

PRIMARY CARE AND PUBLIC HEALTH COLLABORATION CASES:
A SYSTEMATIC REVIEW OF INTEGRATION AIMS, PARTICIPANTS,
AND SUCCESS DETERMINANTS

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ABSTRACT

PRIMARY CARE AND PUBLIC HEALTH COLLABORATION CASES: A SYSTEMATIC REVIEW OF INTEGRATION AIMS, PARTICIPANTS, AND SUCCESS DETERMINANTS

by Kimberly McVicar

Objective

To summarize collaboration aims, participants and systemic, organizational, and interactional success determinants characteristic of primary care and public health integrative efforts in the United States

Method

Systematic, retrospective review of published case reports

Results

The most commonly reported aims of collaboration between primary care and public health entities in the United States included chronic disease management, maternal and child health, and wellness and health promotion. The most commonly reported participants comprised government public health structure, health delivery systems, communities, academia, state professional medical associations, and employers and businesses. Systemic, organizational, and interactional determinant themes included adequate funding, multiple stakeholder engagement, leadership, data and information sharing, capitalization on collaborator resources, community engagement, steering committees, effective communication, regular meetings, shared mission, vision, and goals, previous positive relationships, collaborations, and partnerships.

Conclusions

The aim, participant, and success determinant themes described in the present study provide solid reference for summarizing current collaboration efforts in the United States as well as highlighting explicit areas of opportunity for future endeavors.

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CHAPTER I

INTRODUCTION

Background of the Problem

Disease in the United States has transitioned from predominately infectious to predominately chronic in etiology (Michener, Koo, Castrucci, & Sprague, 2016). Most of the country's more than \$3.0 trillion national health expenditures (Centers for Disease Control and Prevention [CDC], 2017a) can be attributed to direct medical treatment of chronic conditions (Michener et al., 2016). Concurrently, links between chronic illnesses and social, physical and economic influences remain apparent (Michener et al., 2016).

San Martin-Rodriguez, Beaulieu, D'Armour, and Ferrada-Videla (2005) reinforced the importance of collaboration and interprofessionalism on the efficiency and effectiveness of health services. While federal health agencies, nonprofit organizations, and funding opportunities emphasize the critical importance of integration among primary care and public health entities, the incongruent academic, professional, and private/public sector focus of the two systems hinders positive population health outcomes (Linde-Feucht & Coulouris, 2012; Michener et al., 2016). Concurrently, the philosophical frameworks inherent among respective professions can restrict health professionals' viewpoints (San Martin-Rodriguez et al., 2005). Lastly, integration efforts are often further confounded by time and funding constraints (Koo, Felix, Dankwa-Mullan, Miller, & Waalen, 2012) and market response to uncontrollable healthcare costs (Lasker & The Committee on Medicine and Public Health [Lasker], 1997).

The Institute of Medicine (IOM, 2012) report *Primary Care and Public Health: Exploring Integration to Improve Population Health* emphasized the power of integration to effect population health. Research suggests interprofessional education can improve perceptions

of interprofessional practice and promote collaboration (IOM, 2015). In response to the IOM's report, the Association of State and Territorial Health Officials (ASTHO, 2014) collaborated with the IOM and the United Health Foundation to develop a strategic map. The strategic map aimed to assist in the following: strengthening and supporting public health and primary care integration, increasing integration of public health-primary care infrastructure, and identifying partnerships between the sectors to reduce healthcare costs and improve healthcare quality and outcomes. To accomplish such goals, ASTHO, a national nonprofit organization representing public health agencies in the United States, launched the Integration Forum (IF), a partnership of greater than 60 organizations and 200 individual partners, including Medicare and Medicaid (Michener et al., 2016), to promote integration efforts (ASTHO, 2014). The present study aimed to review IF case studies, as well as cases from other sources, to identify determinants of successful collaboration among primary care and public health entities and to summarize integration aims and participants.

Drawing on the conceptualizations of San Martin-Rodriguez et al. (2005), collaboration determinants were categorized by the following three definitions: systemic determinants, defined as "elements outside the organization, such as components of social, cultural, educational and professional systems" (p. 134). Organizational determinants "combine attributes of the organization that define the work environment of the team, such as communication and coordination mechanisms" (p. 138) and interactional determinants are "components of interpersonal relationships among team members, such as their willingness to collaborate and the existence of mutual trust, respect and communication" (p. 141). In addition, the integration framework presented by Martin-Misener et al. (2012) served as the conceptual model that guided

identification and categorization of the most common determinants of collaboration, as presented in the IF and other case studies.

Statement of the Problem

Primary care and public health sectors can align and collaborate to address complex health issues and positively influence health outcomes (IOM, 2012). Effective interprofessional collaboration requires alignment of values, skills, and resources to achieve goals (IOM, 2015). Additional research can advise the intricate practice of successful collaboration between primary care and public health entities. The Integration Forum Successes Committee develops and displays primary care and public health integration success stories online (ASTHO, 2017). Examples of long-term, successful integration models are limited (IOM, 2012); therefore, analysis of such archival data can enhance the literature that informs determinants of success and sustainability.

Purpose of the Study

Few formal analyses of the efficacy of primary care and public health integration efforts exist (IOM, 2012). A literature review conducted in Canada revealed integration efforts resulted in improved health-related outcomes, improved access to health services, improved implementation of new collaborative initiatives, improved chronic disease management, and improved communicable disease control (Martin-Misener et al., 2012). Wright, Ugwi, and Nice (2015) described integration as a strategy toward improved health outcomes, reduced costs, and ultimately, reduced health disparities. Additional research is necessary to both heighten awareness of the significance of collaborative efforts among primary care and public health sectors and to reveal the complex array of determinants influencing their success in the United

States and worldwide. The purpose of this systematic, retrospective review of published case reports of collaboration between primary care and public health entities in the United States was to investigate the following primary research questions:

Research Question 1: What are the most commonly reported aims of collaboration between primary care and public health entities in the United States?

Research Question 2: Who are the most commonly reported participants in primary care and public health integration efforts in the United States?

Research Question 3: What are the most commonly reported systemic, organizational, and interactional determinants of successful integration efforts among primary care and public health entities in the United States?

Research Question 4: Do the most commonly reported determinants of successful integration between primary care and public health entities among cases in the present study align with previous research findings?

Significance of the Study

Primary care and public health sectors can align and collaborate to address complex health issues and positively influence health concerns, such as chronic disease treatment and prevention. Each sector brings a unique set of skills and advantage points to the table. This study contributes to the body of knowledge evaluating collaboration aims, participants, and determinants of success. Research suggests additional evidence concerning the influence of systemic, organizational, and interactional determinants on collaboration and integration could prove paramount (San Martin-Rodriguez et al., 2005). Such analyses could inform and catalyze efforts to replicate early successes; heighten understanding of when, where, and under what contextual circumstances collaboration is effective; and inform opportunities for future

synergies. Concurrently, such analysis facilitated comparison with previous integration research findings.

CHAPTER II

LITERATURE REVIEW

Introduction to the Literature Review

Modern societal and health issues are very complex. Complex health issues, such as treatment of chronic disease, can be extremely costly. As research suggests the incongruent focus of the primary care and public health systems warrant better alignment (Michener et al., 2016), interdisciplinary collaboration and teamwork will prove paramount to the orientation of values, skills, and resources and the ultimate advancement of health outcomes.

The IOM (1996) defined primary care as, “The provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community” (p. 1) and public health as “fulfilling society’s interest in assuring conditions in which people can be healthy” (p.140). While the role of primary care has been debated, the IOM (2012) asserted it is generally characterized by at least four key features: comprehensiveness, care coordination, first-point contact that facilitates access, and person-focused care that facilitates continuity. Similarly, public health’s capacity routinely centers on the 10 Essential Public Health Services: monitor health, diagnose and investigate, educate and empower, mobilize community partnerships, develop policies, enforce laws, provide care, assure competent workforce, evaluate, and research (CDC, 2017b; IOM, 2003). Collaboratively, these practice-based and population-based silos can synergistically strengthen service coordination, increase accessibility, enhance quality and cost effectiveness, pinpoint community issues, and elevate health promotion and policy (Martin-Misener et al., 2012).

The present research study focused on integration aims, participants, and success determinants in the United States using cases from the ASTHO IF as a primary source (most of which were reported on in 2013). Cases reported on since the 2013 IF were also consulted in the study, including those reported in academic journals and the *Practical Playbook*.

Theoretical Orientation for the Study

The Need for Integration

Despite the existence of well-developed primary care and public health systems, chronic diseases in the United States comprised a majority among the leading 15 causes of death in 2014 (Kochanek, Murphy, Xu, & Tejada-Vera, 2016). Deaths from heart disease and cancer alone accounted for 45.9% of deaths in the United States in 2014 (Kochanek et al., 2016). Age-adjusted death rates for several chronic diseases increased significantly between 2013 and 2014; among them were stroke, Alzheimer's disease, chronic liver disease, and cirrhosis (Kochanek et al., 2016). In 2012, the prevalence rate of childhood obesity was 17% and accounted for \$14 billion in direct costs related to annual prescription drugs, emergency visits, and outpatient costs (Bhuyan et al., 2015). Raney, Lasky, and Scott (2017) presented several examples of the economic benefits associated with integrated care for targeted conditions or populations. Significant cost savings per individual have been realized when co-occurring diagnoses, such as depression and chronic conditions, were addressed collaboratively (Raney et al., 2017). Research suggests integrated delivery systems are fundamental to improving health care delivery in the United States (Leibert, 2011; Shi & Singh, 2015). Therefore, analysis of the current state of integration is imperative.

The limitations of acute care systems in the United States to address prevention and care needs of the chronically ill is a large impetus for effective, efficient, synergistic collaborations between primary care and public health. National shortages of primary care providers represents a concurrent motivation (IOM, 2012). Eighty-seven percent of primary care physicians support team-based care (Audet, Davis, & Schoenbaum, 2006). Electronic health records are becoming increasingly prevalent and provide the capability to catalyze effective collaboration between primary care and public health entities (Calman, Hauser, Lurio, Wu, & Pichardo, 2012). The Affordable Care Act is grounded in the premise that the health of the individual is inseparable from the health of communities, which, in turn, influences the collective health status of the nation (Koh, 2010). Fragmented health services can be linked to access inefficiencies, resource utilization inefficiencies, excessive production costs, and poor patient satisfaction (World Health Organization [WHO], 2017). Value-based purchasing initiatives embody system reform focused on integrated care (Raney et al., 2017).

Concurrent with the concern over chronic diseases lies the concern for maternal and child health. The CDC (2014) estimates approximately 800 women die daily from preventable pregnancy and childbirth causes. Newborn or neonatal deaths comprise 40% of all deaths among children under five years of age (CDC, 2014). Thousands of children under the age of five die annually due to diarrhea-related illness and just over one million die annually from pneumonia-related illness (CDC, 2014).

Healthy lifestyles are also relevant. According to the CDC (2017c), smoking is the leading cause of preventable death. Smoking costs the United States billions of dollars annually and thousands of young people introduce the habit daily (CDC, 2017c). Currently, state spending on tobacco control and prevention falls short of CDC-recommended guidelines (CDC,

2017c). Drug overdose deaths, including opioid-involved deaths continue to escalate in the United States (CDC, 2017d). Overdose deaths involving opioids have more than quadrupled since 1999 (CDC, 2017d). Opioid-related deaths accounted for more than 28,000 deaths in 2014 (CDC, 2017d).

As the healthcare landscape continues to change, improved population health remains a prominent goal of system reform (IOM, 2012). Primary care and public health entities each have vested roles in improving population health outcomes via activities related to determinants of health, population-level behaviors, and individual health behaviors (IOM, 2012). Alignment of efforts among these sectors has produced appreciable results in the past and merits continued strengthening for synergy in the future (IOM, 2012).

In middle-income countries, such as Brazil, Mexico and Costa Rica, team-based care has demonstrated effectiveness in promoting ease of access, integration of services, and continuity of care (Kruk, Nigenda, & Knaul, 2015). In the United States, primary care and public health entities have worked effectively together to protect Americans from 17 infectious diseases that were previously widespread (ASTHO, 2014). Benefits of improved population health outcomes extend well beyond patients and primary care and public health entities. Health plans and businesses could realize cost savings from improved community health and reduced sick time, respectively (Scutchfield, Prybil, Kelly, & Mays, 2016).

Following a thorough literature review, an IOM (2012) committee developed a set of principles believed to be essential for the effective integration of primary care and public health. These principles included a shared goal of population health improvement, community engagement, aligned leadership, sustainability, and collaborative data and analysis (IOM, 2012). Similarly, Martin-Misener et al. (2012) identified characteristics influencing collaboration and

categorized them as systemic, organizational, and interactional. This integration framework was the foundational conceptual model for the identification and categorization of determinants of collaboration in the present study (see Appendix A). Based on the scoring methodology of D'Armour, Ferrada-Videla, San Martin-Rodriguez, and Beaulieu (2005), this framework is relatively strong.

Systemic dynamics influence the environment in which collaborative efforts exist in the United States. Systemic determinants include social, cultural, educational, and professional elements outside the organization (San Martin-Rodriguez et al., 2005). Examples include social dynamics associated with power differences between professionals, such as those that may exist between physicians and nurses (San Martin-Rodriguez et al., 2005). Other examples include government involvement, policy and fit with local needs, funding and resource factors, education and training (San Martin-Rodriguez et al., 2005), and fragmented information systems with deficient connectivity and surveillance capabilities (IOM, 2003).

The conceptualizations of San Martin-Rodriguez et al. (2005) described organizational determinants as those that “combine attributes of the organization that define the work environment of the team, such as communication and coordination mechanisms” (p. 138). Like systemic and interactional determinants, organizational dynamics are often reported as both facilitators of and barriers to interprofessional collaboration. In terms of collaboration facilitators, additional research has added multi-professional involvement, joint planning, clear channels of accountability, and standardized data collection and dissemination to the organizational category (IOM, 2012).

Previous studies revealed greater emphasis on interactional determinants, as compared to systemic and organizational determinants (San Martin-Rodriguez et al., 2005). Interactional

determinants describe the interpersonal interactions between collaboration members. Specifically, this category exemplifies dynamics such as shared team philosophy, positive relationships, and effective communication and decision-making mechanisms (Martin-Misener et al., 2012).

Definitions of Integration

Integration and collaboration are relative terms (IOM, 2012; Liebert, 2011; Raney, Lasky, & Scott, 2017). Shi and Singh (2013) defined horizontal integration as a growth strategy, whereby health care organizations expand their primary product or service to gain geographical expansion; examples include multihospital and drugstore chains. Vertical integration, conversely, enables diversification, comprehensiveness, and increased continuity of care by joining services from various stages of the healthcare production process (Shi & Singh, 2013). Examples include alignment among primary care, acute care, and post-acute care services (Shay, Mick, & Garner, 2013).

Leibert (2011) asserted integrated delivery systems remain a vital component to improving quality and cost of health care in the United States, despite the varying levels of success demonstrated from historical horizontal and vertical integrations. The WHO (2017b) definition of integration stresses the importance of a comprehensive care continuum throughout a patient's lifetime. Michener et al. (2016) do not define integration explicitly; rather, they suggest progression through five distinct stages: organization, planning, implementation, evaluation, and sharing. Table 1 summarizes definitions of integration relevant to the present study. The IOM (2012) definition was utilized in the present study for its broad nature and specificity to primary care and public health.

Table 1. Definitions of Integration

Author	Term	Definition
Liebert, 2011	Integrated Delivery System	A system, through contracts or ownership, that has formed into a single entity by physicians and hospitals to provide a broad range of medical and health services
IOM, 2012	Integration	The linkage of programs and activities to promote overall efficiency and effectiveness and achieve gains in population health
Shi & Singh, 2013	Horizontal Integration	A growth strategy characterized by extension of a health care organization's core product or service
Shi & Singh, 2013	Vertical Integration	Characterized by linked services at different stages in the production process of health care
WHO, 2017b	Integrated Health Services	Lifelong health services that are managed and delivered from various sites to ensure people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care as needed

Degrees of Integration

When examining primary care and public health efforts, integration degree can be a variable of interest. Ye, Browne, Grdisa, Beyene, and Thabane (2012) reinforced the importance of degree quantification in assessing collaboration effectiveness. The IOM (2012) conceptualized degree of integration as a continuum ranging from isolation to merger, with intermediary steps of mutual awareness, cooperation, collaboration, and partnership. Michener et al. (2016) posited the process of integration ascertains five characteristic action steps: organization and preparation, planning and prioritization, implementation, monitoring and evaluation, and celebration and sharing. Although cases reported to the IF included baseline and desired integration level, the current study adopted the IOM's (2012) definition of primary care

and public health integration: “The linkage of programs and activities to promote overall efficiency and effectiveness and achieve gains in population health” (p. 3), and included cases irrespective of reported integration degree.

Review of Research Literature Specific to the Research Questions

Integration Aims and Participants: International, National, and Local

The American Academy of Family Physicians (AAFP, 2014) identified 14 primary activities of focus between primary care and public health entities: wellness and health promotion, chronic disease management, patient registries, care coordination, immunizations, transitions of care, preventative care screenings, outbreak and disaster preparedness, maternal child health, advocacy, community involvement, palliative care, behavioral health care, and social determinants identification. Michener et al. (2016) suggested these items comprise three broad categorizations: data and analytics, policy and environmental change, and aligned health messaging.

The data and analytics category encompasses availability of electronic record data, data use for clinical improvement, data use for public practice improvement, and seamless data sharing (Michener et al., 2016). Policy and environmental change result from key public health and primary care decision makers who also empower communities and citizen-allies (Michener et al., 2016). Aligned health messaging, such as public service announcements, has been successful at the national and local levels. Communication technologies such as the Internet, text messaging, and Twitter are becoming more prevalent (Michener et al., 2016).

Previous activity frameworks include that by Lasker (1997), which focused on six collaboration synergies: coordination of services for individuals, provision of care to the

uninsured, improving quality and cost effectiveness via a population-based practice, identification of community health issues, mobilization of communities, and collaborations in policy, training, and research. Martin-Misener and Valaitis (2009) reported four key health issues currently addressed in collaborations: biomedical issues, such as chronic diseases and immunizations; behavioral issues, such as smoking cessation; socio-environmental issues, such as poverty; and access issues, such as that for underserved populations. Finally, the IF highlighted accelerated integration efforts based on three categories: innovation and dissemination, leveraged initiatives and opportunities, and expanded and strengthened collaborations (ASTHO, 2014).

The WHO and the Pan American Health Organization have pioneered integrated delivery network models to reduce fragmentation within and foster strengthening of health systems centered on primary care (WHO, 2017a). The CDC funds and administers the National Public Health Improvement Initiative, which aims to improve delivery of public health services by providing performance management and quality improvement resources to facilitate organizational changes (CDC, 2017e). The Health Resources and Services Administration (HRSA) supports primary and preventative care for 19 million patients nationwide (Linde-Feucht & Coulouris, 2012). The Ryan White Program, funded by HRSA, provides care, support services, and medication to approximately 50% of Americans living with human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS). Additional HRSA efforts include guidance to academic institutions to promote the development of diverse, culturally competent healthcare professionals (Linde-Feucht & Coulouris, 2012).

The Medicine and Public Health initiative was created in 1994 by the American Medical Association (AMA) and the American Public Health Association (APHA) to develop

recommendations for primary care and public health (IOM, 2012). The National Business Group on Health and regional partners play an active role in promoting community health (IOM, 2012). Community-oriented primary care (COPC) models have been implemented within the United States and internationally (IOM, 2012). The COPC is a continual process by which primary healthcare teams extend care to a specified community based on its assessed needs through practice integration among primary care and public health (IOM, 2012). Parkland Health and Hospital System in Dallas County, Texas, one of the largest publicly funded teaching hospitals and healthcare systems in the United States, was able to apply the COPC model to improve access to care among more than 350,000 residents (Pickens, Boumbulian, Anderson, Ross, & Phillips, 2002). The chronic care model and patient-centered medical home have also received widespread attention as facilitators of improved care (Steiner et al., 2008).

Integration efforts have been further exemplified at the state and local levels. In 2007, San Francisco began the Healthy San Francisco program designed to promote universal access to care. The program was able to improve access to care and reduce emergency department visits by linking uninsured adult patients to primary medical homes and providing services via Department of Public Health clinics, a local hospital, and federally funded health centers (IOM, 2012). In a partnership between the Asian community and the Department of Public Health, San Francisco was also one of the first cities to increase awareness and screening rates for hepatitis B among at-risk populations (IOM, 2012). The success of this program was due, in part, to the integration of key players, including quality improvement leaders from all local medical groups. These included the Department of Public Health, federally qualified health centers (FQHCs), Kaiser Permanente, researchers, and private medical groups (IOM, 2012). Michener et al. (2016)

exemplified promising opportunities for collaboration in areas of tobacco cessation, obesity, hypertension, maternal and child health, and asthma treatment and prevention.

The Bold, Upstream, Integrated, Local, Data-Driven (BUILD) Health Challenge is a national awards program developed to support community health collaborations to effect national change (BUILD Health Challenge, 2016). It is composed of a diverse array of partners, including Blue Cross and Blue Shield of North Carolina, the de Beaumont Foundation, the Mid-Iowa Health Foundation, The Robert Wood Johnson Foundation, The Kresge Foundation, and New Jersey Health Initiatives. As such, BUILD seeks to identify factors that contribute to meaningful health improvements by examining specific funded partnerships. The BUILD partnerships include hospitals, health systems, community-based organizations, local health departments, and other organizations (BUILD Health Challenge, 2016).

State and local public health organizations represented in the ASTHO IF include ASTHO, the National Association of County and City Health Officials, Trust for America's Health, Association of Public Health Nurses, and Association of Schools and Programs in Public Health (ASTHO, 2014). Primary care is represented by lead medical societies such as the American Medical Association, American Academy of Family Physicians, American Academy of Pediatrics, and American College of Preventive Medicine (ASTHO, 2014). The ASTHO IF depicts at least one integration case in every state, except South Dakota, Wisconsin, Michigan, and West Virginia. Ohio highlighted eight cases (ASTHO, 2017). Eight pediatric and family medicine practices and a public health department in rural Colorado assessed the effectiveness of public-private collaboration to deliver influenza immunizations in children (Kempe et al., 2014). Kempe et al. (2014) reported overall rates increased from baseline by 9.2% among intervention

groups versus 3.2% in control groups; the largest increases were realized among school-aged and adolescent children ($p < .001$ for both).

The Idaho Test4Baby Initiative utilized a Title V block grant to engage private, public, and Tribal organizations in improving maternal and child health in the state. The effort began with a designation of mutual awareness on the integration scale and proceeded to partnership. The authors of the case study attributed success to a common goal, consistent outreach to primary care partners leveraging existing relationships (ASTHO, 2017).

The IOM's (2012) depiction of the intersectoral public health system includes communities, health delivery systems, employers and businesses, media, academia, and government public health structure. This framework evolved from the 1988 and 2003 IOM reports, *The Future of Public Health* and *The Future of the Public's Health in the 21st Century*, respectively (IOM, 2003). Academic institutions remain vital to training health and public health professionals (IOM, 2002). Communities, including employers and businesses, support or hinder potential public health partnerships (IOM, 2002). Lastly, the media retains power to shape culture, attentions, and priorities related to health care and related interests (IOM, 2002).

Historically, Lasker (1997) reported on collaboration between a broad range of health professionals (physicians, nurses, social workers, nutritionists, educators, therapists, pharmacists, and managers) and health organizations (practices, clinics, public health, community-based organizations, hospitals, and managed care organizations). Michener et al. (2016) emphasized the importance of engaging nontraditional stakeholders to enhance efforts. Suggestions included chambers of commerce, community improvement organizations, faith-based organizations, housing organizations, mental health and crisis services, public safety organizations (Michener et al., 2016), and health advocacy lawyers (BUILD Health Challenge, 2016). Dietz et al. (2015)

stressed the importance of patient and family engagement and explicit conveners or integrators who foster trust and command respect, shared stakeholder values, and multi-sector engagement.

Determinants of Successful Integration

Lasker (1997) suggested a collaboration framework centered on shared goals, comprehensive health and disease determinants, people, organizations that influence such determinants, diverse resources and skills, and interventions that can be mounted. Updated research suggests key sectors of influence within such frameworks include communities, health care delivery systems, employers and businesses, the media, academia, and government public health infrastructure (IOM, 2012). Such stakeholders should be considered in primary care and public health integration efforts, as they have the potential to influence population health. The IOM (2012) has developed a set of principles deemed essential to successful integration of primary care and public health, which include a shared goal of population health improvement, community engagement, aligned leadership, sustainability, and data sharing and analysis.

Michener et al. (2016) posited a shared goal of population health is established if health-related goals are agreed upon between collaborators and commitment to the ongoing process of shared goal attainment exists. Similarly, Michener et al. (2016) suggested community engagement is achieved via the following four elements: ongoing, diverse stakeholder engagement, shared accountability and ownership among stakeholders, broad community representation, and public embracement of the effort by organizational and institutional leadership. Aligned leadership involves a broader scope than program direction, clarification of roles and accountability, and the capacity to control change across organizations (Michener et al., 2016). Sustainable systems are characterized by: integration activities that are embedded in existing infrastructure, shared resources that are realized and evaluated, and project partners,

leaders, and public officials that are committed to continuation of the system (Michener et al., 2016). The final principle, shared data and analysis, is conceptualized to exist when information from different systems is linked, routine data sharing and security agreements exist, and data are adding value to the system (Michener et al., 2016).

Jones and Leighton (2015) suggested that financial incentives and training and technical assistance to providers are critical components of sustained coordination, collaboration, and integrated practice. Scutchfield et al. (2016) contended success depends on degree of incorporation of vision, mission, and goals; appreciable trust among partners; qualified leadership; reliable and continuous performance metrics; commitment to improvement; celebration of early successes; and strategies for diversified funding. Lastly, Lebrun et al. (2012) identified specific needs for primary care/public health integration: additional funding for addressing social determinants of health, strong leadership and collaboration champions, trust building among partners, and aligned and standardized data collection, analysis, and exchange.

Steiner et al. (2008) described the Community Care of North Carolina program, which unified Medicaid, community physicians, hospitals, health departments, and departments of social services to efficiently manage the care for Medicaid recipients in the state. Projections suggested such efforts eventually saved the state upwards of \$160 million annually (Steiner et al., 2008). Steiner et al. (2008) suggested key facilitators of the program's success included starting small, strong physician leadership, a strong state office of rural health, integration of best practices, and a financial crisis that induced challenge of the status quo.

Padwa et al. (2015) reported on integrative efforts between primary care and behavioral health. In this context, inner and outer contextual factors have been evaluated (Padwa et al., 2015). Inner contextual factors conceptualized to affect integration care capacity included

organizational characteristics, individual adopter characteristics, leadership and innovation, and values fit (Padwa et al., 2015). Outer contextual factors of influence included socio-political context, funding, and leadership (Padwa, 2015).

Doucette, Nevins and Mcdonough (2005) researched collaboration among physicians and pharmacists. Doucette et al. (2005) developed a theoretical model of collaborative care working relationships characterized by the influence of individual characteristics, contextual factors, and exchange characteristics. Exchange factors include trustworthiness, role specification, and relationship initiation (Doucette et al., 2005).

Drawing on the conceptualizations of San Martin-Rodriguez et al. (2005), collaboration determinants have been categorized as systemic, organizational, and interactional. Consistent with this conceptualization, Martin-Misener et al. (2012) presented a framework for the development of codebook themes included in each of the aforementioned categories. Also consistent with this framework are the principles of integration described by Michener et al. (2016), which include a shared goal of population health, community engagement, aligned leadership, sustainable systems, and collaborative use of data.

Barriers to Integration

It is difficult to discuss integration facilitators without concurrent focus on integration barriers, as the dynamics are interwoven. Most primary care and public health entities are constrained by regulatory policies and funding models that do not explicitly facilitate collaboration or accountability to one another (IOM, 2012). Concurrently, infrastructure and interoperability constraints exist between the sectors, often impeding data collection (IOM, 2012).

Martin-Misener et al. (2012) reported the following systemic dynamics impeded collaboration progress: lack of resources for evaluation, health promotion, reporting infrastructure, and data sharing; small size of public health departments; and constant change created through healthcare reform. Organizational barriers to collaboration included lack of organizational support and resources, specifically, lack of a common agenda and common vision, along with geographic isolation of partners, particularly in rural settings (Martin-Misener et al., 2012). Interactional factors impeding collaboration included philosophical patient care differences (San Martin-Rodriguez et al., 2005) and negative stereotypical views of one another's roles (Martin-Misener et al., 2012). Raney, Lasky, and Scott (2017) report on impediments to integration between primary care and behavioral health. Main impediment categories include care delivery, education, administration and finances, practice issues and social or environmental factors (Raney, Lasky, & Scott, 2017).

Review of Methodological Literature Specific to the Research Questions

Collaboration Aims

The AAFP (2014) identified 14 primary activities of focus between primary care and public health entities, which include wellness and health promotion, chronic disease management, patient registries, care coordination, immunizations, transitions of care, preventative care screenings, outbreak and disaster preparedness, maternal child health, advocacy, community involvement, palliative care, behavioral health care, and social determinants. This framework highlights areas where the four key features of primary care (IOM, 2012) and the 10 Essential Public Health Services (CDC, 2017b) overlap. In addition, it closely mirrors the conceptualizations presented by Lasker (1997) and Martin-Misener and

Valaitis (2009) and represents an updated version. Michener et al. (2016) affirmed this conceptualization and condensed the model to three broad categorizations: data and analytics, policy and environmental change, and aligned health messaging. The current study utilized the 14-activity model to enhance the richness of categorization and reporting.

Collaboration Participants

The IOM's (2012) depiction of the intersectoral public health system (communities, health delivery systems, employers and businesses, media, academia, and government public health structure) informed the categorization of collaboration participants "positioned to act powerfully for health" (IOM, 2003, p.30) in the present study. This framework evolved from the 1988 and 2003 IOM reports, *The Future of Public Health* and *The Future of the Public's Health in the 21st Century*, respectively (IOM, 2003). It represents a similar and updated version of that presented by Lasker (1997). It also provides a foundation for expansion, whereby communities include specific patients and families (Dietz et al., 2015) and other nontraditional stakeholders, as conceptualized by Michener et al. (2016) and Dietz et al. (2015). Academic institutions remain vital to training health and public health professionals (IOM, 2002). Communities, including employers and businesses, support or hinder potential public health partnerships (IOM, 2002). Lastly, the media retains power to shape culture, attentions, and priorities related to health care and other interests (IOM, 2002).

Success Determinants

Drawing on the conceptualizations of San Martin-Rodriguez et al. (2005), collaboration determinants can be categorized as systemic, organizational, and interactional. Consistent with this conceptualization, the integration framework presented by Martin-Misener et al. (2012)

guided identification and categorization of the most common determinants of collaboration, as presented in the present study's case studies. Based on D'Amour et al.'s (2005) criteria for determining collaboration framework strength, this model is relatively strong, as it was derived from an explicit literature review strategy and addressed collaboration structures and processes (Martin-Misener et al., 2012). Moreover, this framework is consistent with the principles of integration described by Michener et al. (2016) and the IOM (2012). It also parallels the inner and outer contextual factors presented by Padwa et al. (2015) and represents an updated version of that presented by Lasker (1997). Lastly, this model integrates a broader literature base than the pharmacist-physician base conceptualized by Doucette et al. (2005).

Synthesis of Research Findings

Elimination of traditional practice-based primary care and population-based public health silos in favor of synergistic partnerships can facilitate increased health care accessibility, enhance quality of care, strengthen cost effectiveness, reduce health disparities, and create positive health outcomes. Concurrently, such efforts to leverage may reduce the burden of primary care provider shortages in the United States and facilitate the transformation from disease reaction to disease prevention. Efforts by major stakeholders, such as the WHO, IOM, CDC, AMA, and APHA, are generating results in areas such as access to care, chronic and communicable disease management, maternal and child health, and wellness and health promotion. State, local, and nontraditional stakeholders have perpetuated results, as well.

Wright et al. (2015) described integration as a strategy aimed toward improved health outcomes, management and prevention, reduced costs, and ultimately, reduced health disparities. Research examining the environments in which collaborations thrive has created a body of knowledge related to integration dynamics. For example, research suggests integration efforts

are influenced by systemic, organizational, and interactional dynamics. Understanding this theoretical framework and those related to integration aims and participants can catalyze future efforts to effectively integrate primary care and public health entities to impact population health locally, nationally, and internationally.

CHAPTER III

METHOD

Research Questions

The present study was designed to evaluate the following four research questions:

Research Question 1: What are the most commonly reported aims of collaboration between primary care and public health entities in the United States?

Research Question 2: Who are the most commonly reported participants in primary care and public health integration efforts in the United States?

Research Question 3: What are the most commonly reported systemic, organizational and interactional determinants of successful integration efforts among primary care and public health entities in the United States?

Research Question 4: Do the most commonly reported determinants of successful integration between primary care and public health entities among cases in the present study align with previous research findings?

Design

Overview

The research design for this study was a systematic retrospective review of published case reports of collaboration between primary care and public health entities in the United States. The study employed thematic analysis (Cooper & Schindler, 2014) to identify and summarize commonly reported aims of collaboration, participants in collaboration, and determinants of successful primary care and public health integrative efforts in the United States.

Data Extraction: Sources of Case Reports

Cases reported to the ASTHO IF were used as a primary source (most of which were reported in 2013). To identify cases reported on since 2013, four databases (PubMed, MEDLINE, CINAHL, and ABI/INFORM) were searched for dates from January 2014 to January 2017 employing the general search strategy displayed in Table 2. Additional peer-reviewed literature was gained using the related articles function. The *Practical Playbook* (Michener et al., 2016; Practical Playbook, 2017) was also consulted for updated cases. The overall intent of the present study was to contribute to the body of knowledge of when, where, and under what circumstances integration was perceived effective, to inform future endeavors.

Procedures for Extracting Case Reports from Each Source

Case inclusion criteria. Cases were included in the study if they identified a primary focus, participants explicitly identified as primary care and public health workers, and at least two units of meaning (one unit of meaning had to address a dynamic other than required funding).

ASTHO IF. The ASTHO IF displays 84 cases of primary care and public health integration efforts in the United States. The first case reported to the IF in each state, beginning on the west coast and moving eastward, was used for the present study if the aforementioned focus, participants, and units of meaning were apparent. If these three criteria were not extracted from the first case in each state, the second case in the state, if available, was used. Florida's Healthy Start Program (ASTHO, 2017) was the only second case used in place of the first.

No case reports were available for South Dakota, Wisconsin, Michigan, West Virginia, and Oregon. Alaska's Foodborne Botulism case (ASTHO, 2017) did not meet inclusion criteria. Therefore, the total number of cases included from the ASTHO IF was 44. Integration efforts

displayed in the ASTHO IF began prior to 2013 and convey information related to the present study primarily under four headings: required resources, key elements for success, lessons learned, or infrastructure to support collaboration and sustainability.

The Practical Playbook. The Practical Playbook and associated website features 13 public health success stories reported on in 2016 and 2017. In such cases, units of meaning were primarily depicted as lessons learned. Cases were included in the present study if they exhibited the case inclusion criteria previously described and did not duplicate a collaboration aim already addressed by the ASTHO IF map in the same state. This resulted in the inclusion of seven additional cases.

Peer-reviewed articles. The search strategy for peer-reviewed journal articles on primary care and public health integration was intended to capture cases reported on in the United States since the ASTHO IF map. Four databases (PubMed, MEDLINE, CINAHL, and ABI/INFORM) were searched for dates from January 2014 to January 2017 using the general search strategy displayed in Table 2. A total of 1,354 abstracts were reviewed and six cases were ultimately included, including a case from Michigan. Peer-reviewed case articles followed no specific reporting format for unit of meaning extraction; rather, units of meaning were discussed broadly, often in results and conclusions sections.

Table 2. Keywords for Electronic Database Search

Concept 1	And	Concept 2	And	Concept 3
Primary care or		Public health or		Collaboration or
Primary health care or		Public health care or		Collaborative or
Primary healthcare or		Public healthcare or		Integration or
Primary medical care or		Population health or		Integrated or
Primary care physician		Population health care or		Partnership or
		Community health or		Teamwork or
		Health department		Cooperative

Case Report Analysis Procedure

The unit of analysis for this study was units of meaning within each case study brief retrieved from the ASTHO IF map, journal articles, and *Practical Playbook*. Units of meaning were defined as statements specifically addressing aim of integration, collaboration participants and determinants, elements, factors or resources identified (by case authors) as integral to collaboration success, and/or sustainability as related to Research Questions 1, 2, and 3. Statements presented in cases as lessons learned were also included. Cases were included in the study if they identified a primary focus, participants including primary care and public health workers, and at least two units of meaning (one unit of meaning had to address a dynamic other than required funding).

The 14 primary activities of focus of primary care and public health entities conceptualized by AAFP was used to guide categorization of collaboration emphases found in articles and reported to the IF and *Practical Playbook*. To address Research Question 1, simple binary variables (1, 0) were assigned to indicate the presence or absence of each of the 14 activities in each case. Collaboration focus frequencies were calculated and reported for all 57 cases included in the study (see Table 3). To keep analysis concise, a single primary focus for each case was identified. For example, the Ohio case identified an aim of increasing

hypertension and cholesterol screening among African American males in a particular age range (ASTHO, 2017). While the targeted population in this case could subject it to multiple categories, only the first category (preventative care screenings) was considered. The Massachusetts case identified an aim of improving clinical decision support and enhancing preventative cancer screening (ASTHO, 2017). The author made the decision to code this case in the preventative care screenings category.

Concerning Research Question 2, collaboration participant frequencies were calculated and reported for all 57 cases included in the study (see Table 4). The IOM's (2012) depiction of the intersectoral public health system (communities, health delivery systems, employers and businesses, media, academia, and government public health structure) informed the categorization of collaboration participants. Simple binary variables (1, 0) were employed to indicate the presence or absence of each of the six variables in each case. Subsequently, each case could be defined by inclusion of none of the model participants, all six of the model participants, or any number there within.

To answer Research Question 3, common determinants of successful integration were analyzed using each of the 13 updated cases included (from journals and the *Practical Playbook*) (see Appendix B) and the first case reported to the IF in each state, beginning on the west coast and moving eastward until at least one case from every state was included. As discussed previously, this did not include South Dakota, Wisconsin, Michigan, West Virginia, Oregon, and Alaska. Twenty additional ASTHO cases were coded and evaluated using a second and then third case from each state, where available, to ensure saturation of data among the 57 included cases. Extracted statements from case studies were identified as units of meaning and inserted into a data extraction form (see Appendix B) for ease of review and coding. The author made

every attempt to extract success determinants explicit to the integration process rather than the specific integration aim, as integration aim was not a constant variable. The Alabama colorectal cancer screening case served as a clear example of the distinction between integration process and aim. To achieve increased screening rates, the author stressed the importance of mass screening initiatives that improve existing corporate wellness systems (ASTHO, 2017). As a disease outcome-specific element, this dynamic was not extracted as a unit of meaning related to integration process among partners.

A codebook (see Appendix A), based on the conceptualizations of Martin-Misener et al. (2012) and refined by researcher interpretation of the data, was developed. Individual units of meaning were coded in three distinct phases beginning with the systemic, interactional, or organizational designation. The second phase of coding included categorization of units of meaning into subgroups that comprise the systemic, organizational, and interactional phase one categories. The third and final phase of coding categorized the units of meaning into the various categories that exemplify the phase two codes. If units of meaning were not detailed enough to be described via three phases of coding, coding concluded at the appropriate level. Units of meaning that did not fit explicit codebook definitions were noted, reported, and used to enhance final codebook definitions and inform study findings and discussion.

Concerning success determinants, the author and a second coder independently reviewed and coded a small number of case studies and collaborated to establish consensus, coder reliability, and codebook exclusivity and exhaustivity. The second coder was selected for her Masters-level education in a non-health care-related field of study. The author trained the second coder in codebook development and function. Inter-rater coder reliability was recorded and reported. The author continued to code case study reports until no new information was

added to the existing research. Code frequencies were calculated, reported, and discussed (see Table 5). The researcher synthesized phase one coding frequencies to inform and summarize the most commonly reported determinants of successful collaboration, as described by the systemic, organizational, interactional model. Phase two and three code frequencies were synthesized to provide a more in-depth depiction of the specific determinants inherent among these three primary categories. Research Question 4 compared results of the present study's identified success determinants with similar research inquiries, empirical studies, and literature reviews.

The present study employed several qualitative research terms that are conceptualized below: data saturation was defined in the present study as the point at which concepts are duplicated and no new information or themes are added to existing data (Shi, 2008). Exclusivity described observations, sampling elements, or units of meaning that could be classified into only one classification category (Shi, 2008). Exhaustivity was defined as the state where observations, sampling units, or units of meaning could be classified via the designated categories (Shi, 2008).

Intercoder reliability and intercoder agreement in the present study were differentiated by the following definitions: Intercoder reliability "requires that two or more equally capable coders operating in isolation from each other select the same code for the same unit of text" (Campbell, Quincy, Osserman, & Pedersen, 2013, p. 297). Intercoder agreement requires that two or more coders are able to reconcile through discussion whatever coding discrepancies they may have for the same unit of text – discrepancies that may arise, for instance, if some coders are more knowledgeable than others about the interview subject matter (Campbell et al., 2013, p. 297).

CHAPTER IV

RESULTS

Research Question 1

What are the most commonly reported aims of collaboration between primary care and public health entities in the United States? In relation to Research Question 1, collaboration focus, frequency calculations for the 57 cases included in the present study are displayed in Table 3. Chronic disease management emerged as the most commonly reported focus, as identified in 14 of the 57 cases. Explicit conditions addressed included asthma (five cases), cardiovascular diseases (four cases), HIV (three cases), and diabetes (one case) (ASTHO, 2017; Irvin et al., 2015; Michener et al., 2016; Practical Playbook, 2017). The final collaboration addressed multiple chronic diseases (ASTHO, 2017).

Maternal and child health issues emerged as the primary focus in 10 of the 57 cases. Recurring efforts in this category included reducing infant mortality (three cases) and improving birthing outcomes (three cases) (ASTHO, 2017). Wellness and health promotion emerged as the third most common collaboration focus (nine cases). Recurring efforts included programs addressing healthy weight/obesity (three cases), prescription drug overdose (two cases), and tobacco cessation (two cases) (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017; Tucker et al., 2014). The six cases classified as care coordination exhibited no explicit themes. They included aims such as establishment of an integrated health location (ASTHO, 2017), creation of neighborhood health stations (Practical Playbook, 2017), and focus on organized trauma care (ASTHO, 2017).

Five cases in the present study categorized outside the 14 primary activities proposed by AAFP. Such aims included increasing or improving access to care for specific populations

(three cases), an environmental lead exposure issue (one case), and creation of an immunization portal to improve access to valid records (one case) (ASTHO, 2017; Mcneely & Morland, 2016; Practical Playbook, 2017). Categories exhibiting less than five coded cases included preventative care screenings (four cases), immunizations (three cases), behavioral health care (three cases), community involvement (two cases), and outbreak and disaster preparedness (one case) (ASTHO, 2017; Kempe et al., 2014).

Table 3. Collaboration Aims

Focus	Frequency
Chronic disease management, including	14
Asthma	5
Cardiovascular disease	4
HIV	3
Diabetes	1
Multiple chronic diseases	1
Maternal/child health, including	10
Reducing infant mortality	3
Improving birthing outcomes	3
Other	4
Wellness and health promotion, including	9
Healthy weight/obesity	3
Prescription drug overdose	2
Tobacco cessation	2
Other	2
Care coordination	6
Other*, including	5
Increasing access	3
Environmental lead exposure	1
Immunization portal	1
Preventative care screenings	4
Immunizations	3
Behavioral health care	3
Community involvement	2
Outbreak and disaster preparedness	1
Patient registries	0
Transitions of care	0
Palliative care	0
Social determinants identification	0
Advocacy	0
*Other indicates cases coded outside the original categories in the conceptual model	

Research Question 2

Who are the most commonly reported participants in primary care and public health integration efforts in the United States? Table 4 displays the results for Research Question 2.

Government public health structure emerged as the most frequently included collaboration partner, as coded in 53 of the 57 included cases. Specifically, state health department, Department of Health, or Department of Health and Human Services involvement was apparent in 38 cases, while local health departments were coded as collaborators in 20 cases (ASTHO, 2017; Kempe et al., 2014; Michener et al., 2016; Practical Playbook, 2017). State and local health departments were coded concurrently in 11 cases. State Medicaid involvement emerged in nine cases.

Health delivery systems emerged as the second most frequently reported collaboration participant, as coded in 39 of the 57 included cases (ASTHO, 2017; Irvin et al., 2015; McNeely & Moreland, 2016; Michener et al., 2016; Practical Playbook, 2017; Tucker et al., 2014; Wubu et al., 2017). Within such delivery systems, the following participants were reported (each delivery system could include more than one of the following participant categories): practices/providers (28 cases); hospitals and health systems (25 cases); nurses (eight cases, often in addition to practices and health systems); FQHCs (seven cases); community health centers (CHCs) (five cases); and rural health clinics (RHCs) (four cases). Communities comprised the third most frequently coded category of participants (29 cases) (ASTHO, 2017; Irvin et al., 2015; Michener et al., 2016; Practical Playbook, 2017; Tucker et al., 2014). More precisely, these collaborations incorporated community organizations/coalitions (22 cases), including faith-based organizations (three cases) and local Young Men's Christian Associations (YMCAs) (three cases) (ASTHO, 2017).

The academia category (23 cases) included universities (18 cases) and local schools/school districts (seven cases) (ASTHO, 2017; Irvin et al., 2015; Michener et al., 2016; Practical Playbook, 2017; Wubu et al., 2017). University and local school involvement emerged concurrently in four cases (ASTHO, 2017). No specific themes arose from the employers and businesses category (seven cases), as not all cases explicitly named the employers and businesses involved. Specific employers noted in single cases included Walmart, Microsoft, Regions Bank, and a local power company (ASTHO, 2017).

Lastly, although not specifically mentioned in the IOM's depiction, state professional associations were coded in 13 cases (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017; Wubu et al., 2017). Chapters of the American Academy of Pediatrics led the list, as coded in six cases. Other professional chapters included the American Lung Association, the American Heart Association, the AAFP, and the American College of Obstetricians and Gynecologists (ASTHO, 2017).

Table 4. Collaboration Participants

Participant	Frequency
Government public health structure, including State health department, Department of Health, or Department of Health and Human Services	53
Local health department	38
State Medicaid	20
Health delivery systems, including	9
Practices/providers	39
Hospitals/health systems	28
Nurses	25
FQHCs	8
CHCs	7
RHCs	5
Communities, including	4
Community organizations/coalitions	29
Academia, including	22
Universities	23
Local schools/school districts	18
Professional healthcare associations*, including State chapters of the American Academy of Pediatrics	7
Employers and businesses	13
Media	6
	7
	0

*Indicates cases coded outside the original categories in the conceptual model

Coding

Every extracted unit of meaning related to success determinants was coded at least to the first level: systemic, organizational, or interactional. Initial reliability between two independent coders for all coding levels was 84%. After reconciling coding discrepancies through discussion, the two coders reached complete consensus. Intercoder reliability and intercoder agreement in the present study were differentiated by the following definitions: Intercoder reliability “requires that two or more equally capable coders operating in isolation from each other select the same

code for the same unit of text” (Campbell, Quincy, Osserman, & Pedersen, 2013, p. 297).

Intercoder agreement

requires that two or more coders are able to reconcile through discussion whatever coding discrepancies they may have for the same unit of text – discrepancies that may arise, for instance, if some coders are more knowledgeable than others about the interview subject matter (Campbell et al., 2013, p. 297).

Research Question 3

What are the most commonly reported systemic, organizational, and interactional determinants of successful integration efforts among primary care and public health entities in the United States?

Systemic

Systemic determinants were defined in the present study as “elements outside the organization, such as components of social, cultural, educational, and professional systems” (San Martin-Rodriguez et al., 2005, p. 134). Results to Research Question 3 are depicted in Table 5. Adequate funding was coded in 54 of the 57 included cases, most commonly reported as a required resource (ASTHO, 2017; Irvin et al., 2015; Michener et al., 2016; Practical Playbook, 2017; Tucker et al., 2014; Wubu et al., 2017). In two of the extraneous cases, the funding source was unclear to the author. The Living Well Hawaii Project, aimed at improving health outcomes for adults with serious mental illness, explicitly highlighted the lack of additional funding required to initiate the project (ASTHO, 2017).

Federal funding/grants were identifiable in 35 cases, with the CDC as the most common source (14 cases). State funding/grants emerged in 22 cases. Federal and state funding/grants

emerged concurrently in 12 cases. Miscellaneous funding sources, including foundation (five cases) and private (four cases), were identified in 24 cases. Advocacy was the only noted recurring systemic determinant coded in less than five cases (ASTHO, 2017).

Organizational

Organizational determinants were defined in the present study as those that “combine attributes of the organization that define the work environment of the team, such as communication and coordination mechanisms” (San Martin-Rodriguez et al., 2005, p. 138). Multiple stakeholder engagement arose as the most commonly coded organizational determinant, as depicted in 13 cases (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017), which was followed by leadership (12 cases) (ASTHO, 2017; Irvin et al., 2015; Michener et al., 2016; Practical Playbook, 2017). Specific statements about leadership were broad and, therefore, coding concluded at the second level. Units of meaning coded in this category included a strong leadership team, ongoing leadership, strong network leadership, high-level engagement from leadership, and identification of a single lead organization (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017).

Data and information sharing units of meaning appeared in 10 cases (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017). This was followed by capitalizing on various collaborator resources (nine cases), community engagement (eight cases), and the positive role of steering committees (six cases) (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017). Steering committee involvement represented an explicit subcategory of leadership that could be coded to a third level and was, therefore, reported separately (ASTHO, 2017; Tucker et al., 2014). Recurring organizational determinants coded in less than five cases included joint planning (three cases) and collaboration evaluation mechanisms (three cases) (ASTHO, 2017).

Interactional

Interactional determinants were defined in the present study as “components of interpersonal relationships among team members, such as their willingness to collaborate and the existence of mutual trust, respect and communication” (San Martin-Rodriguez et al., 2005, p. 141). Emerging interactional themes included effective communication (12 cases); regular meetings between members (12 cases); shared mission, vision, or goals among collaborators (nine cases); and previous positive relationships among collaborators (eight cases) (ASTHO, 2017; Kempe et al., 2014; Mcneely & Moreland, 2016; Michener et al., 2016; Practical Playbook, 2017; Tucker et al., 2014). Collaboration (seven cases) and partnerships (five cases) were presented nonspecifically as facilitators of success or lessons learned (ASTHO, 2017; Michener et al., 2016; Practical Playbook, 2017). Recurring interactional determinants coded in less than five cases included quality professional relationships (two cases) and cultural competency among collaborators (two cases) (ASTHO, 2017).

Table 5. Frequencies of Success Determinants

Category	Determinant	Frequency
Systemic	Adequate funding, including	54
	Federal funding	35
	State funding	22
	Miscellaneous funding	24
	Government involvement	0
	Policy and fit with local needs	0
	Power and control issues	0
	Education and training	0
Organizational	Multiple stakeholder engagement	13
	Leadership	12
	Data and information sharing	10
	Collaborators bringing resources to the table	9
	Community engagement	8
	Steering committees	6
	Geographic proximity of partners	0
Interactional	Effective communication	12
	Regular meetings	12
	Shared mission, vision, goals	9
	Previous positive relationships	8
	Collaboration	7
	Partnerships	5

Research Question 4

Do the most commonly reported determinants of successful integration between primary care and public health entities among cases in the present study align with previous research findings? Integration success determinant results depicted in the present study reinforced components of multiple historical conceptual models. Examples included the importance of shared goals, as described by Lasker (1997) and Scutchfield et al. (2016), and the synergistic effects of diverse resources and skills (Lasker, 1997). The importance of diversified funding (Schuchfield et al., 2016; Padwa et al., 2015), leadership (Padwa et al., 2015), and aligned data

collection (Lebrun et al., 2012) were also supported. Perhaps most importantly, the results in the current study explicitly reinforced four of the five principles of integration set forth by the IOM (2012): shared goals, community engagement, leadership, and collaborative use of data and analysis. The fifth principle, sustainability (IOM, 2012), did not emerge as a theme in the present study.

The systemic, organizational, interactional framework conceptualized by San Martin-Rodriguez et al. (2005) and Martin-Misener et al. (2012) proved inclusive, as every extracted unit of meaning in the present study was coded to at least the systemic, organizational, or interactional level. Adequate funding was the sole systemic determinant coded to three levels in multiple cases. The author's decision to focus on self-reported success determinants may have led to underrepresentation of systemic determinants in the present study; this will be further discussed in conclusions.

Organizational determinants defined by three levels of detail included multiple stakeholder engagement, various collaborators bringing resources to the table, steering committees, and community engagement. Interactional determinants defined by three levels of detail included shared mission, vision, and goals; previous positive relationships among collaborators; regular meetings among collaborators; and general mention of partnerships and collaborations.

In addition to confirming several specific systemic, organizational, and interactional success determinants highlighted in the literature-based codebook (results in Table 5), the results to Research Question 3 also underscored explicit literature-derived determinants not exemplified among cases included in the current study. For example, no extracted units of meaning typified the following second-level systemic categories: government involvement, policy and fit with

local needs, power and control issues, and education and training. Likewise, geographic proximity of partners remained a second-level organizational category with no emerging themes.

CHAPTER V

CONCLUSIONS AND DISCUSSION

Conclusions

Collaboration Aims

One purpose of the present study was to investigate the most commonly reported aims of collaboration between primary care and public health entities in the United States. The present study's summary of primary care and public health integration efforts aligned fundamentally with previous frameworks, including Lasker (1997), the IF (ASTHO, 2014), and Martin-Misener and Valaitis (2009). Lasker's (1997) conceptualizations of the importance of coordination of services and community involvement were reinforced, as were ASTHO's (2014) broad categories of leveraged initiatives and expanded collaborations. Also highlighted were Martin-Misener and Valaitis's (2009) focus areas of chronic disease, immunizations, access, and smoking cessation. The AAFP's conceptualization of 14 primary activities proved inclusive and useful for this study. All but five cases were coded within this model.

The author's decision to identify a single integration aim for each case in the present study likely contributed to the lack of thematic representation of the following categories: advocacy, patient registries, transitions of care, palliative care, and social determinants identification. For example, the Idaho Maternal and Child Health Program was coded in the maternal and child health category in the present study, but the case highlighted a concurrent effort to address health disparities (ASTHO, 2017). The Kansas case aimed at improving infant mortality was also categorized in the maternal and child health category, despite its concurrent

focus on low-income women (ASTHO, 2017). These results suggested secondary aims could be evaluated in future work to further inform concurrent collaboration aims.

Chronic disease management, maternal and child health, wellness and health promotion, care coordination, preventative care screenings, immunizations, behavioral health care, community involvement, and outbreak and disaster preparedness, as consistent with the AAFP's 14 primary activities conceptualization, were confirmed as collaboration themes in the present study. These themes, as well as those that were absent as primary aims in the current study (advocacy, patient registries, transitions of care, palliative care, and social determinants identification), provide solid reference for informing current collaboration efforts and highlighting where opportunities may exist for future endeavors.

Collaboration Participants

A second purpose of the present study was to identify the most commonly reported participants involved in primary care and public health integration efforts in the United States. The present study's summary of primary care and public health collaboration participants (government public health structure, health delivery systems, communities, academia, professional health care associations, and employers and businesses) also aligned fundamentally with previous models, including the IOM's (2012) depiction of the intersectoral public health system. Lasker's (1997) broad-range portrayal of multiple health professionals and health organizations was also reinforced. Lastly, Micheners et al.'s (2016) model of nontraditional stakeholders, such as faith-based organizations, was also exemplified.

Media involvement represented the most obvious variance between the present study's findings and the IOM's (2012) intersectoral conceptualization, as it did not emerge as a commonality in the present study. Other participants explicitly mentioned in previous literature

that did not arise as commonalities in the present study included nutritionists, therapists, pharmacists, housing organizations, and health advocacy lawyers (IOM, 2012; Lasker, 1997; Michener et al., 2016). Conversely, the present study revealed professional healthcare associations as a common collaboration participant. Future collaborative efforts could benefit from knowledge of potential participants who have been historically underutilized, as well as summaries of those incorporated most frequently.

Success Determinants

Research Question 3 in the present study addressed the most commonly reported systemic, organizational, and interactional determinants of successful integration efforts among primary care and public health entities in the United States. At the systemic level, results revealed adequate funding as an essential component of collaboration initiatives. Organizationally, multiple stakeholder engagement, leadership, data and information sharing, pooling resources, community engagement, and steering committees emerged as common themes. At the interactional level, effective communication; regular meetings; shared mission, vision, and goals; previous positive relationships; and collaborations and partnerships were typified. These results largely reinforced previous conceptualizations, such as Lasker's (1997) focus on shared goals and diverse resources and skills. Collaboration and vision, mission, and goals, as presented by Jones and Leighton (2015) and Schutchfield et al. (2016), were also exemplified. Also confirmed was the IOM's essential principles for successful integration between primary care and public health (shared goals, community engagement, leadership, and data sharing). Lastly, the systemic, organizational, interactional framework, conceptualized by San Martin-Rodriguez et al. (2005) and Martin-Misener et al. (2012), proved inclusive, as every

extracted unit of meaning in the present study was coded to at least one level (systemic, organizational, or interactional).

The author's decision to focus on self-reported success determinants may have led to underrepresentation of systemic determinants in the present study. The IF itself represents a collaboration of diverse federal, state, and local health agencies seeking to inform, align, and support integration efforts (ASTHO, 2014). As such, codebook elements, such as government involvement, common goals (at the systemic level), and collaboration between levels of government, were apparent. Because these elements were not explicitly identified by case authors as determinants, elements, factors, or resources as integral to collaboration success and/or sustainability, they were not extracted as units of meaning for inclusion in the present study. Similarly, the IOM (2012) suggested Million Hearts initiatives inherently portray a shared goal of population health improvement. Nevertheless, shared goal of population health improvement was not extracted as a unit of meaning in the current study's Million Hearts cases, as it was not explicitly apparent. This included cases from Iowa, Ohio, New York and Maryland (ASTHO, 2017).

In addition to confirming several specific systemic, organizational, and interactional success determinants highlighted in relevant literature, the results of the present study also underscored explicit literature-derived determinants not exemplified among cases included in the current study. For example, no units of meaning were coded in the following second-level systemic categories: government involvement, policy and fit with local needs, power and control issues, and education and training. According to Martin-Misener et al. (2012), this would include such things as health reform and government mandates for development of teams and partnerships. Other examples included enhancing evidence-informed practice and improving

emergency planning and response (Martin-Misener et al., 2012). Interdisciplinary education and educational programs promoting integrative practice and diverse team facilitation were also important (Martin-Misener et al., 2012).

Geographic proximity of partners remained a second-level organizational category with no emerging themes. Martin-Misener et al. (2012) described co-location of primary care and public health organizations and team members as a collaboration facilitator. Geographic proximity of team members facilitated communication, information exchange, a sense of common purpose, and high levels of trust among collaborators (Martin-Misener et al., 2012). Much like collaboration aims and participants, future integrative efforts could benefit from knowledge of the presence or absence of such factors within previous efforts. Figure 1 displays the collective results of the present study.

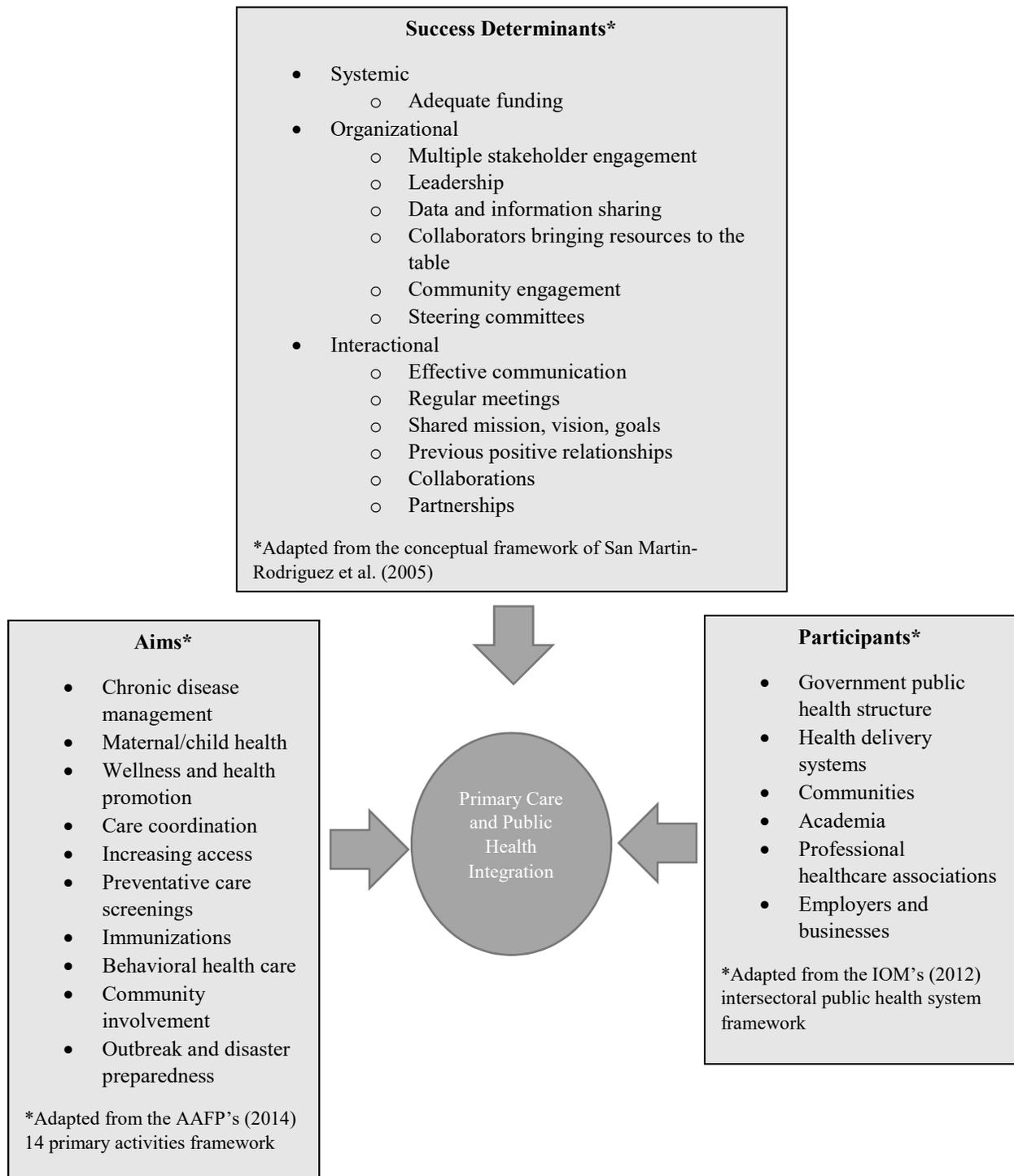


Figure 1. Summary of integration aims, participants, and success determinants in the present study

Alignment with Previous Research Findings

The final purpose of the present study was to compare the most commonly reported systemic, organizational, and interactional determinants of successful integration between primary care and public health entities in the present study with previous research findings. As discussed previously, determinants reported in the present study partially aligned with multiple historical conceptual models. Further, the codebook used in the present study proved useful for categorizing units of meaning as systemic, organizational, or interactional. Additional case study detail could facilitate more precise second- and third-level coding.

Limitations

Explicit limitations characterized the current study, thus limiting the generalizability of its findings (Cooper & Schindler, 2014). It is important to note the ASTHO integration cases examined in this study were self-reported and, therefore, could carry a bias toward those strategies that proved successful, represent organizations that qualify as members of ASTHO, or represent organizations with the leadership interest, resources, transparency, and capacity to generate such reports. This study did not attempt to identify cases exhibiting higher degrees of integration or demonstrating prolonged sustainability; nor did it attempt to distinguish large-scale from small-scale integrations or urban from rural integrations. In addition, cases displayed in the ASTHO IF map followed at least two distinct reporting formats and exhibited varying degrees of detail; both of these dynamics complicated the data extraction process. Lastly, extracted units of meaning were derived from the author's interpretation of the case reports and were, therefore, subject to misinterpretation.

The author's decision to identify a single integration aim for each case in the present study likely contributed to the lack of thematic representation of the following categories:

advocacy, patient registries, transitions of care, palliative care, and social determinants identification. For example, the Idaho Maternal and Child Health Program was coded in the maternal and child health category in the present study, but the case highlighted a concurrent effort to address health disparities (ASTHO, 2017). The Kansas case aimed at improving infant mortality was also categorized in the maternal and child health category, despite its concurrent focus on low-income women (ASTHO, 2017). These results suggested secondary aims could be evaluated in future work to further inform primary and secondary collaboration aims.

More broadly, while qualitative research analyses are valued for their richness and potential to inform new relationships (Cooper & Schindler, 2014), the present study did not provide an understanding of how the systemic, organizational, and interactional determinants influence collaborative or integrative practice among sectors. A lack of empirical evidence addressing this dynamic persists (San Martin-Rodriguez et al., 2005). In addition, and consistent with previous literature (Liebert, 2011; IOM, 2012; Martin-Misener et al., 2012; Raney, Lasky, & Scott, 2017), semantic discrepancies exist between the term integration and similar terms such as collaboration, cooperation, and coordination. Lastly, the present study did not identify optimal degree of integration as this can vary with integration dynamics such as differentiation of services (Willumsen, Ahgren, & Odegard, 2012).

Discussion

Recommendations for Researchers

Few formal analyses of the efficacy of primary care and public health integration efforts exist (IOM, 2012). The current study provided a broad overview of the characteristics inherent among primary care and public health collaborations in the United States including aims,

participants and success determinants. This foundational framework contributes to the body of knowledge of when, where, and under what contextual circumstances collaboration and integration have proven or been perceived effective. Future research could further extrapolate which determinants are more essential than other determinants and focus on how systemic, organizational, and interactional factors are inter-related. Repositories, such as the ASTHO's IF, may prove critical to future research, as they provide comparative information in a relatively standardized reporting format. Additional primary research and theoretical constructs are necessary to advance the science and practice of successful integration between primary care and public health entities in the United States as well as analyze whether integration (and to what degree) was actually achieved.

Future case authors should deliberately consider reporting format. If case authors make success determinants explicitly apparent to readers under such headings as *Key Elements for Success* (ASTHO, 2017), unit of meaning extraction becomes clearer and more meaningful. To ensure unit of meaning detail consistent with codebook detail, case authors should consider reporting as much detail as possible about explicit perceived success determinants. For example, it was difficult to distinguish between common goals at the systemic and interactional levels in the present study without sufficient background information. The author would like to propose the Washington Prescription Drug Overdose case, which plainly highlighted collaboration aim and participants, as an optimal reporting model of relaying information relevant to integration success. Further, success determinants related to integration process (common understanding of the problem among parties and all parties work cohesively) were clearly distinguishable from successes related to collaboration aim (reduction in the number of opioid poisonings and

fatalities in the last two years). The two categories were separated and designated key elements of success and results, respectively (ASTHO, 2017).

While hospital, health system or accountable care organization participants within individual cases may have been classified as integrated delivery systems (Shi & Singh, 2013), this term did not adequately summarize cases in the present study, as they were not characterized as single entities defined by contracts or ownership (Liebert, 2011). Further, although a majority of the cases in the present study exhibited participation among vertically linked participants, they did not exhibit the single management umbrella characteristic of vertical integration as defined by Liebert (2012). The WHO's (2017b) definition of integrated health services is more inclusive and there were no cases in the present study that exhibited health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation, and palliative care simultaneously.

Martin-Misener et al. (2012) highlighted the difficulty of discerning between integration and similar terms such as collaboration, cooperation and coordination. Turkulainen and Ketokivi (2012) inferred integration is a term used broadly to describe the various practices used in integration efforts, such as cooperation through cross-functional teams. Ultimately, the author recommends studies similar to the present study include an explicit conceptualization of integration to reduce semantic confusion.

In the present study, the author concluded use of the IOM's (2012) definition of primary care and public health integration depicted included cases better than other definitions of integration reviewed in Table 1: "The linkage of programs and activities to promote overall efficiency and effectiveness and achieve gains in population health" (p. 3). In their report, *Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes*, the IOM (2015) utilized the following definition of collaboration: "an active and

ongoing partnership, often involving people from diverse backgrounds who work together to solve problems, provide services, and enhance outcomes” (p. xi). This definition also accurately described cases in the current study, although use of the word partnership can be further confounding. If one accepts the IOM’s (2012) conceptualization of collaboration as a degree along the integration continuum, a collaboration/integration dual categorization of cases in the present study would be logical. A majority of the cases in the present study demonstrated the ability to enhance outcomes and achieve gains in population health. Some ASTHO IF case authors identified explicit integration degree. Although ASTHO cases were included in the present study irrespective of integration degree, consideration of perceived degree was useful when attempting to summarize integrative efforts. Figure 2 displays a summary of integration degree reported in fifteen ASTHO cases (ASTHO, 2017).

The IOM (2012) posits federal policy and funding are the greatest levers influencing primary care and public health integration. Concurrently, they recognize grant funding as a potential limiting factor of integration sustainability (IOM, 2012). Additional research is necessary to enhance understanding of the impact of systemic, organizational, and interactional determinants on project sustainability relative to monetary factors. While a majority of cases in the present study lack detail about sustainability, review of cases such as The Living Well Hawaii Project (ASTHO, 2017) that highlights lack of additional funding for project initiation may prove worthwhile.



Figure 2. Integration Degree

Adapted from: Institute of Medicine. (2012). *Primary care and public health: Exploring integration to improve population health*. Washington DC: The National Academies Press.

Practical Recommendations for the Field

As previously discussed, self-reported case summaries are characterized by inherent confounds. Self-reported cases can provide essential information for research examining success determinants but can also be deemed a weak evaluative strategy (Hewson, Copeland, & Fishleder, 2001). Self-reports can be biased by the general impression of professionals' perceptions of the phenomena of integration (Willumsen, Ahgren, & Odegard, 2012). Perceptions can also vary between individual stakeholders and groups of stakeholders involved in collaborative efforts (Willumsen, Ahgren, & Odegard, 2012). To eliminate such biases and to facilitate comparative data, the author suggests independent and/or quantitative assessment of future integrative efforts may prove beneficial. Independent assessors should practice diligence in developing evaluation language that is relevant to all stakeholders. Raney, Lasky, and Scott (2017) posit evaluation models may need to highlight process and outcome measures such as patient and provider satisfaction, improved population health, value-based savings, and sustainability. Further development of carefully articulated interprofessional collaboration milestones may also be warranted (Wingo, Havyer, Comfere, Nelson, & Reed, 2015).

Based on the evidence in the present study, funders of future collaborative efforts could demand emphasis on the following three elements: social determinants as clear primary aims, sustainability as a foundational guiding principle (IOM, 2012), and funding dedicated to supplemental external evaluations. In addition, research relating integration degree and level of results achieved could prove useful. Specific levels of integration may be more or less appropriate depending on integration aim.

The IOM (2012) asserts improved population health hinges on the delicate balance of three primary domains: social and environmental conditions that are primary determinants of

health, individualized care, and population-level public health activities. In this context, primary care and public health entities have critical, complimentary roles. The present study contributed to the body of knowledge intended to inform and catalyze efforts to replicate early successes; heighten understanding of when, where, and under what contextual circumstances collaboration is effective; and inform opportunities for future synergies.

APPENDICES

APPENDIX A

CODEBOOK

*Codes and Definitions**

1. Systemic Determinants

1.1 Government involvement: defining terms:

- 1.1.1 Health reform
- 1.1.2 Government mandates for development of teams
- 1.1.3 Common goals
- 1.1.4 Improving quality of care
- 1.1.5 Containing costs
- 1.1.6 Enhancing evidence-informed practice
- 1.1.7 Improving emergency planning and response

1.2 Policy and fit with local needs: defining terms:

- 1.2.1 Collaboration with government agenda
- 1.2.2 Endorsement of collaboration by government officials
- 1.2.3 Collaboration between levels of government
- 1.2.4 Coordination and priority setting to enhance collaboration
- 1.2.5 Relevant policy development

1.3 Funding and resource factors: defining terms:

- 1.3.1 Adequate funding
- 1.3.2 Volunteer and in-kind contributions
- 1.3.3 Capitation, salary or blended funding models enabling community-based care

1.4 Power and control issues: defining terms:

- 1.4.1 Belief in value of collaboration between sectors
- 1.4.2 Value of prevention, health promotion and population health
- 1.4.3 Importance of team work
- 1.4.4 Coordinating care

1.5 Education and training: defining terms:

- 1.5.1 Interdisciplinary education emphasizing system-wide collaborations
- 1.5.2 Training in public health

- 1.5.3 Preparation of students to work in integrated systems
- 1.5.4 Train managers to manage diverse teams
- 1.5.5 Evaluation skill development

2. Organizational Determinants

2.1 Common agenda: defining terms:

- 2.1.1 Organizational support and resources
- 2.1.2 Multiple-stakeholder engagement

2.2 Knowledge and resources: defining terms:

- 2.2.1 Health professionals facilitated collaboration
- 2.2.2 Collaborators bringing resources to the table

2.3 Leadership, management and accountability: defining terms:

- 2.3.1 Steering committees
- 2.3.2 Community engagement
- 2.3.3 Involvement of multiple professionals for buy-in
- 2.3.4 Specific strategies to enable collaboration
- 2.3.5 Contractual agreements between jurisdictions and organizations
- 2.3.6 Time for evaluation
- 2.3.7 Mentorship programs for new employees
- 2.3.8 Physician and non-physician champions
- 2.3.9 Job descriptions requiring collaboration
- 2.3.10 Management capable of preparing organization for change
- 2.3.11 Joint planning
- 2.3.12 Administrative support for managers
- 2.3.13 Tools to develop knowledge and skill to work in collaborative teams

2.4 Geographic proximity of partners: defining terms:

- 2.4.1 Geographic proximity of team members facilitates communication, trust
- 2.4.2 Network formation

2.5 Data and information sharing: defining terms:

- 2.5.1 Standardized systems for collecting data and distributing information
- 2.5.2 Shared protocols for gathering and sharing data
- 2.5.3 Evidence-based tool kits and decision support tools

- 2.5.4 Clear referral processes between partners
- 2.5.5 Linked records

3. Interactional Determinants

3.1 Shared purpose, philosophy and beliefs: defining terms:

- 3.1.1 Early successes
- 3.1.2 Enthusiasm
- 3.1.3 Similar philosophies of care among partners
- 3.1.4 Belief in the value of collaboration as related to community health
- 3.1.5 Shared mission, vision, goals

3.2 Clear role and positive relationships: defining terms:

- 3.2.1 Quality professional relationships
- 3.2.2 Clear roles and responsibilities
- 3.2.3 Clear knowledge of one another's roles
- 3.2.4 Understanding of and capacity for interdisciplinary teamwork
- 3.2.5 Previous positive relationships
- 3.2.6 Developing new linkages
- 3.2.7 Partnerships
- 3.2.8 Collaboration

3.3 Effective communication and decision-making strategies: defining terms:

- 3.3.1 Direct and open communications
- 3.3.2 Direct decision making
- 3.3.3 Brief unscheduled visits to overcome barriers of time and scheduling
- 3.3.4 Regular meetings
- 3.3.5 Trust and mutual understanding
- 3.3.6 Attention to process
- 3.3.7 Open about issues of competition and control
- 3.3.8 Appreciation of complementary resources
- 3.3.9 Involvement of the whole team
- 3.3.10 Buy-in and ownership
- 3.3.11 Consensus building
- 3.3.12 Specific strategies to improve communications (feedback, responding to community-identified needs, empowering team members, dropping rigid professional boundaries)

*Adapted from:

Martin-Misener, R., Valaitis, R., Wong, S.T., MacDonald, M., Meagher-Steward, D., Kaczorowski, J., ... Austin, P. (2012). A scoping literature review of collaboration between primary care and public health. *Primary Health Care Research and Development, 13*, 327-346.

APPENDIX B

SUMMARY OF INCLUDED CASES

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Washington	Prescription drug overdose prevention	<ul style="list-style-type: none"> • State department of health • Local, state and federal organizations in primary care • Health care provider and facility associations • Federal agencies addressing prescription drug abuse • Private insurers • Law enforcement agencies • Substance abuse treatment providers • Tribal governments • University of Washington 	<ul style="list-style-type: none"> • Federal grants • Private grants • Common understanding of problem among parties • All parties must work cohesively • Collaborate on outcomes collectively

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	California	Clinical community linkages	<ul style="list-style-type: none"> • State department of public health • County health departments • Community health clinics (CHC) • Private practice • Rural health clinics (RHC) 	<ul style="list-style-type: none"> • Community transformation grant • Chronic care model • Strong leadership team • Relationships • Evidence-based programs lead to systems change and integration of community resources

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
STHO, 2017	Idaho	Improve healthcare delivery for children	<ul style="list-style-type: none"> • Idaho division of public health • Idaho Medicaid • Idaho and Utah chapters of the American Academy of Pediatrics • Idaho health data exchange • Utah clinical health information exchange • Idaho parents unlimited • Utah family voices • University of Utah • Utah department of health • Idaho department of health and welfare • Eastern/Southern Idaho public health districts 	<ul style="list-style-type: none"> • Centers for Medicare and Medicaid Services (CMS) funding • Funding from Title V maternal and child health block grant • Children’s healthcare improvement collaboration (CHIC) assistance • Capitalizing on expertise of all partners

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Nevada	Reduce pertussis via effective vaccinations	<ul style="list-style-type: none"> • Nevada state immunization program • Hospitals across state • Obstetrics and gynecology (OB/GYN) providers across state • Nevada immunization coalitions 	<ul style="list-style-type: none"> • Funding from CDC • State funding • Participation from every birthing hospital across the state
ASTHO, 2017	Arizona	Integrated healthcare to patients with mental illness	<ul style="list-style-type: none"> • Arizona department of health services • Arizona Medicaid • Mercy Mericopa integrated care behavioral health authority • Arizona peer and family coalition • Providers • Community-based organizations 	<ul style="list-style-type: none"> • CMS grant • State matching funds • Health information exchange (HIE) to support communication • Reducing duplications • Organizational structure – committees from all aspects of care
ASTHO, 2017	Montana	Telehealth diabetes prevention	<ul style="list-style-type: none"> • Montana department health and human services (HHS) • Community hospital • Primary care providers 	<ul style="list-style-type: none"> • CDC funding • State funding • CDC-led national training

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Wyoming	Improve control of infectious disease	<ul style="list-style-type: none"> • Wyoming department of health • Physicians • Hospitals • Nursing offices 	<ul style="list-style-type: none"> • Federal grants • Open communication • Monthly meetings to identify priorities • Shared goals
ASTHO, 2017	Utah	Asthma	<ul style="list-style-type: none"> • Utah department of health • Primary care • Community organizations • Local health departments • Utah American Lung Association • Utah asthma task force • Brigham Young University • Utah Medicaid • School districts • Nonprofit health system • Health plans • Hospitals 	<ul style="list-style-type: none"> • CDC cooperative funding agreement • Support from multiple partners

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017; Norman et al., 2013	Colorado	Improve health (colorectal cancer screening, asthma) in rural CO	<ul style="list-style-type: none"> • High plains research network • University of Colorado • Local farmers and ranchers • Community hospitals • Primary care clinicians • Nursing homes • Public health departments • School teachers • Store owners 	<ul style="list-style-type: none"> • Community engagement • Community-based participatory research • CDC community-based intervention grant • Bringing together key stakeholders • Evidence-based guidelines • Flexibility
ASTHO, 2017	New Mexico	Integrated health location	<ul style="list-style-type: none"> • County department of HHS • Espanola public health office • FQHC 	<ul style="list-style-type: none"> • Federal funding • Congressional funding • Foundation grants • Donations • Shared distribution of costs • Multiple sources of funding
ASTHO, 2017	North Dakota	Chronic disease management	<ul style="list-style-type: none"> • Local public health unit employees • Public health nurses • Private practice clinicians 	<ul style="list-style-type: none"> • Use of evidence-based resources • Health Resources and Services Administration (HRSA) Outreach grant

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Nebraska	HIV care and awareness	<ul style="list-style-type: none"> • Nebraska Health and Human Services (HHS) • Universities • AIDS service organizations • Local health departments • FQHCs • Nebraska HIV prevention and care consortium • Providers 	<ul style="list-style-type: none"> • Federal CDC grants • HRSA grants and US Department of Housing and Urban development federal programs support state Ryan White and Housing Opportunities for Persons with AIDS (HOPWA) programs, respectively • Shared information • Increased communication • Leveraging existing resources

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Kansas	Improve infant mortality rates	<ul style="list-style-type: none"> • County health department • March of Dimes • Salina’s child advocacy and parenting services • FQHC • Neonatologists • Pediatricians • Obstetricians • Community agencies • Walmart • United Way 	<ul style="list-style-type: none"> • March of Dimes grant • In-kind donations from collaborating organizations: University of Kansas, Child Advocacy and Parenting Services (CAPS), etc. • Historical relationships between community agencies • Support from faculty physicians • City and county health department collaboration • Program manager ensuring partners fulfill their roles • Early project evaluation mechanisms

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Oklahoma	Improve birth outcomes	<ul style="list-style-type: none"> • Oklahoma healthcare authority • Oklahoma Medicaid • Oklahoma department of health • Tobacco settlement endowment • 48 prenatal care providers 	<ul style="list-style-type: none"> • State funding • Leveraged resources provided by Medicaid
ASTHO, 2017	Texas	Eliminate a local lead exposure problem	<ul style="list-style-type: none"> • County health departments • Center for pediatric environmental health • Department of state health services • Pediatrician • Community health department • Local sanitarian 	<ul style="list-style-type: none"> • Federal grant • Action by a local pediatrician

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Minnesota	Increase Hepatitis C screening rates	<ul style="list-style-type: none"> • Community health organization • Minnesota department of health • Indian health services physicians • HIV and HCV coalition • Tribal government • Epidemiologists • Physicians • Tribal home health nurses 	<ul style="list-style-type: none"> • State funding • Tribal government/health department alliance • Involvement of community leaders • Engagement of community members • Sustained relationship between coalition members

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Iowa	Prevent heart attack and stroke	<ul style="list-style-type: none"> • Iowa department of health • Iowa health collaboration (Iowa Hospital Association, Iowa medical society, physicians, hospitals, insurers, employers) • Telligen – quality improvement organization • University of Iowa College of Pharmacy 	<ul style="list-style-type: none"> • State funding • Broad and established communications • Identification and dissemination of key resources to key stakeholders • Leverage existing infrastructure • Utilize technology • Patience • Partnerships with traditional and nontraditional partners • Funding alignment at state and national levels • State-level strategic plan

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Missouri	Optimize emergency medical care/diagnosis of trauma, stroke, ST-Evaluation Myocardial Infarction (STEMI)	<ul style="list-style-type: none"> • 911 response system • Ambulance services • Hospitals • Missouri department of health and senior services • State advisory council for emergency care • STEMI work groups 	<ul style="list-style-type: none"> • State funding • CDC funding • Missouri Foundation for Health funding • Commitment from multiple stakeholders across state • Clear vision • Ongoing leadership/champions for development and implementation • Community partner engagement • Regular, open meetings, multiple formats • Broad-based task force making recommendations

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Arkansas	Improve access to care for Marshallese population	<ul style="list-style-type: none"> • Arkansas department of health • Public and private organizations • Public health nurse • National Hansen’s Disease Clinical Center • Social services organizations • Hospitals • Doctors’ offices • University of Arkansas medical sciences 	<ul style="list-style-type: none"> • Local funding • State funding • Federal funding • Outreach workers to reduce cultural and language barriers • Communication and education to physicians and general public

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Louisiana	Improve care for HIV	<ul style="list-style-type: none"> • Louisiana department of health and hospitals • Office of public health • Sexually-transmitted disease (STD)/HIV program • Louisiana State University • Louisiana public health institute 	<ul style="list-style-type: none"> • Health and Human Services HRSA Ryan White funding • Established partnership and governance structure • Conducted extensive customer research • Data sharing agreement • Evaluation methodology • Stakeholder engagement • Focus on mission, scope, guiding principles and governance • Assessed and modified technical infrastructure

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Illinois	Improving stroke care in rural Illinois	<ul style="list-style-type: none"> • Illinois center for rural health • Department of public health • American Heart Association • 319 EMS agencies • 219 RHCs • 51 critical access hospitals • 50 county health departments 	<ul style="list-style-type: none"> • Federal grant • State grant • Private funding from Genentech Incorporation • American Heart Association funding • Collaboration • Strong partnerships • One lead organization • Professional education webinars • Community education outreach tools relevant to rural setting • Three year plan
ASTHO, 2017	Mississippi	Organized trauma care	<ul style="list-style-type: none"> • Mississippi state department of health • Trauma advisory committee • Trauma region boards of directors • 83 hospitals • 58 emergency medical service (EMS) providers • Burn center 	<ul style="list-style-type: none"> • Block grant funding (state) • Partnership • Shared decision making, involve advisory group in decision making • Trust and transparency of partners • Advocacy groups

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Indiana	Immunization portal (access to valid records)	<ul style="list-style-type: none"> • Indiana department of health • Office of National Coordinator for health information technology (IT) (ONC) • Local health department • School nurses • Physicians • Microsoft • State medical associations 	<ul style="list-style-type: none"> • Federal grant from ONC • Partnership • Empowering consumers
ASTHO, 2017	Kentucky	ER SMART program (promote best practices and decrease super utilization)	<ul style="list-style-type: none"> • Kentucky department of public health • Kentucky Medicaid • Kentucky behavioral health • Office of administrative and technology services (OATS) • Kentucky managed care organizations (MCO)s • Kentucky Hospital Association • Health department associations 	<ul style="list-style-type: none"> • CMS grant • Bringing together key partners • Videoconferences and in-person meetings • Data sharing • Community collaboration

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Tennessee	Improve asthma outcomes	<ul style="list-style-type: none"> • County health department • Medical group (private practice) • Public health foundation's quality improvement experts 	<ul style="list-style-type: none"> • Astra Zeneca grant (private funding) • Quality improvement (QI) tools to streamline operations, enhance documentation of quality measures and enhance communication • Plan-Do-Check-Act (PDCA) improvement process

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Alabama	Colorectal cancer screening in worksite wellness	<ul style="list-style-type: none"> • Alabama department of public health • County health department • University of Alabama • University of South Alabama • Cancer institute • Boeing company • Occupational health group • Engineering company • Protective Life Corp. • American Cast Iron Pipe Company • Water works board • St. Vincent Health System • Regions Bank • Alabama Power 	<ul style="list-style-type: none"> • federal CDC grant • involving universities • expanded partnership base

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Ohio	Increase screening for hypertension and high cholesterol among African American males	<ul style="list-style-type: none"> • Ohio department of health • Ohio academy of family physicians 	<ul style="list-style-type: none"> • CDC grant • Dialogue • Know the community • Leverage partner resources • Involve target populations in planning • Cohesion and collaboration • Previous working relationship between partners
ASTHO, 2017	New York	Improve outcomes for cardiovascular disease	<ul style="list-style-type: none"> • New York department of health • Quality improvement organization • Primary care providers • Health plans • Advocacy groups • State and federal government agencies • Experts in systems change and quality control 	<ul style="list-style-type: none"> • Funded through CMS • CDC grant • Mutual learning • Engaged collaboration • Collaboratively-defined metrics • Leverage partner resources and assets • History of partners working together • Build on existing initiatives • Steering committee

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Pennsylvania	Improve access / outcomes for Latinos	<ul style="list-style-type: none"> • Pennsylvania department of health • Allentown health bureau • Hospital 	<ul style="list-style-type: none"> • Private funding from hospital • Cultural competence • Public health training
ASTHO, 2017	Virginia	Reducing unintended pregnancy	<ul style="list-style-type: none"> • Virginia department of health • Social services • Local health districts 	<ul style="list-style-type: none"> • State funds • Positive competition
ASTHO, 2017	North Carolina	Reduce preterm birth	<ul style="list-style-type: none"> • North Carolina public health • Physicians • University of North Carolina • Community Care of North Carolina • Coalitions • North Carolina Medicaid • OBGYN leaders • Pharmacists • Patient advocates 	<ul style="list-style-type: none"> • State funding and block grant • Open and consistent communication • Engage appropriate professionals such as case managers

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	South Carolina	Improve perinatal outcomes and reduce infant mortality	<ul style="list-style-type: none"> • South Carolina department of health and environmental control • South Carolina hospital association • South Carolina HHS • Registered Nurses • Hospitals • University of South Carolina • South Carolina March of Dimes • South Carolina perinatal association 	<ul style="list-style-type: none"> • Public health policy • Strong physician proponents • Statewide advocacy • State funding • Regional funding • March of Dimes funding
ASTHO, 2017	Georgia	Reduce infant mortality rates	<ul style="list-style-type: none"> • Georgia public health • Local health department • Birthing hospitals • American Academy of Family Physicians • American Academy of Pediatrics • Georgia OBGYN society • Non-profit organizations 	<ul style="list-style-type: none"> • Title V block grants • Hospital prevention block grants • In-kind donations • Strong relationship between health departments and local medical societies • Information sharing

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Florida	Healthy start program (improve infant and maternal health outcomes)	<ul style="list-style-type: none"> • Florida department of health • Florida association of healthy start coalitions 	<ul style="list-style-type: none"> • Maternal and child health block grant • Committees to provide oversight, direction and transparency • Regular meetings open to public • Engage multiple stakeholders • Setting explicit decision-making criteria • Procedure for addressing implementation issues • Making minutes publically available • Open and transparent communication

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Maine	Standardized care for drug affected-babies (educational tool)	<ul style="list-style-type: none"> • Maine CDC • Maine chapter of Academy of Pediatrics (nurse educator) • Experts in obstetrics • Maternal and fetal medicine • Neonatology • Pediatrics • Substance abuse • Nurses • Social workers • Community hospitals • State agency staff • Health departments • Maine child abuse action network • Maine AAP and American College of Obstetricians and Gynecologists 	<ul style="list-style-type: none"> • State grants • Federal grants • Nonprofit foundation grants • Share personal experiences • Time to find compromise • Funding for evaluation phase

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	New Hampshire	Improve health outcomes for patients using tobacco	<ul style="list-style-type: none"> • New Hampshire HHS • Community health center network • New Hampshire chronic disease programs • University of Massachusetts Medical School 	<ul style="list-style-type: none"> • State funding • History of integration with University of Massachusetts Medical School • Broad collaboration
ASTHO, 2017	Vermont	Primary care reform	<ul style="list-style-type: none"> • Vermont department of health • Vermont blueprint for health • Hospital • Primary care practice • Community health team 	<ul style="list-style-type: none"> • Federal grant • State grant • Insurance funding • Bipartisan executive and legislative support • Partnership • Win-win objectives
ASTHO, 2017	Massachusetts	Clinical decision support to enhance cancer screening	<ul style="list-style-type: none"> • Massachusetts general hospital • Partners healthcare • SRG technology 	<ul style="list-style-type: none"> • Federal Agency for HealthCare Research and Quality grant • Internal funding • Collaboration • Strong network leadership • Understanding providers' workflow needs • Extensive personnel training

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Connecticut	Improve asthma care coordination	<ul style="list-style-type: none"> • Connecticut department of health • Local health department • Healthcare organizations • State Department of Education • Day cares • American Lung Association • School health services • Primary care • Connecticut department of social services • Insurance providers 	<ul style="list-style-type: none"> • CDC and Environmental Protection Agency (EPA) grants • A lead organization • Partnerships • Communication among members • Avoid duplication of services
ASTHO, 2017	Rhode Island	Support immunization programs	<ul style="list-style-type: none"> • Rhode Island department of health • Primary care and vaccine advisory committees • Schools • Flu task force • Immunization coalitions • Public clinics • Home visiting program 	<ul style="list-style-type: none"> • CDC funding • Federal funding • Medicaid funding • State funding • Insurer assessment funds • Information dissemination • Surveillance • Community collaboration • Data collection and sharing

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	New Jersey	Support breastfeeding in hospitals	<ul style="list-style-type: none"> • New Jersey state health agency • Maternity hospitals • New Jersey Hospital Association • Ambulatory care practices • FQHC • New Jersey American Academy of Pediatrics • New Jersey American College of OBGYN • New Jersey perinatal safety learning collaborative • Women, Infant, Children (WIC) centers • Maternal child health consortium • La Leche League • Breastfeeding coalition • Family centers • Faith-based community 	<ul style="list-style-type: none"> • Federal grant • State grant • Support from commissioner of health • Collaboration among diverse partners • Shared vision • Non-competitive environment • Face-to-face meetings and monthly calls • Steering committee • Top down support in hospitals

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Maryland	Improve cardiovascular health	<ul style="list-style-type: none"> • Maryland department of health and mental hygiene • State government leaders • Healthcare systems • Health improvement coalitions • Community health centers • Universities • Insurance providers • Community organizations • Faith-based organizations • Local health department 	<ul style="list-style-type: none"> • CDC grant • State CMS grant • State grant • Other funding • Leveraging HIT and public health data to track progress • Virtual data unit to increase access to data and facilitate communication among stakeholders • Engage multiple stakeholders • Focus on shared goals • Leverage initiatives and funding. Do not duplicate work. • Commit to cultivating long-term partnerships

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Delaware	Healthy weight collaborative	<ul style="list-style-type: none"> • Delaware division of public health • Primary care orgs • Community orgs • FQHCs • Delaware State University • Delaware United Way • Delaware Young Men's Christian Association (YMCA) • Medical associations (Delaware Academy of Pediatrics, American Academy of Family Physicians, Medical Society of Delaware) 	<ul style="list-style-type: none"> • HRSA and NICHQ funding • In-kind donations • Steering committee members are part of the Governor's council • Buy-in to increase partner engagement • Open communication • High-level engagement from leadership

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
ASTHO, 2017	Hawaii	Improve health outcomes for adults with mental illness	<ul style="list-style-type: none"> • Federally Qualified Health Center • Hawaii Department of Health • Hawaiian Primary Care Association • Advisory group of community consumers • Community mental health • Health center 	<ul style="list-style-type: none"> • No additional funding • Effective communication • Daily meetings and follow-up • Collaboration • Leadership
Mcneely & Morland, 2016	Pennsylvania	PA refugee health collaborative	<ul style="list-style-type: none"> • Refugee resettlement agencies • Health care providers • Volunteer clinic liaisons 	<ul style="list-style-type: none"> • Cooperation and collaboration where services overlap • Regular meetings between leadership • Research funding
Irvin et al., 2015; Mavronicolas, Laraque, Shankar, & Campbell, 2017	New York	HIV care coordination	<ul style="list-style-type: none"> • New York City Department of Health and Mental Hygiene • Hospitals • AIDS centers • Community-based organizations • Case managers • Primary care physicians 	<ul style="list-style-type: none"> • Ryan White funds • Trustworthiness • Role specification • Relationship initiation • Leadership support

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Tucker et al., 2014	Michigan	Pediatric obesity	<ul style="list-style-type: none"> • Pediatricians • Nurses • Dieticians • Social workers • Exercise specialists • Researchers • Non-profits • Insurance company reps • Primary care physicians • Fitness centers 	<ul style="list-style-type: none"> • No grant funding • Funding from spectrum health healthier communities, forest hills pediatrics, founders bank and trust, etc. • Quarterly workgroup meetings • Steering committee • Cultural competency training
Wubu et al., 2017	Kentucky	Safe, effective treatment of chronic pain	<ul style="list-style-type: none"> • American College of Physicians (ACP) • Kentucky chapter of ACP • Health systems • Primary care practices • Johns Hopkins Bloomberg school of Public Health 	<ul style="list-style-type: none"> • American College of Physicians support and funding (national partner) • ACO involvement • Engagement of QI champions • Collaborative work • Direct feedback to advisory members • Follow-up coaching calls encouraging continuous commitment

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Michener et al., 2016	California	Obesity	<ul style="list-style-type: none"> • Scripps Family Medicine Residency Program • University of California • County public health • National Initiative for Children's Healthcare Quality • YMCA • Community clinics • Community organizations • Schools • Local government • California American Academy of Pediatrics 	<ul style="list-style-type: none"> • CDC funding • Leveraged resources • Shared goal of population health • Community engagement • Aligned work plans • Common mission • Assessing collaborative strengths and weaknesses • Aligning individual agencies' work plans with the collaborative effort • Identifying a neutral, trusted leader • Meeting regularly

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Michener et al., 2016	Indiana	Reduce burden of asthma	<ul style="list-style-type: none"> • Parkview Health System • Indiana State Department of Health • County Health Department • Asthma coalition 	<ul style="list-style-type: none"> • CDC funding • State funding • Shared goal of population health • Aligned leadership • Shared data and analysis • Gather baseline information • Involve key stakeholders, such as champions • Communicate • Celebrate successes
Practical Playbook, 2017	Rhode Island	Neighborhood health station	<ul style="list-style-type: none"> • Community Health Center • Hospital • Alpert Medical School • School district • YMCA • City • Council of churches 	<ul style="list-style-type: none"> • HRSA funding • Public health conveners • Regular meetings • Understand everyone's capacity • Create a communication strategy

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Practical Playbook, 2017	Missouri	Tobacco cessation/legislation	<ul style="list-style-type: none"> • Businesses • Legislators • Public health officials • Primary care physicians • Educators • Chamber of commerce • Kansas City Blue Cross Blue Shield (BCBS) • Health Care Foundation of Greater Kansas City 	<ul style="list-style-type: none"> • Relationships among diverse stakeholders • Vested interest of partners • Keep it simple
Practical Playbook, 2017	Tennessee	Access for uninsured	<ul style="list-style-type: none"> • Safety new consortium • Federally Qualified Health Center • Hospitals • County health department • Dental care • Mental health • Substance abuse • Universities 	<ul style="list-style-type: none"> • Monthly meetings • Working together to meet common goals • Business plan • Leverage existing relationships • Define metrics of success

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Practical Playbook, 2017	Ohio	Healthy Homes, Asthma	<ul style="list-style-type: none"> • Environmental Health Watch • Metro Health System • Cleveland Department of Public Health 	<ul style="list-style-type: none"> • Bold, Upstream, Integrated, Local, Data-driven (BUILD) health challenge funding • Culture of sharing • Data sharing • Maps to engage community members
Michener et al., 2016	North Carolina	Overdose prevention	<ul style="list-style-type: none"> • Community stakeholders • Primary care providers • State epidemiologists • County health department 	<ul style="list-style-type: none"> • Foundation funding • Federal office of rural health funding • Shared goal of population health • Community engagement • Collaborative use of data and analysis • Long-term plan for engagement • Be prepared to make changes

Source	State	Program Focus	Collaborators Identified	Units of Meaning Pertinent to RQ3
Kempe et al., 2014	Colorado	Influenza vaccines	<ul style="list-style-type: none"> • Pediatric and family medicine private practices • Tri-County health department 	<ul style="list-style-type: none"> • Centers for Disease Control and Prevention grant • Individual and group meetings • Personal connections made between public health and practice employees
Padwa et al., 2016	California	Mental health and substance abuse	<ul style="list-style-type: none"> • Federally-Qualified Health Center • Mental health department • County-run medical center outpatient health clinic 	<ul style="list-style-type: none"> • Socio-political context • Funding (county) • Strong leadership • Evaluation • Training • Technical assistance

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