must be truly comprehensive and affect socioeconomic factors.[11] In addition, prevention activities need to shift away from a focus on individual education and move towards broadly-reaching programs and policy, systems, and environmental change.[12] Ballad Health is establishing and leading an Accountable Care Community, which will hone the strategy and efforts within the community for prevention and health promotion. Additionally, Ballad Health's integrated delivery system and alignment of incentives will drive strategic focus on addressing the key focus areas on the clinical side, which will complement any broad-based interventions it undertakes.

Collaborate across sectors

MSHA and WHS each have long-standing working relationships with community partners across sectors, which have been cultivated through years of community work. Ballad Health has specified categories of key sectors for engagement, including clinical partners, public sector partners, and private sector partners and payers. Given the history of relationships and how many organizations participated in the ETSU-led Community Work Group Process, the community is engaged and prepared for the Accountable Care Community model. Ballad Health has specifically outlined the state of regional program support for population health improvement, including an overview of the status of efforts by partnership category and description of the health system strategy related to each category.[7]

Many stakeholders mentioned that because of the lack of resources in the region, many organizations have strong informal networks, learning that they need to work together to get anything done. As mentioned previously in the Partnerships and Collaboration section, a very successful model of cross sector collaboration has been the Healthy Kingsport initiative, which brings together over 50 community partners to implement programs around a shared vision.

Leverage existing resources and community assets

A critical early step in the strategic planning process is identifying existing resources and programs that can be leveraged for greater impact. This inventory should include both internal and external resources and programs, as it is clear that community members in the Ballad Health service area value local organizations. It is evident, from key informants, working groups, and public documents, that MSHA and WHS have strong networks of existing partnerships and programs both within the two hospital systems and out in the community. Early steps of the strategic planning process should include taking a comprehensive inventory of resources and programs. From this inventory, it is recommended that Ballad Health identify new opportunities for stakeholder engagement and diversification, connect key focus areas with ongoing initiatives, and build partnerships with organizations that are highly visible in the community.

Perhaps one of the strongest assets conveyed by the key informant interviews was the sense of recent collaboration in the community due to planning for the merger. Community engagement is essential to any population health approach: it uniquely leverages the community's assets and resources, fosters ownership and pride in the community and its initiatives, and further grows the community's strengths and resilience. Ballad Health should continue growing its existing partnerships in the community and among providers and leverage them in its efforts. HCI also strongly recommends that Ballad Health broaden the scope of its stakeholders, in recognition and support of the health system's COPA application strategy to involve a variety of partners in planning for population health improvement plan. While the health system has robust connections to its community members, community-based organizations, schools, and other public health or healthcare partners, it should cultivate partnerships in other, less conventional sectors as well, such as departments of transportation and planning (rural and regional), local businesses, and policymakers. Engaging a diverse set of stakeholders will allow for a broader perspective of issues at hand as discussed in the *Principles of Community Engagement* and greater influence of efforts as discussed in the Social Ecological Model.

Investment

Both financial and in-kind investment are necessary for any community health improvement effort. Ballad Health's financial commitments of at least $75 million over 10 years into population health improvements, $140 million towards improvement in health care services, including $85 million towards mental health and addiction recovery, and up to $150 million towards a Common Clinical IT Platform are investments that will support the system's population health strategy. To maximize impact, HCI highly recommends that Ballad Health funnel its $75 million commitment to population health towards a specific set of strategies within the four key focus areas rather than a broad and less targeted set of health improvement efforts.

Ballad Health will provide the basic funding to sustain the infrastructure for the Accountable Care Community. As required under the Community Health Improvement Plan, Ballad Health will provide financial investments to accountable partners to focus on priority efforts with clear, contractual expectations for how those funds will be used and a clear system for evaluating compliance, evaluation, and success.[6] Ballad Health should consider investing in strategic capacity building and donating in-kind resources, including personnel within the population health improvement department and staff hours for administration and management of these collaborative efforts. In order to make the case for further grant and funding opportunities, as well as to ensure its investments and programs are running as intended, Ballad Health needs to carefully plan for and invest in its evaluation of the impact of its work. In the long run, the funding for the collaborative population health work may also move towards more sustainable options: in cost sharing, for example, collaborative population health efforts frequently start with seed grants, and gradually shift to share the cost across the initiating organization/funder and stakeholders, with the goal of the community owning and paying for the activities in order to sustain the effort. The combination of financial and in-kind contributions from various partner organizations is a successful model that has been implemented in other example efforts.[13]

Measuring Impact

It is essential that the Ballad Health population health improvement plan include a clear framework for accountability to ensure that 1) commitments are fulfilled as outlined in the COPA application and 2) that measurements take into consideration course corrections which may be necessary from time to time in order to ensure optimal effectiveness of the plan. There should be ongoing collaboration with the States to ensure alignment of state and local resources and efforts with Ballad Health efforts. Such alignment will have the most likelihood of success relative to any of the more traditional efforts.

Alignment of Accountability Index with Internal Evaluation

Tennessee Department of Health regulations require that the reduction in competition due to the Cooperative Agreement be outweighed by "clear and convincing evidence" of the agreement's likely benefits. This "Public Advantage" is to be tracked objectively using a Community Health Improvement Index calculated from a set of measures. HCI recommends that these index measures be in alignment with Ballad Health's internal evaluation of its population health improvement plan. The following recommendations on evaluation metric selections and comparisons may apply to the internal evaluation plan, Public Advantage tracking, or both.

HCI recommends developing an evaluation plan that establishes a comprehensive set of process and outcome metrics that are focused on the determinants and outcomes for the key focus areas. For each of these metrics, targets should be achievable within a ten-year timeframe based upon resources and the evidence base for interventions from example communities.

Metric Selection

HCI recommends a metric set for evaluation that provides an in-depth examination of progress made in the four prioritized health areas, to ensure that resources and data collection efforts are focused and effective. In the case that upstream determinants of health are included in the metric set, careful

consideration should be given to select metrics for which change is truly feasible within the ten-year timeframe. In addition, some social and economic determinants of health may be captured in evaluation plans for Ballad Health's other commitments, and these metrics would be complementary to those included in the population health improvement plan.

Process, Progress, and Outcome Metrics
Metrics that are selected for evaluation should be in alignment with the specific strategies and activities that are included in the implementation plan. In addition to tracking achievement on long-term outcomes, the inclusion of short- and mid-term metrics in the evaluation process allows for the demonstration of a connection between the health improvement activities and the long-term outcomes. Short-term process metrics measure the resources and activities of the health improvement effort, and should directly lead to improvement in mid-term progress measures. These progress measures reflect the impact that is seen as a result of the activities, such as changes in behavior or knowledge - and these changes should ultimately influence the intended long-term impact. The establishment of an evaluation plan that identifies logical links between these metrics is important to verify that the activities of the health improvement plan did in fact influence the long-term metric. Otherwise, observers may suppose that the change in the outcomes may have been influenced by external factors alone.

In addition to showing a link between activities and long-term outcome improvement, the evaluation of short- and mid-term metrics will provide the opportunity to establish "early wins", or examples of success that can be leveraged to sustain momentum and continue to build support for the work among stakeholders. This approach to evaluation is also described and supported by the public health experts at East Tennessee State University in the recently published Community Report.

For example, if the implementation plan is to include a tobacco cessation program, the following example metrics could be tracked:

- Short-term Process Metric: Number of current smokers enrolled in the program
- Mid-term Progress Metric: Percent of enrollees who report an intent to quit smoking
- Long-term Outcome: Adult smoking cessation attempts (county level behavioral survey results)

Achievable Long-term Outcomes
While process and progress metrics cannot be determined before strategies and activities are identified in the implementation plan, long-term outcomes may be established that are in alignment with the health needs identified in the Ballad Health service area. However, the selection of outcome metrics should consider the feasibility of impact within the ten-year commitment period of Ballad Health's improvement plan. Many interventions will have the potential to significantly affect health behaviors within several years of implementation, assuming that the programs have been appropriately implemented. Health outcomes such as disease prevalence and mortality rates, however, are more appropriate to track for longer-term periods as they may require decades or generations of health improvement efforts to see real change.

Reliability of Data Sources
Because many of the long-term outcome metrics to be included in the evaluation plan will be collected from secondary data sources, there is a significant likelihood that indicator data may change or become unavailable during the ten-year follow-up period. For example, a common indicator of youth tobacco use collected through the Youth Risk Behavior Surveillance System was modified beginning with 2015 data to include e-cigarettes, a change in methodology which affects comparability to historical years of data. It is reasonable to expect that changes such as this will continue to affect data from secondary sources in the future, and all parties involved in selecting metrics should plan for mutually agreed upon changes to the evaluation plan as needed.

A significant benefit of the Cooperative Agreement would be the availability of clinical outcomes from the Common Clinical IT Platform, which could serve as a valuable source of data for the evaluation process. HCI recommends that Ballad Health leverage data from the Common Clinical IT Platform for the progress tracking of its population health improvement plan.

Target Values and Comparisons

The change over time for each metric will be affected by a variety of factors, some of which will be targeted by the implementation plan and others which will be outside of the scope of influence of the effort. In comparing the service area value to other locations (such as the US, state, or peer county values), we can better understand the relative status of the community in each health area at any given point in time.

Peer county comparisons are particularly helpful in comparing a community to similar locations based on demographics of the population, assuming that values are stable and precise enough for a valid statistical comparison. One recommended method to stabilize estimates, which is particularly helpful for survey-collected metrics, is to aggregate multiple years of data together in order to effectively increase the sample size and narrow the confidence interval around the estimate. Another consideration when comparing peer counties are the factors that may differ by state or region, such as Medicaid coverage or cultural differences. The selection of peer counties from within the same state, rather than from other regions of the U.S., may be more appropriate for comparisons for particular metrics. A particular area for which Tennessee counties may face an exceptional barrier to improvement is in the area of tobacco use, given the historical barriers to tobacco-control policies that have perpetuated a pro-tobacco culture.[16]

To fully leverage comparisons to other locations for the purposes of this evaluation, HCI recommends comparing the trend of values for the service area to the trend that is seen for the comparison locations. This comparison would in effect control for, at least partially, the influence of outside factors on the service area value as an effect of Ballad Health's population health improvement plan. This comparison of trends, rather than comparing the most recent value for each location periodically, would allow for a richer assessment of how the metric has changed over time. In some cases, the trend for the service area may see a stronger improvement compared to other locations, but for other metrics the positive effect of the interventions may lessen the negative trend that would otherwise be worse. Two hypothetical examples are presented below which demonstrate cases in which a comparison of trends provides a more complete picture of a metric's progress than could be seen with a simple comparison of the most recent values for the two locations.
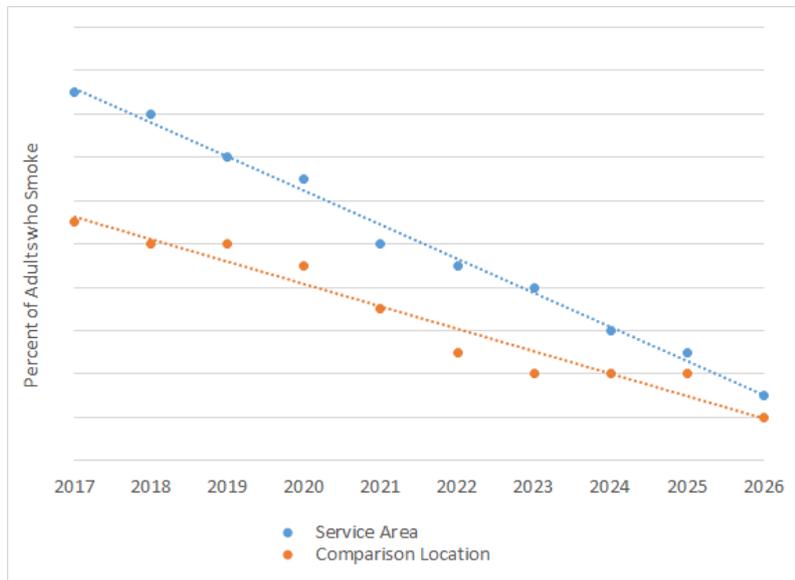

Figure 1. Hypothetical One: Percent of Adults who Smoke over Time

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[16] Fallin, A., & Glantz, S. A. (2015). Tobacco-Control Policies in Tobacco-Growing States: Where Tobacco Was King. *The Milbank Quarterly*, 93(2), 319–358. http://doi.org/10.1111/1468-0009.12124

In this first example (Figure 1), the value for the Service Area does not improve enough over the ten year time period to be considered better than the Comparison Location value at any single point in time. However, a regression analysis would show that the rate of decrease in values for the Service Area has been greater than the rate of decrease for the Comparison Location.

In this second example (Figure 2), the values for the Service Area are again always worse compared to the Comparison Location. However a regression analysis would show that the trend for the Service Area, while moving in an undesirable direction, is relatively better than the trend for the Comparison Location.
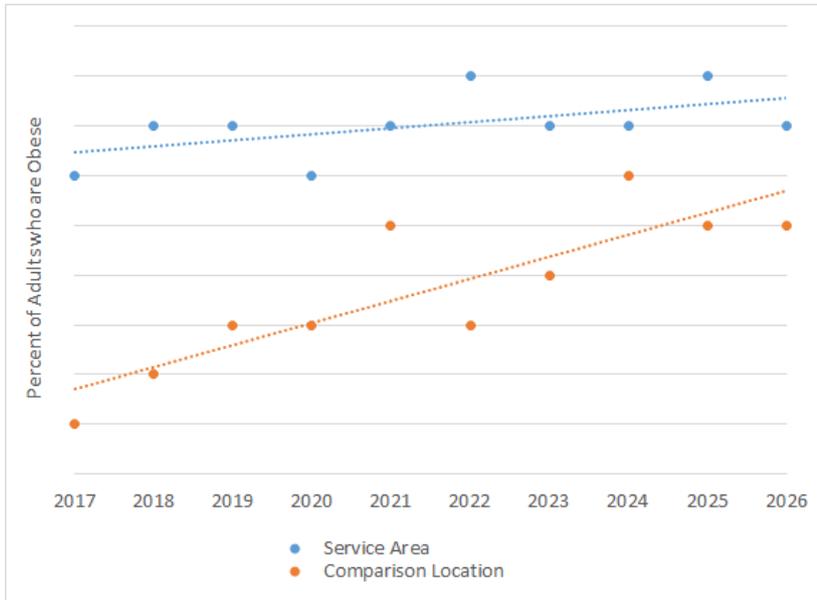

Figure 2. Hypothetical Two: Percent of Adults who are Obese over Time

Community Health Improvement Index

As described above, an evaluation of short- and mid-term metrics allows for the demonstration that population health improvement activities being conducted by Ballad Health are successfully leading to change in long-term outcomes. In the assessment of the Public Advantage of the Cooperative Agreement, it is suggested that mid-term progress metrics are included in addition to long-term outcomes in the index calculation.

In order to make this ascertainment for the whole set of metrics included in the index, an aggregate measure would need to be calculated for the mid-term progress metrics and long-term outcome metrics across the four health areas. We recommend that the principles outlined above for comparison selections be applied to this process for the long-term outcome metrics.

For individual metrics as well as the index value, HCI recommends that progress be shared publicly with partners and the community served through an accessible and easy-to-understand online platform. This transparency will allow stakeholders an awareness of the effort and its impact in the community, which is necessary for their opportunity to provide their input and contribute towards the success of the population health improvement plan. Strategic sharing of data with stakeholders has been a key to the success in other collaboratives, which have leveraged data to evaluate change and communicate progress or need for additional change.

Internal Oversight by Population Health and Social Responsibility Committee of the Ballad Health Board of Directors

As proposed in the application for the COPA, all population health improvement efforts would be overseen by the Ballad Health Department of Population Health Improvement. This department would be

overseen by a senior executive of Ballad Health who would serve as an administrative liaison to the Population Health and Social Responsibility Committee of the Ballad Health Board of Directors. It is this committee that will be delegated the responsibility to monitor and provide governance over the population health improvement plan. While the Committee will be charged with this role, it is ultimately the Board of Directors which will maintain responsibility for compliance with the plan and with the COPA commitments.

Upon its creation, we recommend that the Committee develop a clear process for understanding and evaluating the progress being made by the Department of Population Health Improvement. The oversight should cover both the development and establishment of the community health improvement plan as well as the implementation and tracking of the plan over time. The Committee should ensure that the principles described in this report are being applied and upheld in the ongoing effort.

Conclusion

Through a thorough assessment of current capacity and expertise, stakeholder engagement, partnership potential, existing programs, and proposed resources, HCI has determined that MSHA and WHS possess the essential building blocks for developing an effective population health improvement plan for the region as Ballad Health, despite the monumental challenges that Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse pose within the region.

MSHA and WHS have the community-rooted relationships and experience that will be critical to the success of population health efforts in the Northeast Tennessee and Southwest Virginia region. The health systems' unified commitments to leverage existing resources, coordinate efforts and invest cost-savings back into the community will position Ballad Health to embark on a historic journey to combat the region's significant challenges through a comprehensive, collaborative and community-driven approach that will improve population health outcomes related to the four key areas of Obesity, Physical Inactivity, Tobacco Use, and Substance Abuse. Furthermore, Ballad Health will be held accountable for its progress and success on achieving these commitments through the unique mechanism of the COPA as enforced by the State of Tennessee and the Commonwealth of Virginia.

Additionally, stakeholders overall felt that there was a high likelihood of success because the health systems are well-positioned with current leadership to put in the hard work that will be necessary to achieve success. The sense that Ballad Health's proposed endeavor is "historic" was reflected in stakeholders' comments regarding the dire need for comprehensive, well-funded, and coordinated strategies versus the status quo approach embodied by silos and long-standing competition. These stakeholders believed that the current commitment, passion, momentum, and desire to improve community health are unprecedented.

The health systems are ready and motivated to embark on a population health improvement effort, and, by applying best practices that have proven successful in other communities, HCI believes that Ballad Health can successfully move the needle on population health over the next ten years and beyond.

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Appendix A

Report Authors

HCI as an organization comprises public health professional consultants, informaticians, and health care system experts. Several individuals from the HCI team contributed to the development of this document.

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Associate Clinical Professor, School of Public Health, University of California, Berkeley

Dr. Van Brunt's recent research is in the areas of (1) chronic care management, and (2) improving population health and environmental sustainability through the use of community-based health information systems. Dr. Van Brunt was a recent member of the President's Council of Advisors on Science and Technology Systems Health Care Working Group, and a contributor to the Report to the President: Better Health Care and Lower Costs: Accelerating Improvement through systems Engineering (May 2014).

Jen Thompson, MPH
Director of Research and Consulting, Healthy Communities Institute

Ms. Thompson oversees the development and maintenance of site content and services that are used by communities throughout the nation to improve health. Her achievements at HCI include the development of the SocioNeeds Index, improved methods for assessment of health indicator data, and involvement in multiple Community Health Needs Assessment projects. Ms. Thompson has previously worked at county, state, and national levels in public health surveillance.

Kim Peeren, MPH
Senior Public Health Consultant, Healthy Communities Institute

Ms. Peeren delivers technical assistance and capacity building to nonprofit hospitals and community groups in support of their community health needs assessment, implementation and evaluation efforts. She specializes in participatory training, group facilitation and instructional design, and has collaborated with diverse organizations and groups on community health improvement efforts in the US and Africa, Asia and Latin America.

Mari Muzzio, MPH
Senior Public Health Consultant, Healthy Communities Institute

Ms. Muzzio has a diverse background in public health research and evaluation, program coordination, advocacy and communications, and nonprofit administration. She has a broad range of experience in evaluating public health programs, including a large-scale clinical trial in East Africa, and programming for maternal, infant and child health, poverty, gender, and youth. Mari is a trained facilitator, with expertise in qualitative data, and has trained collectors, managed, and analyzed data for international and domestic health projects.

Claire Lindsay, MPH
Senior Researcher and Public Health Consultant, Healthy Communities Institute

Ms. Lindsay's expertise is in quantitative data collection, analytics, synthesis, and visualization as a function of community health improvement efforts. Her practice is built on experience in public health research and evaluation, program implementation, coalition building, policy writing, and advocacy for marginalized populations. Ms. Lindsay's prior work focused on substance abuse and tobacco prevention initiatives at local and statewide levels.

Rebecca Yae
Public Health Consultant, Healthy Communities Institute

Ms. Yae's work primarily focuses on building capacity in nonprofit hospitals and associated coalitions across the nation through community health needs assessments, stakeholder and community engagement, and framework development. She specializes in community engagement and translating complex data into an easy-to-understand format. Prior to HCI, Rebecca worked to engage communities on Medicare pilot projects and promote hepatitis B awareness among underserved populations.

Appendix B

Key Informants

The following individuals were interviewed by HCI for their perspectives on the capacity and readiness of MSHA, WHS, and the community to engage in a population health improvement effort.

Mountain States Health Alliance
Barbara Allen Chair, MSHA Board MSHA
Marvin Eichorn Executive Vice President, COO, Corporate Treasurer MSHA
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MSHA	

Wellmont Health System

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Wellmont Health System

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Wellmont Health System

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