



Hospitals-As-Hubs: Integrated Care for Patients

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North American Observatory on Health Systems and Policies



About this Report

Converge3 commissioned the North American Observatory on Health Systems and Policies (NAO) to conduct a rapid review of literature and a jurisdictional review to understand the role that hospitals can play as lead integrators of care delivery models that span multiple sectors. The NAO gratefully acknowledges the support of Patrick Farrell for copyediting and production and Samantha Nguyen for data extraction and collection support. The NAO would also like to acknowledge the valued contribution of the United States Academic Director of the NAO, Tom Rice (University of California, Los Angeles). Converge3 receives funding from the Province of Ontario. The views expressed in this report are those of the authors and do not necessarily reflect those of Converge3 or the Province of Ontario.

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About Converge3

Converge3 is a policy research centre based in the Institute of Health Policy, Management and Evaluation at the University of Toronto that focuses on integrating health, economic and equity evidence to inform policy. The Centre is funded by the Province of Ontario and includes multiple partner organizations, including Li Ka Shing Knowledge Institute at St. Michael's Hospital, McMaster University, Ottawa Hospital Research Institute, ICES, Health Quality Ontario, Public Health Ontario, and the Ontario Ministry of Health.

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Executive Summary

The creation of Ontario Health Teams represents a major shift towards integrated care across the health system in the province. Integrated models of care intend to improve the care experiences of people and providers as well as the outcomes of care for populations across the care continuum. Approaches to integrate care involve a number of organizations and providers, often with an organization or a group of providers acting as the lead of the integration effort. This rapid review aims to understand the role that hospitals can play as lead integrators of care delivery models that span multiple sectors.

Recent efforts with Accountable Care Organizations in the United States and the care program ‘vanguards’ in England may be helpful case studies to inform the development of integrated care in Ontario. The results of our rapid review of the literature and jurisdictional review uncovered little empirical evidence on the role that hospitals could or should play in the development of integrated care systems. The evidence is mixed on the impact of hospital-led integrated care models on access, quality and costs in the U.S. and in England, and empirical studies have paid very little attention to the impact of these models on population health outcomes.

Several challenges were identified related to implementing hospital-as-hub models—specifically, the potential for miscommunication between hospital leadership and frontline clinical staff or spokes included in the delivery model. Additionally, England experienced challenges with involving primary care practitioners into hospital led models because they were independent contractors with the NHS. Ongoing, independent evaluation of the Ontario Health Teams could help to identify and overcome implementation challenges, and to apply lessons learned in this initial phase of reform for the next phases.

Introduction and Background

Since the introduction of Local Health Integration Networks in 2006, Ontario has introduced a number of reforms and pilot projects aimed at integrating care across the healthcare system. The creation of Ontario Health Teams signals the latest such shift in the province (Ontario Ministry of Health and Long-Term Care, 2019; Peckham et al., 2018). These teams will be made up of “*groups of providers and organizations who are clinically and fiscally accountable for delivering a full and coordinated continuum of care to a defined population*” (Ontario Ministry of Health and Long-Term Care, 2019).

Integrated models of care aim to improve the experiences and outcomes of care for a defined population by overcoming fragmentation through linkage or coordination of services of providers along the care continuum (Nolte & Pitchforth, 2014). A wide range of integrated care approaches have been implemented in other jurisdictions (Amelung et al., 2017; Nolte, Knai, & Saltman, 2014). There is some evidence suggesting that these initiatives may lead to improved quality of care, patient satisfaction, and access to care (Baxter et al., 2018; Peckham et al., 2019, 2018).

Integrated models can take a number of different forms. Lead organizations (often referred to as ‘hubs’), which take on the responsibility for initiating integration and coordinating services, may include local government, a community organization, a physician group, or a hospital. Recent experiences with Accountable Care Organizations (ACOs)¹ in the United States (U.S.) and the care program ‘vanguards’ in England may be instructive for developing integrated care models in Ontario. In England, there has been an emphasis on moving the care outside of the hospital and into the community, while in the U.S., integrated care models range from physician- or primary care-led to hospital-led, reflecting the diversity of payers and delivery organizations.² Limited evidence from the U.S. suggests that physician group-led models may be associated with better cost and quality outcomes than hospital-led models (Peckham et al., 2019).³ However, the role of the hospital in an integrated health system requires further investigation.

The focus of this review is on the role of hospitals as ‘health hubs’, or lead organizations, in integrated care delivery approaches. Hospitals may be well-placed to lead integration efforts because of their capacity to navigate large health system structures, track and share information given longstanding information technology (I.T.) systems, and to standardize practice across multiple actors through guidelines and protocols (Geyer et al., 2016; Kelleher et al., 2015; Ryan et al., 2017).⁴

¹ ACOs aim to address the triple aim of optimizing population health and patient experience of care, while containing costs. Although there is substantial variability in ACO models, common elements include engaging in a shared savings program with the payer (private or public, such as Medicare/Medicaid), where savings are contingent on meeting quality benchmarks (Peckham et al., 2018). Quality benchmarks are defined by the payer and fall within three areas: care coordination and safety (e.g. emergency department use, hospital readmissions), preventive care (e.g. provision of guideline-recommended cancer screenings and immunizations), and chronic disease management (e.g. provision of guideline-recommended diabetes and heart failure services).

² Among the hospital-led models, integration of care can occur in three ways: (1) within a hospital (e.g. between acute-care hospital departments), (2) across hospitals (e.g. consolidation, mergers, or contracts between acute care only, tertiary only, or acute and tertiary care hospitals), or (3) beyond the hospital (e.g. hospital and primary care providers, community-based social services, behavioural/mental health, skilled nursing facilities/long-term care). While scenarios (1) and (2) may provide useful lessons to Ontario, this review focuses on integrated care models that extend beyond the hospital to other sectors.

³ Note that evidence comparing physician-led or primary care-led models with hospital-led ones directly is lacking, as most studies evaluate each model individually using uncontrolled before-and-after designs or standard of care comparison groups. For this reason, only indirect comparisons are possible.

⁴ Note that the Geyer et al., 2016 and Ryan et al., 2017 studies would not meet the criteria for inclusion in this study because they described integration of care within the hospital, rather than integration beyond the hospital (to community or other partners, i.e. ‘spokes’).

To gain insight into the role of hospitals as lead integrators of care delivery models spanning multiple sectors, we undertook the following:

1. **Rapid scoping review:** To review the scholarly literature examining hospital-as-hub models, including formal mechanisms, infrastructure and processes for integrated care delivery, implementation and governance issues, and impact on cost, access, and quality of care outcomes.
2. **Rapid jurisdictional review:** To review integrated approaches with 'hospital-as-hub' undertaken in England and the U.S., aiming to draw lessons for Ontario.

Methods

Rapid Scoping Review

Objective: We conducted a rapid scoping review of the literature, using systematic searching and data collation methods, to assess the effects of hospital-led integrated care models on costs, quality of care, access to care, and any implementation and governance issues. Specifically, we aimed to understand what precipitates hospital-led integration efforts, what the role of the hospital may be in these models, and how such models may impact outcomes. Due to significant variability among modes of integration, we aimed to specifically focus on formal integration mechanisms or hard policy levers, defined as acquisitions, global budgets, and contractual relationships. Given our emphasis on the role of hospitals as lead organizations (hubs) collaborating with community partners (spokes), we did not include studies that focussed on integration at the hospital level only (whether within a single hospital or across many). Although we aimed to also understand the health and equity implications of these models of care, the retrieved studies contained insufficient information to allow us to consider health outcomes or differential impacts on population subgroups.

Search strategy: We searched multidisciplinary academic electronic databases for evidence published between 2014-2019. The detailed search strategy including an overview of databases searched, supplementary searching methods, inclusion and exclusion criteria, study limitations, and the selection process can be found in Appendix A and B. A summary of the papers retrieved in this search is described in Appendix C.

Rapid Jurisdictional Review

We conducted a grey literature review in England and the U.S. to identify examples of cross-sectoral integrated care delivery models that include hospitals as lead organizations. The review involved a broad scan of grey literature and government websites to identify hospital-as-hub models using a wide range of search terms.⁵

Models were included for further review only if they met the following criteria:

- Hospital as the hub or lead organization
- Hospital partners or collaborates with at least one primary care or community-based organization (e.g., home care, social support services)
- There are formal mechanisms (e.g., contract, funding, or a hard policy lever in place, and not relying on the goodwill of providers alone) to partner with community organizations.
- We do not include models if they are *only* using informal mechanisms, I.T. sharing, or informal referral processes to support collaboration.

Once hospital-as-hub models were identified, the experts conducted a review of program websites and any available secondary and grey literature to inform the core set of questions presented in Appendix D

⁵These include: Multisector approach to health; Hub-and-spoke; Integrated care model; System integration; Hospitals; Hospital-as-hub; Integrated health systems; Coordinated care organizations; Accountable care communities; Accountable care organizations.

(one case in England) and E (five cases in the U.S.)⁶. The core set of questions was broken down into five overarching domains:

1. Structure
2. Governance and Accountability
3. Financing
4. Implementation
5. Outcomes and Evaluations

Searches for relevant documents were iterative; there is no single database from which to draw documents and it is therefore difficult to ascertain whether we captured all of the key features of the integrated care models highlighted in our analyses.

⁶ Three cases were multi-hospital integrated systems, one was an ACO, and another was an accountable care community. Overall, nine cases were identified in the U.S. jurisdictional review; however, only five of these had sufficient information to be outlined in detail in the analytic overview, with the remainder briefly noted in Appendix E. The cases not described in the analytic overview included two additional multi-hospital integrated systems, one integrated delivery system, and one additional ACO.

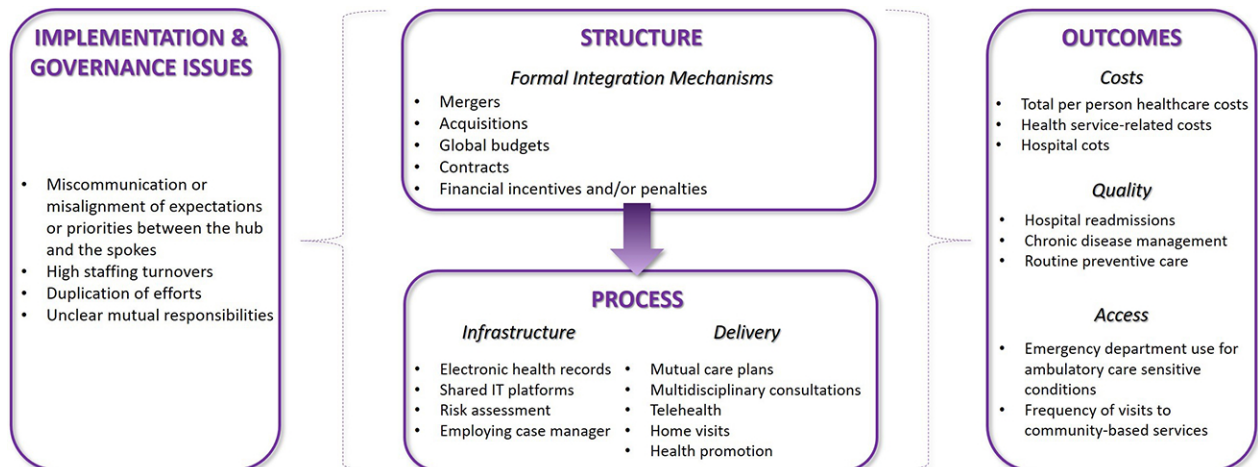
Analytic Overview

Scoping Review: Evidence of Impact of Hospitals-as-Hub

The rapid scoping review identified 14 studies evaluating hospital-led integration efforts with formal mechanisms to support collaboration with community-based services (detailed selection process presented in the PRISMA flow diagram in Appendix B). Most studies described models implemented in the U.S. (8 studies; Butler, Grabinsky, & Masi, 2015; Carlin, Dowd, & Feldman, 2015; Carlin, Feldman, & Dowd, 2016; Hoying et al., 2014; Janevic et al., 2016; Kelleher et al., 2015; Kurtzman, 2015; Rosenbaum, 2016). Other jurisdictions included the United Kingdom (U.K.) (3 studies; Shaw, Kontos, Martin, & Victor, 2017; Smith, Wistow, Holder, & Gaskins, 2019; Stocker et al., 2018), Denmark (1 study; Buch, Kjellberg, & Holm-Petersen, 2018), Israel (1 study; Jaffe, Yoselis, & Tripto-Shkolnik, 2015), and China (1 study; Qian, Hou, Wang, Zhang, & Yan, 2017).

We used the Structure-Process-Outcome framework for quality of healthcare to summarize the scoping review findings (Donabedian, 1985). In this review, structures include formal integration mechanisms, along with implementation and governance issues, processes include modes of integrated care delivery, and outcomes include costs, as well as the quality of and access to care.

Figure 1: Overview of the Structure-Process-Outcome Conceptual Framework.



Adapted from Donabedian, 1985.

Formal Integration Mechanisms

Hospitals took the lead role in integrating care largely to address the complex needs of specific populations. These targeted groups included socially vulnerable, low income, marginally employed, and un- or under-insured individuals in the U.S. and it was argued that optimizing the full-spectrum of care for these patients in the community would prevent adverse outcomes, such as hospital admissions (Buch et al., 2018; Butler et al., 2015; Rosenbaum, 2016). Three U.S. hospital systems (Cincinnati Children's Hospital Medical Center in Cincinnati, Ohio, Children's Hospital of Philadelphia in Philadelphia, Pennsylvania, and Nationwide Children's Hospital in Columbus, Ohio; Hoying et al., 2014; Janevic et al., 2016; Kelleher et al., 2015) specifically focussed on integration within the pediatric context, as "care coordination addresses interrelated medical, social, developmental, behavioural, educational, and financial needs to achieve optimal health and wellness outcomes" (Hoying et al., 2014). Other hospitals both within (Carlin et al.,

2015, 2016; Kurtzman, 2015) and outside of the U.S. (Israel: Jaffe et al., 2015, China: Qian et al., 2017) formed community-based networks to focus on the needs of patients with complex chronic conditions, as these patients often require multidisciplinary community, primary, and specialty care.

The studies described a range of mechanisms that influenced the move towards hospital-led hospital-community partnerships. In the U.S., the requirements set out by the 2010 Patient Protection and Affordable Care Act (ACA) were cited as a driving force for integration efforts. These included the requirement for tax-exempt hospitals to perform periodic community needs assessments to inform health promotion efforts (Butler et al., 2015; Rosenbaum, 2016), establishment of chronic disease health homes whose core services included care coordination (Janevic et al., 2016), and mandated publication of defined and comparable performance and quality metrics, emphasizing “high-value” care (high quality at similar or reduced cost) (Butler et al., 2015; Carlin et al., 2015, 2016). The latter led to the (1) implementation of state-wide financial incentives and penalties aimed at reducing hospital readmission rates (Butler et al., 2015; Kurtzman, 2015), and (2) hospital acquisitions of ACO-based multispecialty clinics (Carlin et al., 2015, 2016). Finally, the creation of ACOs in itself promoted integration by making providers across the care continuum jointly accountable for the cost and quality of care (Carlin et al., 2015, 2016; Hoying et al., 2014; Kelleher et al., 2015).

Across jurisdictions, including the U.S. (Butler et al., 2015; Janevic et al., 2016; Kurtzman, 2015), U.K. (Shaw et al., 2017), Denmark (Buch et al., 2018), and China (Qian et al., 2017), integration was achieved through formal contractual obligations among providers (hospital-based specialty care and community-based primary, social, and mental health care). These contracts mandated organizations to collaborate by developing integrated processes of care (discussed in detail below). Other models of collaboration in Israel and China focused on formal education and mentorship, by placing hospital-based specialists in community settings, or by placing community-based health and social services professionals in hospital settings for training (Jaffe et al., 2015; Qian et al., 2017).

Infrastructure and Processes of Integrated Care Delivery

In the context of the formal mechanisms, the reviewed models relied on a number of common infrastructure features and processes for delivering integrated care, including:

Infrastructure components:

- shared electronic information platforms between providers to manage patient cases (Buch et al., 2018; Butler et al., 2015; Carlin et al., 2015; Jaffe et al., 2015; Qian et al., 2017),
- standardized risk assessment and risk stratification (Buch et al., 2018; Butler et al., 2015; Hoying et al., 2014),
- employing a patient case manager (Hoying et al., 2014; Janevic et al., 2016),

Process components:

- developing mutual care plans (Buch et al., 2018; Butler et al., 2015; Janevic et al., 2016; Qian et al., 2017)
- multidisciplinary team meetings or consultations (Buch et al., 2018; Hoying et al., 2014; Jaffe et al., 2015; Qian et al., 2017; Shaw et al., 2017),
- remote monitoring, telehealth, or virtual visits (Butler et al., 2015; Hoying et al., 2014; Jaffe et al., 2015),
- home visits from allied health providers (Butler et al., 2015; Hoying et al., 2014; Jaffe et al., 2015; Janevic et al., 2016; Kurtzman, 2015), and

- supporting health promotion initiatives led by community partners, such as schools (Hoying et al., 2014), churches (Butler et al., 2015), and volunteer-run half-day clinics (Butler et al., 2015).

Implementation and Governance Issues

The studies of hospitals as lead integrators in new models of care identified a number of challenges with implementation and governance. A common theme was miscommunication between those overseeing and those delivering integrated care. For example, communication breakdowns between a U.S. county health department and hospital leadership, which jointly developed the integrated model, led to fewer patient referrals to the program than expected. This communication breakdown was further compounded by the changes in the hospital's executive leadership (Kurtzman, 2015). Similarly, a Danish integrated care pilot faced challenges with patient enrollment due to a mismatch between the program design (developed by the hospital leadership) and the priorities of frontline healthcare providers. A major issue involved disagreement with the eligibility criteria for enrolment: the model was designed to support elderly patients with mental health concerns, but frontline providers were interested in also enrolling other populations such as students experiencing stress and anxiety, and those with socioeconomic disadvantage (Buch et al., 2018). Finally, qualitative evidence from England emphasized the importance of ensuring that frontline healthcare providers have agency in integrated program design and delivery – while most providers described the move towards integration as “the right thing to do,” they also perceived that implementation efforts were “being imposed, top down, from the health service” (Stocker et al., 2018).

To minimize the described governance and implementation challenges, the following set of suggestions was identified from the literature:

- learning from local pilots that have demonstrated impact (Smith et al., 2019) and avoiding premature adaptation of integrated models unsupported by evaluative evidence, particularly from dissimilar healthcare contexts (Buch et al., 2018)
- assess health system and organizational capacity for integration, such as existing group practices, provider networks, availability of case managers or patient navigators (Buch et al., 2018)
- orient the hospital and community stakeholders to the planned integration approach by defining upfront the project purpose, roles, and expectations (Kurtzman, 2015; Stocker et al., 2018)
- form a specific managing body to oversee implementation and regulate goal-setting, logistics, performance monitoring, and administrative issues (Jaffe et al., 2015)
provide ongoing opportunities for “relationship building” (e.g. shared forums between hub and spoke providers) (Shaw et al., 2017).

Outcomes: Costs, Quality and Access to Care

Overall, we found that the impact of hospital-led cross-sectoral integrated models on outcomes has been mixed. While one U.S. study found that the hospital-led integrated model (a pediatric ACO) was associated with reduced per-member-per-month costs, (Kelleher et al., 2015), a study from Denmark found that costs per patient increased following integration, without any impact on emergency and ambulatory care visits (Buch et al., 2018). A third study, from China (Qian et al., 2017), found costs of community care increased alongside little impact on costs of hospital outpatient care.

The use of the emergency department (ED) was one of the most frequently reported outcomes, with the underlying assumption that a reduction in ED visits serves as a proxy for increased access to outpatient and community-based services. One study showed no changes in ED visits before and after the

implementation of the integrated model (Buch et al., 2018), while three other studies showed a reduction in ED use post-implementation (Butler et al., 2015; Hoying et al., 2014; Janevic et al., 2016). Another study found an increase in virtual (fax- and telephone-based) consultations for emergency events following implementation of the integrated care model processes, including streamlined virtual communication and referrals (Jaffe et al., 2015).

The effect of these hospital-led integrated care approaches on hospitalization rates was also mixed, as one study did not observe significant changes before and after model implementation (Janevic et al., 2016), while another found an increased probability of admissions for ambulatory care sensitive conditions (Carlin et al., 2015). The latter finding may be attributed to the disruption of existing referral patterns by hospital acquisition, as the authors concluded that “the stability of hospital-clinic relations may be important in preventing ambulatory-care sensitive admissions” (Carlin et al., 2015).

Three studies found that implementation of an integrated care model with hospital-as-hub significantly increased the use of outpatient hospital, primary, and social services, in parallel to a decrease (Butler et al., 2015) or no change (Buch et al., 2018; Jaffe et al., 2015) in ED use or admissions. In the pediatric context, Kelleher et al., (2015) similarly noted a significant increase in the number of well-child visits and a reduction in the number of neonatal intensive care unit (NICU) days. With regards to the quality of routine outpatient care, one study showed significant improvements in the probability of receiving guideline-recommended screenings for colorectal and cervical cancer following integration through acquisition of multispecialty community-based clinics by hospitals (Carlin et al., 2015).

It is important to interpret the cost and healthcare utilization outcomes with caution. Such outcomes are contingent on the evaluation timeframe, as utilization and corresponding costs may increase immediately after implementation due to changes in patient flow. Once care delivery is integrated and resource use is optimized, however, utilization may stabilize. On the other hand, increased healthcare utilization may also be reflective of the patients’ needs being increasingly met – in that case, utilization may never return to pre-implementation levels. Information on other indicators of healthcare quality, such as direct health outcomes or self-reported patient experience and satisfaction with care may help illuminate these alternative explanations of findings. Future studies should employ survey and qualitative research methods to assess additional quality outcomes, beyond healthcare utilization. Longitudinal studies may further help explicate time-dependent healthcare utilization trends.

Evidence of impact of integrated care in England

One study assessed the impact of two integrated care models in England with a leadership or co-leadership role for the hospital — Salford, and South Somerset (Stokes et al, 2019). The implementation of the Salford vanguard led to a slight decrease in patient experience of care, no measurable impact on health-related quality of life, and a decrease in total cost of secondary care (including inpatient, emergency and outpatient care) per registered patient. In contrast, the implementation of the South Somerset vanguard led to a slight decrease in both patient experience and health-related quality of life, and an *increase* in the total cost of secondary care per registered patient. The authors suggested that the slightly more positive results in Salford compared to South Somerset may reflect:

- its longer history of inter-organizational planning and working,
- a greater involvement of social work e.g., to improve discharge practices, and
- a greater focus and investment in community-based activities (Stokes et al, 2019).

Of note was the different role of the hospital in the two models: in Salford the acute care hospital was one of several organizations co-leading the delivery of the program to a defined population group, whereas in South Somerset, the acute care hospital was primarily leading the model, with involvement of only half of a Clinical Commissioning Group (thus the local purchaser was responsible for serving patients outside of the South Somerset delivery system). The two models faced some common challenges with implementation, and neither fully implemented their integration plans, in part due to challenges faced in effectively involving primary care physicians who are independent contractors working within nationally-agreed upon arrangements (Stokes et al, 2019).

Jurisdictional Review

England

There has been a long-standing commitment in England to service delivery (re)-design to better meet the often-complex care needs of people with multiple chronic conditions, with a particular focus on promoting the integration of services within and across the health and care sectors. This commitment has involved regulatory changes from the early 2000s and a series of programs piloting different ways of organizing and delivering health (and social care) services from the mid-2000s onwards, among other changes (Nolte et al., 2014; National Audit Office, 2017). The past decade saw a particular focus on models of integrated care, including the 2009 Integrated Care Pilot program, the 2013 Integrated Care and Support Pioneer program, the 2014 New Models of Care (Vanguard) program and the introduction of 44 sustainability and transformation plan ‘footprints’ or areas from 2016 (subsequently evolving into Sustainability and Transformation Partnerships)(National Audit Office, 2017).

In this section, we specifically focus on one the New Models of Care program, envisaged as a means to overcome the traditional boundaries between primary and secondary care and community services to support improvement and integration of services (NHS England, 2014). Individual organizations and partnerships could apply to become ‘vanguards’ to take “a lead on the development of new care models which will act as the blueprints for the NHS moving forward and the inspiration to the rest of the health and care system” (NHS England, 2016). By the end of 2015, a total of 50 ‘vanguards’ had been selected to lead on five types of care models:

- integrated primary and acute care systems (PACS, 9 vanguards), aiming to connect primary care, hospital, community and mental health services
- multispecialty community provider vanguards (MCP, 14),
- enhanced health in care homes vanguards (EHCH, 6)
- urgent and emergency care vanguards (UEC, 8)
- acute care collaboration vanguards (ACC, 13)

Organizations or partnerships that had been selected as ‘vanguards’ received support from the centre for a period of three years, including financial support (a total of £329 million of direct investment in vanguards during 2015/16- 2017/18, plus £60 million for central support for and monitoring of vanguards). The vanguards were conceived as “*locally driven pilots*”, with the expectation that each would contribute to the development of “*care model prototypes*” that could subsequently be replicated elsewhere (National Audit Office, 2018). Launched in 2015, the vanguard program operated until 2018.

Among vanguards, the primary and acute care system (PACS) is the only approach with a hospital-as-a-hub that spans primary and hospital care.⁷ Within this system we focus on one model, Northumberland ACO. This model was selected because (i) it presents a partially integrated PACS in which an existing NHS foundation trust takes a leading role (‘hub’) and (ii) the model has been part of a broader (external) evaluation of the vanguard programme in the north east of England. (Maniatopoulos et al., 2017).

⁷ While similar in scope, multispecialty community provider vanguards are typically primary care-led, with a main focus on moving specialist care out of the hospital into the community, and while urgent and emergency care vanguards and acute care collaboration vanguards centre on hospitals, they typically do not extend to primary and/or community care (NHS England, 2016)

Box 1: Defining terms

Commissioning: similar to purchasing of services. In England, Clinical Commissioning Groups (CCGs) purchase most health care including mental health services, urgent and emergency care, elective hospital services, and community care; local governments (local authorities) purchase (publicly funded) a range of practical support services to meet needs that arise from ageing, disabilities, and ill-health, such as residential and nursing care, adaptations, meals and home care.

Clinical Commissioning Groups (CCGs): clinically-led statutory NHS bodies responsible for the planning and commissioning of health care services for their local area; they are membership bodies, with local GP practices as the members, led by an elected governing body comprising GPs, other clinicians, and lay members; CCGs are responsible for approximately 2/3 of the total NHS England budget.

Local authority: organisation of local government; local councils are the most common type of local authority, they are made up of councillors who are elected by the public in local elections; they are responsible for a range of services including adult social care, education, planning, housing, waste disposal, recycling and collection, environmental health, etc.

Sources: National Audit Office, 2018; NHS Clinical Commissioners, 2019

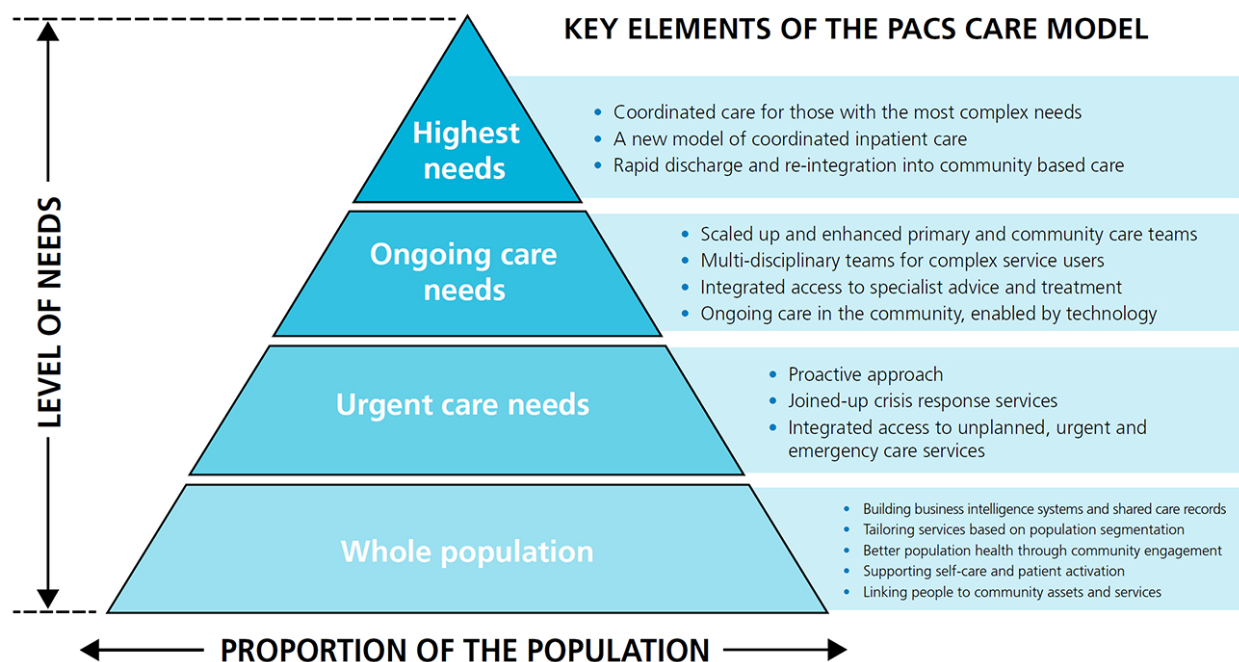
Integrated Primary and Acute Care System Vanguard (PACS)

Integrated primary and acute care system (PACS) vanguards were understood as a population-based care model aiming to “*improve the physical, mental, social health and wellbeing of [the] local population and reduce inequalities*” (NHS England, 2016). This was to be achieved through bringing together health and care providers offering “*the potential to transform the entire hospital business model, across inpatient, outpatient, medical and surgical pathways*” (NHS England, 2016), which may involve the formation of joint hospital groups or collaborations.

A 2016 framework document that is based on early learnings from the nine PACS vanguards sets out key features of the PACS care model, which involves four levels as shown in Figure 1.⁸

⁸ A brief description of the (original) vision and anticipated benefits of each of the nine PACS is provided in NHS England (2016).

Figure 2: The Four Levels of the PACS Care Model.



Source: NHS England (2016), p. 9

NHS England (2016) presents the PACs business model where there are three options set out for “commissioning and providing a PACS” (p.20).

Virtual PACS: service providers (and, possibly, the purchasers of relevant services) enter into an ‘alliance agreement’, which “*could establish a shared vision, ways of working and the role of each provider on the PACS*” (referred to by some as an ‘accountable care system’) (p. 22). This type of arrangement was seen as pragmatic and the “*least disruptive*” but also the weakest form of a PACS “*in terms of its rights to create and manage integrated provision, and its ability to deploy resources flexibly*” (p. 22) (Example: Mid Nottinghamshire Better Together Alliance⁹).

Partially integrated PACS: commissioners pre-purchase all services (under a single contract) that would be in the scope of a complete PACS *except* for primary medical services; the latter would need to be integrated with the contract holder (Example: Northumberland Accountable Care Organisation, see below).

Fully integrated PACS: the PACS holds a single whole-population budget for the full range of services. This model was seen as best reflecting “*the logic of the new care model with the greatest freedom to redesign care and workforce roles*” (p. 23) (no such models in place).

Northumberland ACO

Northumberland ACO was established in June 2015. Located in the north-east of England, a mainly rural area with urban pockets (and the lowest population density in England), it is responsible for a population of just over 320,000. Northumberland local authority is among the most deprived 20% of local authorities

⁹ <http://www.bettertogethernorthnotts.org.uk/>

in terms of employment and income (2015), with pockets of high levels of deprivation in some areas (Table 1).

The 2013 Expression of Interest for inclusion in the national vanguard programme foresaw a *phased process* involving 4-5 stages, with the ultimate aim to establish a PACS and ACO by 2017 (Northumberland Clinical Commissioning Group, 2015a, 2015b):

- **Stage 1:** *Opening of Northumbria Specialist Emergency Care Hospital (NSECH)* (“the first purpose built emergency care hospital in the country”) (2015)
- **Stage 2:** *Primary care at scale* (2015/16): extend primary care to seven days a week and create 'hubs' of primary care provision across the county that are also expected to “increasingly [offer] secondary care services in community settings” through co-location of GPs within local hospitals (8-10 hubs encompassing the (then) 45 GP practices in the area)
- **Stage 3:** *Community and acute services redesign* to ensure that patient care is increasingly delivered in community settings, building on existing arrangements for community nursing (2015/16)
- **Stage 4:** *Transitional year for commissioning arrangements* involving the move of commissioning responsibility for acute, community and primary care provision to a single provider (Northumbria Healthcare NHS Foundation Trust) and the further development into an accountable care organisation (2016)
- **Stage 5:** *PACS*, understood as “a primary and acute care system that delivers coherent system-wide leadership ... with clear measurable outcomes that demonstrate a benefit to the local health and care economy”

The Northumbria Specialist Emergency Care Hospital (NSECH) was opened in June 2015 (Northumberland Clinical Commissioning Group, 2017). By February 2017 (Vanguard Year 2), a review of capacity of and demand for all (now) 44 primary care practices across the area had taken place (Stage 2). This review led to practices choosing one of three new or improved access models to be delivered during 2016/17:

- ‘Doctor First’, a GP appointment system in which patients speak directly to a GP over the phone to assess their needs (see e.g. Newbould, Abel et al. 2017 for an evaluation of ‘telephone first’ schemes in the NHS)
- care models for frequent attenders, for example using tools to identify high users of GP appointments who will be offered longer appointments; using care planning approaches and optimising skill mix within the practice and offer ‘one stop shops’ where patients can see a variety of professionals
- care models for patients with long term conditions, including the development of personalised care plans, offering weekly GP sessions to provide enhance care, making greater use of practice nurses in the management of these patients (Northumberland Clinical Commissioning Group, 2017).

Also, by February 2017, the vanguard had created ‘locality-based integrated complex care teams’ that were being piloted in one area with the view to roll out if successful (Stage 3). This stage also involved the introduction of pharmacists in GP practices.

Stage 4 and 5, which involves the transfer of commissioning and the creation of an ACO were delayed; by May 2018 both of these ‘functions’ had yet to be established. The development of an ACO across the Northumberland area had been halted “due to changes in national priorities” (Northumberland Clinical Commissioning Group, 2018, p. 38). This also meant “a return to a more traditional commissioner/provider contractual approach to the [Clinical Commissioning Group’s] financial delivery” (p. 38). The 2017/18 annual report of Northumberland Clinical Commissioning Group (CCG), a direct partner in the Northumberland ACO, highlights that a number of other conditions that would be required to transition to an ACO were lacking, noting that:

“[t]here is a risk that the transfer of designated responsibilities to the Accountable Care Organisation (ACO) is not supported by a comprehensive transition plan. This could result in periods of uncertainty for CCG staff, disengagement of CCG member practices and an inability to conduct areas of normal CCG business effectively. This could lead to an ineffective ACO on start-up, CCG member lack of confidence in the ACO construct and reputational damage to the CCG. The risk is mitigated by the ACO transition plan. There is also a risk that the CCG will fail to appropriately engage member practices during the development of the ACO leading to practices being provided insufficient information on which to make an informed decision. This could lead to an ACO mandate not being achieved” (Northumberland Clinical Commissioning Group, 2018).

Further details on how Northumberland ACO was anticipated to work are found in the Northumberland County Council report (2017). However, at the time of writing this report (July 2019), it remains unclear whether and how the transition to an ACO will materialise. Since the publication of the 2014 Five Year Forward View, which launched the vanguard program, policy priorities have further evolved towards the creation of Sustainability and Transformation Partnerships (STPs) (NHS England, 2017).¹⁰

Northumberland CCG and Northumberland Council are part of the Northumberland, Tyne and Wear and North Durham STP, with plans for its merger with two other STPs (Darlington, Teesside, Hambleton, Richmondshire and Whitby; and West, North and East Cumbria) to form a STP, with the aim to become an integrated care system by April 2019. Also carried out an economic evaluation of the 5 vanguards, looking at key metrics such as non-elective (or emergency) admissions to hospital, accident and emergency attendances, outpatient appointments and secondary care bed days as measures of resource use. This found that implementation of the Northumberland PACS was associated with an *increase* in emergency department visits and non-elective admissions, which resulted in increased costs overall (Maniatopoulos et al., 2017). This was likely driven by an increase in activity at Northumbria Healthcare NHS Foundation Trust but the evaluation was over an eight month period only and longer-term data would be necessary to understand whether the observation of increased resource use was maintained. A national evaluation of the overall vanguard program is ongoing with findings expected for 2021 (The University of Manchester, n.d.).

¹⁰ STPs are partnerships of care providers and commissioners in a given area. By 2016, a total of 44 STPs (covering all of England), bringing together NHS organizations and local councils, had published their initial proposals to improve health and care of the local population; in some areas, STPs have evolved further into ‘integrated care systems’, which are described as “*a new form of even closer collaboration between the NHS and local councils*” (NHS England, 2019a). Integrated care systems (ICS) are expected to replace STPs, with the 2019 NHS Long Term Plan setting the goal that ICS will cover all areas in England by 2021 (NHS England, 2019b). STPs and ICS are expected to build on the vanguard experience (NHS England, 2019a).

Table 1. Description of Northumberland ACO, England

| | |
|---|--|
| Private or Publicly Owned Hospital | Public NHS Hospitals are referred to as ‘trusts’, which are public sector corporations; NHS foundation trusts are semi-autonomous organizations and both are regulated by NHS Improvement¹¹ |
| Hospital System or Solo Hospital | NHS hospital trusts typically deliver care from more than one site, and all sites are part of the trust. Northumbria Healthcare NHS Foundation Trust operates from 11 sites, which include emergency care, hospital, general and community hospitals, outpatient and diagnostic centres, an elderly care unit and an integrated health and social care facility (Northumbria Healthcare NHS Foundation Trust, 2017). |
| Academic or Community | <i>Not directly translated to the UK context</i> |
| Population Served | The hospital provides services to >500,000 people; the ACO catchment population is 322,000 Northumberland (ACO area): <ul style="list-style-type: none">• Mainly rural area with urban pockets (lowest population density in England)• Mainly white British (~95%)• Of the 326 Local Authorities (LA) in England, Northumberland falls into the most deprived 20% of LAs for employment (rank 42) and for income (rank 51) (2015) with pockets of high levels of deprivation in some areas (Northumberland County Council, 2015) |
| Partners (‘spokes’) | Northumberland Clinical Commissioning Group (CCG) is the direct partner. With additional partners including: <ul style="list-style-type: none">• Healthwatch* Northumberland• Northumberland County Council• Northumberland Primary Care Practices• Northumberland Tyne and Wear NHS Foundation Trust *Local Healthwatch are independent bodies, mandated to support ‘the involvement of local people in the commissioning, the provision and scrutiny of local care services’ (as mandated by the 2012 Health and Social Care Act) |
| Date Established | June 2015 |

¹¹ <https://improvement.nhs.uk/>

| | |
|---|---|
| Demonstration or Pilot? | Vanguards were conceived as 'pilots' with expectation that they would develop a prototype or 'blueprint' for a given care model that could then be quickly replicated elsewhere. ('pilot' period 2015/16-2017/18) |
| Primary Care, Community Services Incorporated? | The primary care 'arm' includes a network of 44 GP practices, with a GP Extended Access service launched in Oct 2017 (and delivered from 5 'hubs' across the region) |
| Mental Health Care | Planned to be incorporated |
| Social Care | Delegated to Northumbria Healthcare Foundation Trust (NHFT) |

United States

The move towards integrated care models in the U.S. is a response to the fragmentation of patient care, an overemphasis on treatment rather than prevention, limited focus on patient-centered care, and high administrative complexity. Compared to other countries, patients' experiences of care coordination and access to care are worse and expenditures are considerably higher in the U.S. (Osborn & et al., 2016; Schoen & et al., 2011). Costs can also be attributed to uncoordinated and duplicative services by multiple payers and providers even in one illness episode (Rodriguez, von Glahn, Elliott, Rogers, & Safran, 2009).

Integrated models of care, including the hub and spoke approach, have accelerated and intensified with the passage of the Patient Protection and Affordable Care Act (ACA) in the U.S. While there have been a number of initiatives to integrate care among care providers (e.g., mergers of physician group practices or hospitals), there have also been various attempts to integrate care across providers and sectors, generally through acquisition and contractual relationships:

- providers along the continuum of care (e.g., hospitals and physician groups),
- health plans and other providers along the continuum of care (e.g., managed care organizations, MCOs and integrated delivery systems, IDSs), and
- payers, health plans, and providers (e.g., ACOs).

Existing models may incorporate mental health and substance use services, oral health care, long-term care, or social services, but such comprehensive models are rare.

Among these integrated care models, ACOs are specifically designed to take on financial risk and the responsibility for reducing costs, improving patient health, as well as quality and access to care. ACO demonstrations are turning to value-based payment methods, care-coordination, patient-centered care, and comprehensive care delivery to improve outcomes. The challenges of delivering system integration include disconnected health information systems and existing financial incentives that impede system change and professional collaboration. Despite these challenges, there is some evidence supporting the benefits of integrated health care delivery on patient care experiences, quality of patient care, and in some cases, the costs of care (Mehrotra, Epstein, & Rosenthal, 2006; Peckham et al., 2019, 2018; Rodriguez et al., 2009; Schoen & et al., 2011; Weeks, Greene, & Weinstein, 2015).

Hub-and-Spoke Models in the US

Consolidation and integration can be driven by market forces such as competition, systematic efforts to improve care delivery by government and other entities, or both. The hub-and-spoke models led by hospitals aim to gain more market share and achieve economies of scale and efficiencies. A limited review of existing hub-and-spoke models identified that models with hospitals as lead hub included a variety of the following as spokes within the model:

- other hospitals,
- community-based primary care practices,
- a mix of primary care and social service providers, and
- hospitals and specialty care practices.

Most models are ownership-based, but some rely on formal contractual relationships and less formal agreements.

The majority of the hub-and-spoke models identified in this review included tertiary or quaternary hospitals that have attempted to capture patients from larger service areas or provide specialized services that cannot be delivered by the spokes. For complex patients, care outcomes are impacted by lack of access to services, social determinants of health such as housing, or comorbid mental health problems and addictions. Thus, hospitals may develop relationships with spokes that provide care coordination to link patients to community-based providers as well as providers of substance use rehabilitation, housing assistance, food, or job training. There is significant and nuanced variation in how hospital led hub-and-spoke models are organized, and systematic evaluations of these models and their impact on care outcomes are lagging. The scoping review of the scholarly literature was dominated by U.S. hospital-as-hub integrated care models and found mixed evidence on the impact of these models.

In this jurisdictional review, we highlight five examples of hub-and-spoke integrated models in the U.S. Three of these are multi-hospital hub-and-spoke models (the Willis-Knighton Health System, Bon Secours Mercy Health, and the Washington Adventist Hospital), one is an ACO (University of California, Los Angeles (UCLA) ACO), and one is an accountable care community (Santa Clara Valley Health and Hospital System in the state of California). A more detailed overview of these models is presented in Appendix E (E1-E4), where we also briefly mention two additional multi-hospital hub-and-spoke models (Appendix E1: the Northwestern Memorial Hospital in Chicago, Illinois and the Ohio Nationwide Children's Hospital in Columbus, Ohio), one integrated delivery system (Appendix E2: Kaiser in the state of California), and one additional ACO (Appendix E3: Cedars-Sinai ACO in Los Angeles, California).

Multi-Hospital Hub-and-Spoke Integrated Models

Willis-Knighton Health System (WKHS)

The WKHS is a rural hub-and-spoke model that connects many hospitals located in Maryland, a state using global budgets to reimburse hospitals. The hospital was founded in 1924 as Tri-State Sanitarium before being sold in 1929 to Drs Willis and Knighton. It then transitioned to a not-for-profit hospital in 1949 and became the Willis-Knighton health system a year later. In the 1970s, the hospital began to increase its reach; consequently, a large increase in its patient population facilitated its growth to multiple facilities. This began the hospital's satellite program and the basis for the hub-and-spoke model employed by WK Health System. Finally, the passing of the ACA in 2010 mandated WKHS to provide a Community Health Needs Assessment in 2016 facilitated the hospital's ongoing community engagement and health promotion efforts (e.g. cancer screenings, tobacco cessation), as well as potentially provided the platform for recruitment of future spokes.

The Willis-Knighton Medical Center (WK) is the hub of the model, hosting tertiary specialty and advanced healthcare services, including Cancer Center, Proton Therapy Center, Heart & Vascular Institute, Transplant Center, Hyperbaric & Wound Care Center and Eye Institute. The spokes comprise 5 satellite campuses, a variety of self-owned specialty centers (including women's and children's health, physical and behavioural rehabilitation, and outpatient dialysis services, among others), and nursing clinics (including a retirement community with 3 residential levels: independent, assisted, and skilled nursing). WK also has an established academic partnership with Louisiana State University School of Medicine in Shreveport, Louisiana, which provides WKHS with student doctors. Lastly, WK provides cooperative support to a number of neighboring hospitals, each an autonomous organization that takes advantage of the benefits of WK's tertiary services and purchasing contracts. WK primarily owns its spokes, with the

exception of the medical school and the cooperating neighbouring hospitals. With regard to the latter, WK offers contracts to the neighbouring hospitals to provide services off-site.

WKHS uses the relationship between the spokes and the hub as a method of quickly establishing capacity for service delivery. If the hub is facing slower service delivery periods, it can redirect resources from the hub to a spoke with resource requirements as a result of growing demand. This model shows how such an arrangement expands capacity for care delivery in smaller hospitals (providing home health and hospice care and sub-acute rehabilitation), while also allowing for centralization of more complex and specialized care at the hub.

Bon Secours Mercy Health System (BSMH)

The BSMH is a Catholic multi-hospital chain operating in multiple states, whose focus is on addressing the social determinants of health. The system is a product of a 2018 merger between two hospital systems – Bon Secours in the state of Maryland and Mercy in the state of Ohio. The BSMH system may thus be considered as having two hubs tied together on equal footing, with spokes radiating out from Baltimore, Maryland and Cincinnati, Ohio. While no explicit regulatory change is attributed to BSMH integration, the post-ACA legislative environment is likely the driving force behind the merger between the two hubs.

The spoke hospitals span seven states, 20 of which are Bon Secours' and 23 of which are Mercy's. This does not include the variety of clinics, aged care facilities, and other spokes that function as externally connected care sites. There are over 1,000 associated care sites each for Mercy Health and Bon Secours, including rehabilitation clinics, specialist outpatient facilities, family practices, as well as charitably supported community health programs, such as farmers' markets, affordable housing projects, cooking lessons, and fitness classes. There are three ways by which BSMH appears to attach to its spokes and associated care sites – charitable donations, through which it promotes community health, wholly or partly owned services, and service agreements with external entities. It is unclear how these services are coordinated, but BSMH appears to provide an integrated service network to coordinate shared data, payment processing, and patient populations. Very little additional information on operational issues or outcomes since the 2018 merger is currently available.

Washington Adventist Hospital (WAH)

WAH is a two-hospital health system in the state of Maryland. An examination of the main website for this organization indicates a new hospital, White Oak Medical Center, will be operating as of 2019. The primary focus of WAH is to address the social determinants of health through community outreach efforts. The spokes thus comprise a number of varied community partners, such as employment assistance programs, family and social services departments, and churches and faith community nurses. Hub and spoke connections are fostered through non-contractual agreements with religious organizations; grant funding for joint implementation; and contractual agreements with non-profits and for-profits for service provision. Examples of social determinants of health-focused initiatives that emerged out of these partnerships include employment and benefit assistance program, hospital-to-home transition service for high-risk readmission patients, primary care delivery system for uninsured patients, prescription service for healthier food for patients with diabetes, tobacco cessation, and home safety checks for low-income housing, among others.

Broad regulatory changes are credited with influencing WAH's integration efforts. This includes the ACA's requirement to perform a Community Health Needs Assessment every three years and provide a provider payment system that facilitates coordinated care. In the state of Maryland, hospitals are reimbursed using a population-based global budgeting prospective payment system, performance-centric measures, and a

single rate per service regardless of insurance status. High performance and quality of care are most frequently defined as reduced hospital readmission rates, in part because of state-wide penalties for high readmission rates. Long-term evaluations of the WAH system are not yet available, but overall, this model demonstrates how social determinants of health can be addressed in a small health care delivery system.

Other Integrated Models

University of California at Los Angeles (UCLA) ACO

UCLA is a two-hospital system and one of the five universities operated by Regents of the University of California. The system is private but has been heavily subsidized by state funds for many years, hence the hospital is a “designated public hospital.” In this example, the hub consists of the UCLA hospital and its ACO. As discussed briefly in the introductory section, ACOs are accountable for the cost and quality of care.

The spokes are primarily private community-based physician practices acquired by the hospital, with the ultimate goal of becoming a fully integrated system similar to Kaiser. The multi-specialty Faculty Group (FG), which consists of clinicians providing care at the UCLA hospital and performing academic duties at the university, is the primary spoke. It can, however, be considered many spokes, as it includes about 2,000 physicians spread across three large counties in Southern California. Several years ago, UCLA began to decentralize its FG to locations outside the two hospitals in the system within the communities that surround the two hospitals. Next, UCLA began to acquire primary care and specialty practices in these areas. These practices are now owned by UCLA, but their physicians are contracted; thus, these physicians provide care under UCLA quality of care guidelines and use the same system-wide electronic medical record. Other spokes include partners in the post-hospitalization phase of care, including skilled nursing facilities and home health agencies. Relationships with these services are based on memoranda of understanding. As the hub and the spokes are jointly accountable for the costs and outcomes of care, UCLA doctors visit patients at these facilities to standardize practice and ensure that quality benchmarks are met. Overall, the ACO arrangement highlights the ability of UCLA to accept risk and value-based payments.

Santa Clara Valley Health and Hospital System (SCVHHS)

The SCVHHS is the only accountable care community model identified in the present jurisdictional review. It is a new experimental pilot program by a county-owned and operated health system in northern California, designed to coordinate and ultimately integrate medical, behavioral, and social services. The pilot targets high users of care under the Medicaid program in the county, including those with multiple emergency department visits, substance use disorder and mental health conditions, homelessness, and individuals that cycle in and out of the prison system. The hospital is the lead entity in the pilot, serving as a hub. The hospital is county owned and operated and is considered a safety net provider. Such hospitals provide care to the majority of the low-income and uninsured patients in their county and operate under budgets allocated by the county from local taxes, in addition to receive payments from public and private payers. An evaluation of the pilot program is currently underway, but no results are yet available.

Outcomes and Lessons Learned

Based on the above review, in the U.S. multi-hospital hub-and-spoke models are the dominant form of integrative approaches. It is likely that multi-hospital hub-and-spoke models are easier to form as it would not require significant efforts to restructure operations nor would it necessarily require an overhaul of the mission of the organizations. Similarly, hospitals face the

same market forces to reduce hospitalizations by providing value-based care. The less dominant forms of hospital led hub-and-spoke models with additional community or provider-based spokes could be a result of the inherent challenges of combining organizations with different approaches to the same market forces. The UCLA ACO example purchased community-based practices and the SCVHHS example contracted with social service providers. Neither of these examples relied only on informal approaches to develop the hub-and-spoke models and instead engaged in formal contractual relationships to operate an effective and efficient integrated organization with strong and aligned incentives.

Formation of hub and spoke models promotes integration but does not guarantee it. The data were not adequate to assess whether these models fully established the infrastructure to deliver integrated care. The UCLA ACO example was perhaps the one with adequate information on systematic effort by the hospital to promote care integration. Frequently, services were focused on acute care with some examples of subacute care. Very few examples provided social services to address social determinant of health. There was limited evidence to suggest improvement of population health outcomes related to these forms of system integration.

The multi-payer reimbursement incentives differ from the Canadian reimbursement method using global budgets. Similarly, care for uninsured patients leaves hospitals exposed to financial risks. U.S. hospitals face the challenge of providing care to uninsured patients, which has been addressed by Disproportionate Share (DSH) payments over the years. DSH payments partially cover the volume of unpaid services, but U.S. hospitals still face the problem of unpaid care provided to uninsured and low-income patients, despite the expected decline of these populations following the implementation of the ACA. These are some of the contributing factors to U.S. hospitals' strategies to merge or form other hub-and-spoke arrangements to ensure financial viability, as well as provide services that may improve patients' health. Integration allowed these hospitals to expand the scope of the services provided; increase efficiency in operations and care delivery, including centralizing complex services; and expand the service area for the organization, which was particularly beneficial in rural areas with few providers and in highly competitive markets with many providers.

Further research is needed to understand the public health and societal benefits of hospital led hub-and-spoke models. Small organizations may lack adequate resources to integrated care across the care continuum. However, smaller scale integration in the form of patient-centered medical homes are achievable and can be considered as the building blocks needed for more comprehensive integration.

Conclusion

In light of the current efforts to integrate care in Ontario and in other jurisdictions, this rapid review examined how the hospital may serve as the lead organization, or ‘hub’, in an integrated model of care delivery, with particular emphasis on integration beyond the hospital to primary care and community organizations (‘spokes’). We conducted a rapid scoping review of the evidence on the impact of hospital-as-hub models on costs, access to, and quality of care, and a jurisdictional review of integrated care models that span acute and community care in England and the U.S to gain transferable lessons on the role of hospitals in integrated care systems.

There is no theoretical basis to inform the optimal role of hospitals in these models in an integrated care delivery system. The results of our scoping review of the scholarly literature similarly uncovered little empirical evidence to inform these decisions. Overall this literature presents mixed evidence of the impact of hospital-led integrated care models on access, quality and costs in the U.S., and in England, with limited consideration of the impact of these models on health outcomes.

Overall, we know very little about what the role of hospitals could or should look like in integrated care systems. This review uncovered several challenges to implementation of hospital-as-hub models of care, particularly the potential for miscommunication between hospital leadership and frontline clinical staff. This may be addressed by communicating the purpose and expectations of integration efforts, and by ensuring that integration efforts align with overall hospital policies and procedures. In England there were challenges with involving primary care practitioners in acute-primary/community care models, as a result of the role of primary care physicians as independent contractors with the NHS.

There has not been any apparent long-term third-party evaluation alongside the implementation of these new delivery models – a mistake that could be avoided in Ontario. To enable successful implementation of Ontario Health Teams, ongoing evaluation that is built-in and independently provided can help to identify and overcome implementation obstacles, to identify challenges related to the accountable arrangements being established within these models, and to apply lessons learned in this initial phase of reform for the next phases.

Appendix A: Scoping Review Strategy

Electronic databases: We searched Medline (Ovid), CINAHL-Plus (EBSCO), PsychINFO (Ovid), Scopus for the overlap between 2 concepts: (1) integrated care and (2) hospitals. The following limits were applied to the searches: publication year 2014-2019, English-language, full-text available, and human subjects. CINAHL also allowed to exclude sources indexed in Medline, to minimize inclusion of duplicates, while the Scopus search was further limited by the subject matter (medicine, nursing, healthcare, social sciences) and sources published in a journal, given the broad focus of that database. The database search was first developed in Medline and subsequently translated into other database-specific syntax. All final electronic database searches were conducted and exported on March 13, 2019. The database search was supplemented by hand searching of reference lists of the included studies and open searches in Google Scholar (e.g. “hospital hubs integrated care”). Given the focus of the present report on both the U.K. (England) and the U.S., a targeted Medline search was performed for additional U.K.-based studies using search terms “United Kingdom,” “vanguards,” and “integrated care.” Such supplementary searching was not performed for U.S. studies, since the breadth of the U.S.-based evidence was already well-covered by the original search.

Search strategy:

| Database | Syntax |
|---------------------------------------|--|
| Ovid MEDLINE (n = 124) | 1. exp “Delivery of Health Care, Integrated”/ 2. exp Hospitals/ 3. 1 and 2 4. (hospital* adj3 ((integrat* or coordinat* or organiz*) adj2 (care or healthcare or service* or system*))) .tw,kf. 5. 3 or 4 6. limit 5 to (English language and humans and yr=“2014 -Current” and full text) |
| Ovid PsychINFO (n = 24) | 1. exp Integrated Services 2. exp Hospitals/ 3. 1 and 2 4. (hospital* adj3 ((integrat* or coordinat* or organiz*) adj2 (care or healthcare or service* or system*))) .tw 5. 3 or 4 6. limit 5 to (English language and humans and yr=“2014 -Current” and full text)13. Limit 12 to (English language and (adult <18 to 64 years> or aged <65+ years>)) |
| EBSCO CINAHL-Plus (n = 37) | S1. (MH “Health Care Delivery, Integrated”) S2. (MH “Hospitals+”) S3. S1 and S2 S4. TI (hospital* N3 ((integrat* or coordinat* or organiz*) N2 (care or healthcare or service* or system*))) or AB (hospital* N3 ((integrat* or coordinat* or organiz*) N2 (care or healthcare or service* or system*))) S5. S3 or S4 S6. Limiters – Full Text; Published Date: 20140101-20190331; English Language; Exclude MEDLINE records; Human |
| Scopus (n = 185) | TITLE-ABS-KEY (hospital W/3 ((integrated OR coordinated OR organized) W/2 (care OR healthcare OR service OR system))) AND (LIMIT-TO (PUBSTAGE , “final”)) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014)) AND (LIMIT-TO (SUBJAREA , “MEDI”) OR LIMIT-TO (SUBJAREA , “NURS”) OR LIMIT-TO (SUBJAREA , “HEAL”) OR LIMIT-TO (SUBJAREA , “SOCI”) OR LIMIT-TO (SUBJAREA , “PHAR”)) AND (LIMIT-TO (LANGUAGE , “English”)) AND (LIMIT-TO (SRCTYPE , “j”)) |

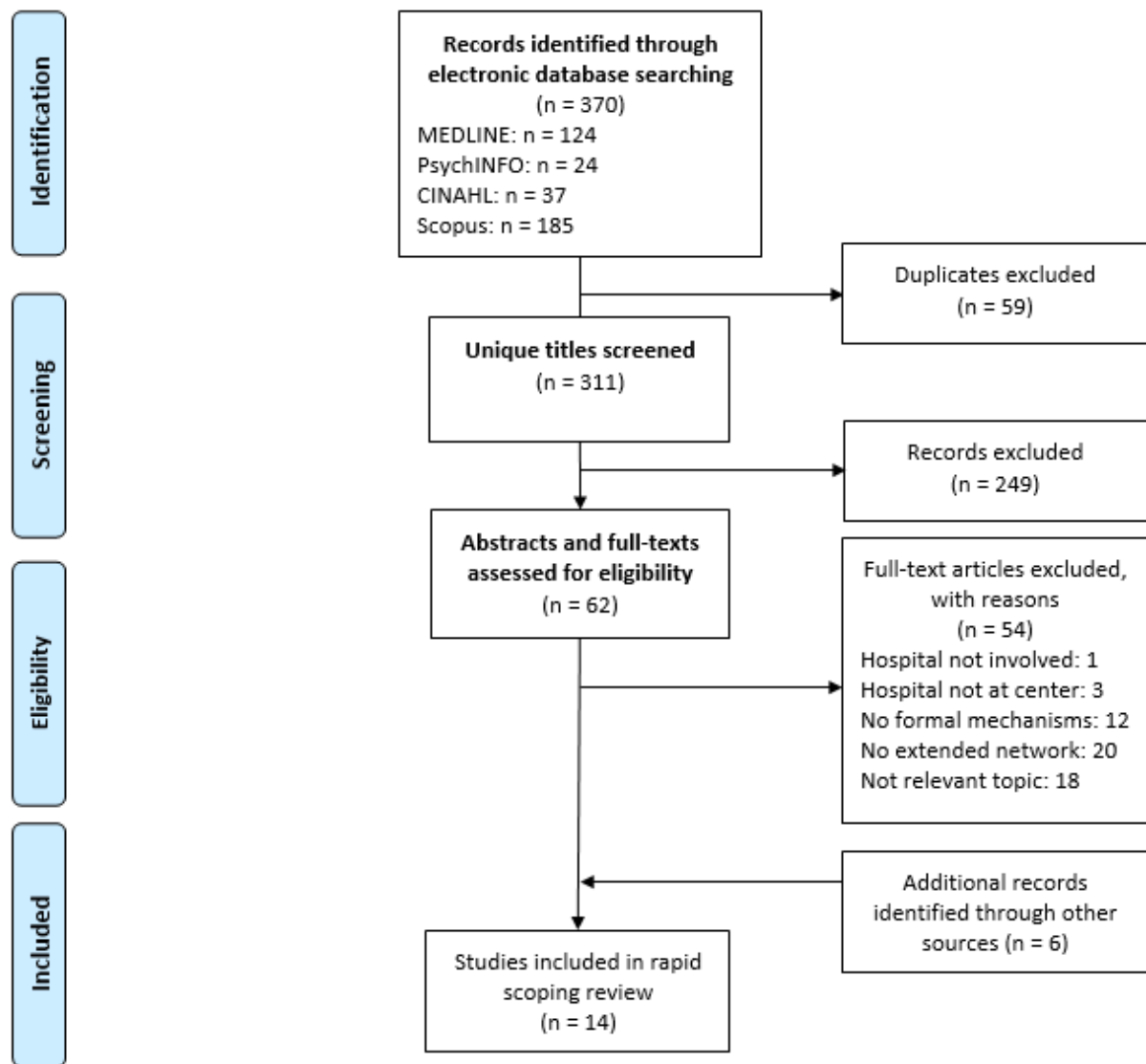
Selection and data abstraction process: Records were imported from each electronic database into a reference manager (Mendeley) for deduplication. Unique records were screened (titles, abstracts, and full-texts) against the eligibility criteria by one researcher (D.B.). Data abstraction from the selected references was performed by two reviewers (D.B. and S.N.).

Inclusion criteria: Studies were considered for inclusion if they described or assessed the effect of a hospital-led or hospital-centered system of integrated care (e.g., a hub-and-spoke model), with formal mechanisms in place to support integration.

Exclusion criteria: Studies were excluded (1) if the integrated care model described *did not involve a hospital*; (2) if the hospital was *not at the centre* of the integrated care model (e.g. primary care practices or community services served as the 'hub' collaborating with secondary/tertiary care centers), (3) if the hospital was *not formally collaborating* with at least one community-based support, such as primary care, home care, community care (examples of formal collaboration include hospital acquisitions, global budgets, bundled payments, contractual partnerships; examples of informal collaboration include provider-led informal referral processes, electronic health records and I.T. sharing); (4) if the hospital involved *internal integrated care efforts only*, rather than those with an extended network of primary and community care (e.g., integration across units within a single hospital); and (5) if the study was otherwise not relevant to our objectives.

Limitations: The scope of this review was to specifically assess hospital-centered hub-and-spoke models employing formal mechanisms to facilitate integration. As a result, models integrating care within (e.g. coordination between hospital departments) or across hospitals (e.g. hospital mergers), as well as integrated models employing informal mechanisms (e.g. non-contractual agreements between providers to collaborate, refer patients, or share I.T. systems) were not described. In addition, our search was limited to the 2014-2019 period; as such, older integrated models may not have been captured. Finally, since most studies employed quasi-experimental approaches (Buch et al., 2018; Butler et al., 2015; Carlin et al., 2015; Hoying et al., 2014; Jaffe et al., 2015; Janevic et al., 2016; Kelleher et al., 2015; Qian et al., 2017), the methodological limitations of such designs should also be acknowledged (Peckham et al., 2019). Given the risk of residual confounding and the lack of adequate control groups in some studies (Buch et al., 2018; Butler et al., 2015; Hoying et al., 2014; Jaffe et al., 2015; Qian et al., 2017), it is difficult to infer causality between integrated models and the reported outcomes. Any observed changes in outcomes may be attributed to other contemporaneous policy changes (historical bias) or natural changes over time, such as regression to the mean (maturation bias).

Appendix B: PRISMA Selection Flowchart



Adapted from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(7): e1000097. doi:10.1371/journal.pmed1000097

Appendix C: Results of the Scoping Review of the Literature

| Study, location | Integrated care model | Impact |
|--|--|--|
| Buch et al., (2018) Odense, Denmark | Integrated Care Pilot, adapted from North-West London model. | <i>Costs:</i> Increased per-patient costs <i>Quality and access to care:</i> No change in emergency and ambulatory care visits, no change in admissions, increase in use of community-based services. |
| Butler et al., (2015), Rosenbaum et al., (2016) Maryland, U.S. | Adventist Health Care System. | <i>Costs:</i> Not reported. <i>Quality and access to care:</i> Reduction in emergency department use, increased use of outpatient hospital, primary, and social services. |
| Carlin et al., (2015), Carlin et al., (2016) Minneapolis-St. Paul, U.S. | Accountable Care Organization. | <i>Costs:</i> Not reported. <i>Quality and access to care:</i> Increased risk of admission for ambulatory care sensitive conditions, increased likelihood of receiving appropriate colorectal and cervical cancer screening. |
| Hoying et al., (2014) Cincinnati, Ohio, U.S. | Accountable Care Organization, Cincinnati Children's Hospital Medical Center. | <i>Costs:</i> Not reported. <i>Quality and access to care:</i> Reduction in emergency department use. |
| Jaffe et al., (2015) Tel Aviv-Haifa, Israel | Community-Hospital Integrative Model of Healthcare (Co-HIMH), Hillel-Yaffe Medical Center. | <i>Costs:</i> Not reported. <i>Quality and access to care:</i> Increase in fax- and telephone-based consultations for emergency events, no change in emergency use and admissions, increase in use of community-based services. |
| Janevic et al., (2018) Philadelphia, Pennsylvania, U.S. | Yes We Can (Medicaid Asthma Care Program), Children's Hospital of Philadelphia. | <i>Costs:</i> Not reported. <i>Quality and access to care:</i> No change in asthma-related hospitalizations, reduction in emergency department use. |
| Kelleher et al., (2015) Columbus, Ohio, U.S. | Partners for Kids (PFK), Accountable Care Organization | <i>Costs:</i> Reduced per-member-per-month costs. <i>Quality and access to care:</i> Increase in the number of well-child visits, reduction in |

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| | | neonatal intensive care unit days. |
| Kurtzman et al., (2015) Maryland, U.S. | Community Care Team (CCT), (in-home medication management, chronic disease education, and connecting to specialty and community providers to reduce readmissions). | Illustrates the important role that health I.T., managerial systems, new processes, and hospital culture play in developing population health business models, e.g. ACOs. Hospital infrastructure should be supported by leaders and staff who are held accountable for community initiatives and communicate transparently with external partners. |
| Qian et al., (2017) Hangzhou, Zhejiang Province, China | Joint Health Center (JHC; 4 tertiary hospitals, 46 community health centers). | <i>Costs:</i> Increased costs of community-based care; no change in hospital and outpatient care costs. <i>Quality and access to care:</i> Not reported. |
| Shaw et al., (2017) London, England, U.K. | Large, urban acute care hospital and surrounding social services. | Ethnographic case study yielded the following recommendations for implementation: efforts to promote integrated care should include institutional entrepreneurs and emphasize relationship-building among health and social care providers. |
| Smith et al., (2019) London, England, U.K. | North West London (qualitative assessment of implementation). | Commissioning of care has significant limitations in enabling large-scale change in health services, particularly in engaging providers, and supporting implementation. |
| Stocker et al., (2017) England, U.K. | Care home ‘vanguards’ (pre-implementation qualitative assessment within a Clinical Commissioning Group). | Stakeholders emphasized the importance of (1) understanding the proposed changes, (2) communication, (3) evaluation of outcome measures of success, and (4) trust and complexity. |

Appendix D: Detailed Infrastructure and Model Implementation in One Hospital-as-Hub Model in England

Northumbria Healthcare NHS Foundation Trust, England

| Structures | |
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| What organization/Institution is at the hub of the model? | Northumbria Healthcare NHS Foundation Trust (NHFT) has taken the lead organizational role |
| What is the vision, mission, aim of the model? | The five-year vision: “Providing seamless high-quality care for the people of Northumberland. Empowering our communities to live long and healthy lives at home” (p. 2) The model aims to develop a “primary and acute care system (PACS) including community, mental health and social care; and underpinned by joint venture arrangements with primary care” (p. 5) |
| How do the partners connect to the hub (and other spokes)? Describe the nature of the relationships between the organizations. | Partnership agreements and delegated authority (e.g. NHFT manages adult social care services on behalf of Northumberland County Council). The nature of the PACS partnership is difficult to assess. The Expression of Interest form (to become a PACS vanguard) states that the “PACS offers all organizations within this partnership a more formal, structural vehicle to proceed with its vision and provides opportunities for national expert input into the model” (p. 6) NHFT has also established Northumbria Primary Care (NPC) Ltd, which manages 7 GP practices (across 12 sites) (of a total of 44 GP practices in the CCG area) |
| Who are the partners (“spokes”)? | <ul style="list-style-type: none"> • Northumberland Clinical Commissioning Group (CCG) is the direct partner Further partners: <ul style="list-style-type: none"> • Healthwatch Northumberland • Northumberland County Council • Northumberland Primary Care Practices • Northumberland Tyne and Wear NHS Foundation Trust |
| Describe the scope of the model. E.g., what services are offered? Who is covered? | Provision of acute, community and social care services are led through a single agency, Northumbria Healthcare NHS Foundation Trust (NHFT), delivered from 11 sites, this includes: the newly established specialist emergency care hospital; 3 general hospitals; 4 community hospitals; 1 integrated health and social care facility; 1 elderly care unit ; 1 outpatient and diagnostic centre; and sexual health centres. NHFT provides: Emergency and urgent care services including emergency surgery; Planned and on-going care and rehabilitation; Outpatient clinics in a range of conditions; Elective surgery; Diagnostic services; Maternity services; Children’s services; End of life care; Therapies including physio, occupational and speech and language; Community services such as district nursing and health promotion; Adult social care in Northumberland. Mental health services to be incorporated |
| Financing | |

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| Describe the funding model. Is funding tied to outcomes? If yes, how so? | NHS commissioning and budgeting. Currently funding is not tied to outcomes but there are plans to do so. |
| Is there any shared savings arrangement between H&S? | No |
| Implementation | Described in text. |
| Describe the engagement strategy for initiating and sustaining partnerships. | Unclear |
| Outcomes and evaluation | |
| Has there been an evaluation conducted? If so, how were they designed, what did they seek to assess, and what did they find. | <p>Part of a wider evaluation of vanguard programme in the north east of England</p> <p>Evaluation used qualitative and quantitative approaches to understand the implementation of the new care models programme, involving (i) a review of local documentation and semi-structured interviews with key stakeholders to identify 30 organizational and technological enablers for implementation; (ii) an economic evaluation; and (iii) a synthesis to identify key messages for shared learning across 5 vanguards</p> <p>The qualitative findings are difficult to disentangle as they build on interviews and documentation across all 5 vanguards. The one quantitative evaluation found that the PACS vanguard saw an increase in A&E attendances and non-elective admissions for the Northumberland CCG population; this resulted in increased costs following the introduction of the care model</p> |
| Describe other efforts to monitor impact. | Internal evaluation not available |

Appendix E: Detailed Infrastructure and Model Implementation in Integrated Care Models in the US

E1: Multi-hospital systems with hospitals as spokes

Willis-Knighton Health System

This organization is an H&S example of a rural multi-hospital H&S with hospitals as spokes. The model is based on a tertiary hospital serving as the hub with spokes that are primarily other rural hospitals that do not provide the scope of services available at the hub. Patients who need more advanced services at the spokes get referred or transported to the hub for such care. The services provided are extensive and comprehensive along the care continuum but focus on medical and long-term care rather than provision of mental health and substance use disorder care or social services.

| Structures | |
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| What organization/Institution is at the hub of the model? | Willis-Knighton Health System (WKHS). Willis-Kington Medical Center is the hub and home to tertiary services such as the Willis-Knighton Cancer Center and Willis-Knighton Heart & Vascular Institute. It is also home to WK's corporate offices. The specialty centers focus on advanced healthcare services, including Cancer Center, Proton Therapy Center, Heart & Vascular Institute, Transplant Center, Hyperbaric & Wound Care Center and Eye Institute. |
| What is the vision, mission, aim of the model? | Mission: "To continuously improve the health and well-being of the people we serve." "Willis-Knighton's past is closely tied to those of its friends and neighbors and so is the health system's future. Willis-Knighton is a locally-owned, locally-operated healthcare organization dedicated to caring for the people in our community and investing in their health and wellness. The health system's growth is a result of consistently responding to community needs, a mission it will continue well into the future." |
| How do the partners connect to the hub (and other spokes)? Describe the nature of the relationships between the organizations. | WK owns 5 satellite campuses, a variety of self-owned specialty centers and nursing clinics including a retirement community with 3 residential levels: independent, assisted, and skilled nursing. It has established an academic partnership with Louisiana State University School of Medicine in Shreveport. This provides WK with student doctors, while in return students have access to facilities, technology, and the patient population. |
| Who are the partners ("spokes")? | North: Willis-Knighton Medical Center. This flagship location is home to tertiary services such as the Willis-Knighton Cancer Center and Willis-Knighton Heart & Vascular Institute. It is also home to WK's corporate offices. South: Willis-Knighton South & the Center for Women's Health. This was Louisiana's first satellite hospital and today focuses on adult and pediatric care, with an emphasis on women's health, including birthing services, and pediatric subspecialties. Bossier: WK Bossier Health Center. This is the only full-service hospital in one of Louisiana's fastest-growing parishes. It focuses on emergency care, orthopedic care, cardiovascular care and birthing services. Pierremont: WK Pierremont Health Center. This towering hospital serves the fast-growing area of southeast Shreveport with a range of adult care with specialized expertise in its inpatient stroke unit, geriatric care and birthing services. The WK Rehabilitation Institute offers inpatient care for both physical and behavioral rehabilitation. It is also home to the health system's outpatient dialysis service. WK Progressive Care Center and Health Center at Live Oak provide skilled nursing care. WK Extended Care Center offers provides subacute care. |

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| | <p>The Oaks of Louisiana is a long-term residential center in the community that offers three residential levels: independent living, assisted living and skilled nursing (tastefully designed rooms complemented by the kind of nursing and short-term rehabilitation). Five locations offer urgent care (Pierremont, Bossier, Quick care south, Quick care Forbing, and Quick care kids. WK operates two community health clinics: Simpkin community health and education center-MLK and WK Community Health & Wellness Center – Allendale</p> <p>Four locations (Pierremont, Bossier, the hub, and South locations) offer fitness and wellness centers.</p> <p>The previous site for Bossier has been converted to an innovation center that include the Talbot medical museum, a virtual hospital used to train nursing students and employee training.</p> <p>WK also operates an Ambulance Transport service and offers emergency air transport. Life Air Rescue, a private company, is located in WK hub but it is not clear if this a contract or ownership arrangement.</p> <p>The health system provides cooperative support for neighboring hospitals, each an autonomous organization that takes advantage of the benefits of tertiary services and purchasing contracts offered by Willis-Knighton. These include North Caddo Medical Center in Vivian, DeSoto Regional Health System in Mansfield, Minden Medical Center in Minden, Springhill Medical Center in Springhill.</p> |
| Describe the scope of the model. E.g., what services are offered? Who is covered? | <p>WK offers medical services only. It doesn't partner with community organizations but instead offers comprehensive hospital and outpatient services, as well as the skilled nursing and retirement facility.</p> <p>This is designed to cover the local community's secondary and tertiary care needs rather than prevent them. Services are largely limited to acute hospital and outpatient facilities.</p> <p>WK's service provision also includes some preventive measures operated by WK itself, such as tobacco treatment, occupational health, and physical fitness.</p> <p>WK is a nongovernmental, not-for-profit healthcare provider serving the entire community. Their population demographics are mostly white, non-Latino, ages 35-64, 20% living in poverty, and 5.7% to 7.3% are unemployed.</p> |
| Describe how the partner connects to the hub (and other spokes)? | <p>WK primarily owns its spokes, with the exception of the LSU Shreveport medical school partnership and the contractual work taken up by North Caddo, DeSoto, Minden, and Springhill medical centers. WK offers contracts to these hospitals to provide services off-site.</p> <p>DeSoto is a small health system including a small (34 bed hospital) and 3 rural health clinics.</p> <p>WK facilitates transportation for patients with needs too complex for rural care.</p> <p>The clinics are connected to general practices which together form a fractal relationship of several levels of hub and spoke design. The DeSoto model was later expanded to North Caddo and Springhill sites.</p> |
| Governance, accountability | |
| What is the formal mechanism that connects the hospital with the partners? (E.g., contracts, MOU) | <p>Full ownership for all partners except North Caddo, DeSoto, Minden and Springhill.</p> <p>The DeSoto link is explored in Elrod (2017) as a form of collaboration in which the hospital and community retained ownership of the facility. This relationship entailed WK funding infrastructural improvements and provided "managerial leadership" for which DeSoto would function as a satellite (spoke) but retain ownership of the hospital, maintaining a separate identity.</p> <p>This model was replicated in the North Caddo and Springhill sites.</p> |

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| What are the mechanisms for enforcement? | Financial details are not disclosed. |
| Was there any regulatory change or waiver granted to allow for H&S model, and if so, describe/name the regulation/waiver. | The Patient Protection and Affordable Care Act required the WK Health System to provide a Community Health Needs Assessment (CHNA) in 2016. While this is unlikely to be the reason for the hub and spoke model, it facilitated ongoing community engagement, and potentially provided the platform for future spokes. In a press release, WK identified a need for a new urgent care location, as well as intentions to identify screening programs across their community. This also extends to a mobile consult unit to improve mental health access. |
| Financing | |
| Describe the funding model, including how/if funds are allocated to the hub, and other spokes in the model (e.g. budget, fee-for-service) | As a community hospital, WK receiving reimbursement for its services from public and private payers. Hospitals also receive additional payments from Medicare and Medicaid for providing care to uninsured patients. No data is reported on the payer mix on their website. |
| Is funding tied to outcomes? If yes, how so? | Unknown, but likely from Medicare particularly but also private payers. Most hospitals are now accountable for their performance and outcomes to CMS or private insurance. |
| Is there any shared savings arrangement between H&S? | Unknown. Given the ownership model, shared savings should benefit hub and spokes. The most significant savings are likely due to efficiency. These are intended to reduce service duplication, increase the size and scope of economies of scale, and deliver care where possible in smaller locations with lower overheads. Centralization is an important concept for the WK hub and spoke model as all resources including staff, materials, and finances are concentrated at the main campus hub and dispensed to spokes when and where necessary. |
| Implementation | |
| Describe the engagement strategy for initiating and sustaining partnerships. | Not applicable for most spokes. There is no direct information on how WK has identified or engaged specific spokes. But WK continuously conducts gap analyses through a central risk assessment program based at the hub. This identifies emerging markets and how WK plans to enter that market. |
| Are there opportunities to adapt and evolve as local needs change? If so, describe. | Yes, local needs are at the center of the hub and spoke model in terms of identifying potential markets for entry. The health system focuses its resources predominantly on where it can provide the most services. This occurs both through developing new satellite sites and through redistributing resources. The hub and spoke model uses the relationship between the spokes and the hub as a method of quickly establishing capacity for service delivery. If the hub is facing slower service delivery periods, it can redirect resources from the hub to a spoke with resource requirements as a result of growing demand. |
| Describe the level of effort and length of time to get off the ground and operating effectively? | WK was founded in 1924 as Tri-State Sanitarium before being sold in 1929 to Drs Willis and Knighton. It transitioned to a not-for-profit hospital in 1949 and became the Willis-Knighton health system a year later. In the 1970's, the hospital began to increase its reach and a large increase in patient population facilitated growth to multiple facilities. This began its satellite program and the basis for the H&S model employed by WK Health System. |
| Outcomes and evaluation | |

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| Has there been an evaluation conducted? Describe | Two case studies/profiles have been conducted. (Elrod and Fortenberry, 2017a,b) |
| Describe other efforts to monitor impact. | There are likely many internal evaluation resources available to WK health system. |

Citations

Elrod & Fortenberry (2017). The hub-and-spoke organization design: an avenue for serving patients well. *BMC Health Services Research*.
<https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-017-2341-x>

Elrod & Fortenberry (2017). The hub-and-spoke organization design revisited: a lifeline for rural hospitals.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5751794/>

Willis-Knighton website: <https://www.wkhs.com/about>

Willis-Knighton/DeSoto link: <https://www.beckershospitalreview.com/hospital-transactions-and-valuation/willis-knighton-to-operate-desoto-regional-health-system.html>

Demographics: https://www.wkhs.com/docs/default-source/community-health-needs-assessment/wkmc.pdf?sfvrsn=b724e691_4

Article of incorporation: https://wkhs.com/docs/default-source/by-laws/wkhsbylawswebdocument.pdf?sfvrsn=6b23e691_2

Bon Secours Mercy Health

This hospital is part of the Bon Secours Health System, a Catholic multihospital chain operating in multiple states. Bon Secours Mercy Health (BSMH) is located in Maryland, a state that reimburses hospitals using global budgets and instituted to control hospital use and spending and to promote value-based payment. BSMH is the hub with about 20 hospitals as spokes but also has a diverse array of an estimated 1,000 associated sites and partners. These include charitably supported spokes that are community health programs such as farmers markets, affordable housing projects, cooking lessons, and fitness classes.

| Structures | |
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| What organization/Institution is at the hub of the model? | Bon Secours Mercy Health (BSMH) |
| What is the vision, mission, aim of the model? | <p>"Extends the compassionate ministry of Jesus by improving the health and well-being of our communities and brings good help to those in need, especially people who are poor, dying and underserved."</p> <p>Five core values:</p> <p>Human Dignity: "We commit to uphold the sacredness of life and to be respectful and inclusive of everyone."</p> <p>Integrity: "We commit to act ethically and to model right relationships in all of our individual and organizational encounters."</p> <p>Compassion: "We commit to accompany those we serve with mercy and tenderness, recognizing that "being with" is as important as "doing for.""</p> <p>Stewardship: "We commit to promote the responsible use of all human and financial resources, including Earth itself."</p> <p>Service: "We commit to provide the highest quality in every dimension of our ministry."¹</p> |

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| <p>How do the partners connect to the hub (and other spokes)? Describe the nature of the relationships between the organizations.</p> | <p>Bon Secours (MD) and Mercy (OH) merged to form Bon Secours Mercy Health in 2018. The system may be worth considering as two separate hubs tied together on relatively equal footing, each with spokes radiating out from Maryland and Cincinnati respectively. Media reports have emphasized the ‘equal’ nature of the relationship.² BS operates out of Baltimore, MD as the central hub, with hospitals in Ashland KY, Greenville SC, Hampton Roads VA, Richmond VA, and St Petersburg FL. Mercy operates out of Cincinnati, with 23 hospitals across Ohio and Kentucky. These are care delivery spokes of varying size to the central hub.</p> |
| <p>Who are the partners (“spokes”)?</p> | <p>There is very little comprehensive information about BSMH since the merger. Their website lists 43 hospitals over 7 states, 23 of which are Mercy’s and 20 of which are Bon Secours. This does not include the variety of clinics, aged care facilities, and other spokes that function as externally connected care sites. There are over 1,000 associated care sites each for Mercy Health and Bon Secours, including fitness centers, rehabilitation clinics, specialist outpatient facilities, and family practices. These are all wholly owned subsidiaries of BSMH. Unfortunately there are no annual reports, either of community engagement or associated spokes, after 2016. From the annual reports in 2016 and prior, there is an extremely wide variety of charitably supported spokes that all function to improve patient health. These include community health programs such as farmers markets, affordable housing projects, cooking lessons, fitness classes, health screenings, immunizations, and others. The Innovation Institute is an associated spoke that serves as an incubation lab for health care innovation. BSM is a joint owner along with several other health systems.³ BSMH has also partnered with Ohio State University to launch the Healthy State Alliance to focus on community health outcomes.⁴ This is not an exhaustive list – the affiliations and links between both central hubs and their spokes have been muddled since the merger. More information will likely be available in the coming years as both sets of operations become more integrated.</p> |
| <p>Describe the scope of the model. E.g., what services are offered? Who is covered?</p> | <p>In terms of community outreach, the services offered are mostly primary preventive models such as cooking lessons, housing, and physical fitness. These are provided through both BSMH-owned operations, such as gyms, and charitably sponsored events such as farmers markets. In terms of service provision, the model includes every component of the care spectrum. This includes primary preventive (e.g. gymnasiums) services, family practice, specialist outpatient and ambulatory procedures, acute services, and skilled nursing facilities. It is unclear how these services are coordinated, but BSMH appears to provide an integrated service network to coordinate shared data, payment processing, and patient populations. This is illustrated by the recent partnership with Premier Inc, a data analytics and warehousing company.⁵</p> |
| <p>Describe how the partner connects to the hub (and other spokes)?</p> | <p>There are three ways by which BSMH appears to attach to its spokes – charitable donations, through which it promotes community health, wholly or partly owned services, and service agreements with external entities. Charitable donations help fund programs that address both social determinants, such as housing and food availability, and more direct health service provision such as vaccinations. Wholly and partly owned services take the form of either wholly owned subsidiaries, such as payment service division Ensemble and other health clubs, or complete BSMH-owned and branded providers such as the Mercy Vascular Center.</p> |

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| | The only service delivery that appears to be shared between BSMH and another organization is the Healthy State Alliance, which, similar to the Innovation Institute, is a part-owned model between BSMH and another organization or group. In this case it is through Ohio State University although there may be other examples that did not turn up in a search. |
| Governance and accountability | |
| What is the formal mechanism that connects the hospital with the partners? (E.g., contracts, MOU) | BSMH is mostly connected to its spokes through ownership. It either develops or purchases providers that deliver services, but under the BSMH brand. This has the advantages detailed previously of data sharing, patient management, etc. Given the recent history of acquisitions it seems that the BSMH model is to acquire spokes, rebrand, and seek to broaden the network through these acquisitions. Where mergers are not possible, such as with Ohio State University, a partnership is sought. |
| What are the mechanisms for enforcement? | This is mostly unclear. In the case of ownership models there is no enforcement required, but in charitable cases or partnerships the most likely scenario is that poorly delivered services would entail legal action to seek reimbursement followed by a change in partners for future operations. |
| Was there any regulatory change or waiver granted to allow for H&S model, and if so, describe/name the regulation/waiver. | There were no regulatory changes mentioned in any literature on BSMH, but the large scale mergers and acquisitions of the system are to be expected in the current US health care climate. Post-Affordable Care Act (ACA), mergers and acquisitions have continued rapidly and the Bon Secours/Mercy merger was likely a product of this legislative environment. ⁶ |
| Financing | |
| Describe the funding model, including how/if funds are allocated to the hub, and other spokes in the model (e.g. budget, fee-for-service) | This model is horizontally and vertically integrated across similar providers and different care modalities, but the payment system appears to be similar to most other US providers. Namely, insurance, Medicare, and Medicaid, and the reimbursement models that come with each. More information is required here but there seems to be little difference between BSMH and any other hospital system. There are passing references to Federally Qualified Health Centers (FQHCs) under the BSMH banner. Many hospitals in US own and operate these primary care clinics that receive set payments from the federal government to provide care to low-income and uninsured population regardless of ability to pay. They also receive a bundled FFS payment that is risk adjusted. |
| Is funding tied to outcomes? If yes, how so? | Funding is tied to outcomes increasingly across the US in the post-ACA environment, but not specifically for BSMH as it may be for other hub and spoke models. There are no relationships between hub and spokes as there are in other models to prevent, for example, 30/90 day readmissions. This is despite the payment structure in Maryland, where a BSMH hub is expected to tie outcomes to reimbursement. ⁷ It is possible that the multi-state setup of BSMH limits the ability of its different hubs and spokes to fit the local climate. |
| Is there any shared savings arrangement between H&S? | Shared savings are sought through several avenues. These include economies of scale, where a greater patient volume can deliver services at a lower cost-per-patient, and improved information sharing. By increasing the health service delivery scope, BSMH can potentially include more patients in its catchment areas. By increasing integration, it can improve its capacity for analytics to seek out cost savings where they may occur and translate these to the wider hub and spoke system. |
| Implementation | |

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| Describe the engagement strategy for initiating and sustaining partnerships. | The engagement is described above broadly but specifics are not clear. BSMH appears to take different strategies based on whether the venture is charitable or not. Charitable donations and partnerships likely follow a community needs assessment model that addresses social determinants. This can be seen through the housing, nutrition, and access to primary preventive care side of the BSMH system. Non-charitable partnerships appear limited to the Ohio State University relationship. |
| Are there opportunities to adapt and evolve as local needs change? If so, describe. | There is no obvious strategy for this tying the BSMH approach together. This is in part due to the scope of the model, which encompasses 7 states. Local contexts are likely too specific to create any kind of specific approach. |
| Describe the level of effort and length of time to get off the ground and operating effectively? | Bon Secours and Mercy Health were both large Catholic healthcare providers prior to the merger. The merger was several years in the making and was finalized in 2018, but the information and clarity around the BSMH system since the merger is weak. This implies that the system is not completely off the ground nor operating effectively as an integrated H&S model. |
| Outcomes and evaluations | |
| Has there been an evaluation conducted. Describe | No evaluations are available to date. |
| If no evaluations, why not? Are there plans to conduct evaluations? | Deloitte is engaged to integrate the two health systems post-merger. This would likely consist of several bodies of work including an evaluation, though any such report may be confidential and only available in broad strokes based on what BSMH chooses to distribute. |
| Describe other efforts to monitor impact. | None identified. |

Citations

¹ <https://bsmhealth.org/mission-values/>

² <https://www.healthleadersmedia.com/strategy/post-merger-bon-secours-mercy-health-names-14-senior-leaders>

³ <https://www.chausa.org/publications/catholic-health-world/article/november-1-2018/bon-secours-mercy-health-executives-sponsors-work-to-forge-unified-culture>

⁴ <https://wexnermedical.osu.edu/mediaroom/pressreleaselisting/healthy-state-alliance>

⁵ <https://www.businesswire.com/news/home/20190211005447/en/Bon-Secours-Mercy-Health-Partners-Premier-Clinical>

⁶ <https://journals.sagepub.com/doi/full/10.1177/1073110518821989>

⁷ <https://www.ajmc.com/newsroom/maryland-allpayer-hospital-model-reduces-costs-lowers-readmissions>

<https://bonsecours.com/baltimore/for-employees/clinical-transformation>

Adventist Health Care Washington Adventist Hospital

Adventist is a two-hospital health system in Maryland, a state that uses a global budgeting prospective payment system and a single rate per service regardless of insurance status. An examination of the main website for this organization indicates a new hospital “White Oak Medical Center” will be operating as of 2019. The H&S model used by Adventist is a network model and was examined in a detailed analyses by Brookings in September 2015. This comprehensive review was the source of the information provided below. The spokes include partners such as faith-based community nurses and a prescription food program implemented in association with a farmer’s market.

| Structures | |
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| What organization/Institution is at the hub of the model? | Washington Adventist Hospital (WAH) |
| What is the vision, mission, aim of the model? | To “demonstrate God’s care by improving the health of people and communities through a ministry of physical, mental, and spiritual healing.” |
| How do the partners connect to the hub (and other spokes)? Describe the nature of the relationships between the organizations. | Non-contractual agreements with religious organizations; grant funding for joint implementation; contractual agreements with non-profits and for-profits for services provision |
| Who are the partners (“spokes”)? | <ul style="list-style-type: none"> • Structured Employment Economic Development Corporation (SEEDCO) • Integrated Health Services Department – Family Services Inc. (Carelink) • CCI Health and Wellness Services (FQHC) • Walgreens 340b Drug Program • Prescription Produce Program – Long Branch Health Enterprise Zone • Montgomery County EMS • Medicare Quality Innovation Network – Quality Improvement Organization (QIN-QIO) • Churches; Faith Community Nurses • Center for Health Equity and Wellness |
| Describe the scope of the model. E.g., what services are offered? Who is covered? | <p>Respectively from above:</p> <ul style="list-style-type: none"> • Employment assistance and benefit program • Hospital to home transition service for high readmission risk patients • Primary care delivery for uninsured (with shared EMR) • Discharge medication package • Prescription service for healthier food for diabetics • Home safety checks for low-income housing • Care transition and coordination for Medicare beneficiaries • Social support, behavioral change; volunteer nursing services for chronic illness • Tobacco cessation |
| Describe how the partner connects to the hub (and other spokes)? | Respectively from above: |

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| | <ul style="list-style-type: none"> • Hospital population health team uses online SEEDCO service, made available by SEEDCO to WAH staff; WAH then coordinates volunteers to screen patients for benefit eligibility. Relationship appears mutually beneficial and non-financial. • Referrals made to Carelink through the WAH behavioral health system; Carelink provides services and is reimbursed by WAH on a per patient basis. Relationship appears to be a contractual service provided to WAH by Carelink • CCI housed within hospital campus, similar to satellite clinic. Service provision is integrated within WAH although CCI is a separate entity. CCI treats referrals from WAH, supplemented with federal funds. Additional links with SEEDCO link these two spokes. • Walgreens provides discharge medications before patient leaves hospital. No additional information is provided on this relationship, although Walgreens appears to act as a preferred provider of medications for patients. This is likely non-financial between both organizations. • The hospital partners with Crossroads Farmers Market and Long Branch Health Enterprise Zone so the hospital staff can write a prescription for healthy foods. 12 vendors in the community participate in this arrangement. The budget includes the federal food funding. Hospital staff write the prescription, and the patient is directed to a market. Patients then pay for the produce out of pocket, although low-income residents can then be matched to a federal or private fund on a case-by-case basis. • WAH refers patients to County EMS; EMS sends results to hospital; both cooperate to fix issue. This appears to be an informal relationship based on needs assessment. • Joint application of quality improvement tools. This relationship appears to link WAH to other organizations that provide services funded by Medicare. The relationship seems informal, designed to use available federal Medicare tools and apply them effectively. • Religious hospital network affiliation with local churches. Volunteer based program links nurses and other practitioners with religious organizations to provide a link between WAH and the place of worship of its patients with greater needs. The religious link is established in hospital during a stay and used to coordinate the church's support, among others. • Grant-funded program houses cessation coaches on-site. This pays for cessation coaching and WAH supplies the space on-site in return. |
| Governance, accountability | |
| What is the formal mechanism that connects the hospital with the partners? | Details of contractual stipulations are not publicly available. |
| Was there any regulatory change or waiver granted to allow for H&S model, and if so, describe/name the regulation/waiver. | ACA requires a Community Health Needs Assessment (CHNA) every 3 years and provides a provider payment system that facilitates coordinated care. Hospital reimbursement is determined by population-based, performance-centric measures rather than number of services. Higher quality service delivery (e.g. through lower readmission rates) leads to better reimbursement. |
| Financing | |

| | |
|---|---|
| Describe the funding model, including how/if funds are allocated to the hub, and other spokes in the model (e.g. budget, fee-for-service) | As above, global budget funding model supports coordinated care delivery. Hospital is at liberty to invest in whatever way best achieves this goal. Most relationships appear mutually beneficial, informal, and non-financial, with the exception of Carelink and CCI. These informal relationships are likely supported by the funding model that WAH uses to prioritize community engagement, receiving payment as part of its treatment of patients in the long-term community model. |
| Is funding tied to outcomes? If yes, how so? | <p>Yes – see above. Readmissions the only outcome visible currently but further investigation can confirm this. WAH is reimbursed based on its long-term patient outcomes. How it chooses to achieve these outcomes, presumably including readmissions, representations, and other similar metrics, is up to the hospital. This allows a broad scope of innovation to occur to meet these goals. As a result, the hospital has found contractual agreements where necessary, and informal agreements where possible, to deliver an integrated care model with a community focus. This effectively reimburses the non-financial relationships as part of the patient’s overall funding from a state perspective.</p> <p>How private payers and public payers differ in this model is unclear, perhaps making Medicare and Medicaid beneficiaries more likely to receive these integrated services. This is also more likely as privately insured patients are potentially less likely to require these community based services.</p> |
| Is there any shared savings arrangement between H&S? | No |
| Implementation | |
| Describe the engagement strategy for initiating and sustaining partnerships. | Faith-based non-contractual services are available wherever possible. In any case, WAH identifies patient needs and partners meet the needs based on the funding and services included in the contract. The initiation process is likely determined within the hospital and branching out to achieve specific goals based on patient needs. For example, smoking cessation would likely reduce COPD readmissions, and the hospital then may have explored potential spoke relationships to achieve this goal, with grant or volunteer funding where possible. |
| Are there opportunities to adapt and evolve as local needs change? If so, describe. | Expanding the reach of spokes and continuing to address social determinants seems the most likely pathway |
| Describe the level of effort and length of time to get off the ground and operating effectively? | Not enough information |
| Outcomes and evaluations | |
| Has there been an evaluation conducted? | None yet, though the need for evaluation has been identified by external organization |
| Describe other efforts to monitor impact. | Shared data arrangements with partner organizations allows monitoring for opportunities and quality |

Citation

<https://www.brookings.edu/wp-content/uploads/2016/07/Hospitals-as-Hubs-to>Create-Health-Communities.pdf>

Two other examples of multi-hospital systems were identified and included below. These examples are not examined in-depth as they represent variations on the same themes as the previously described in-depth examples.

Northwestern Memorial Hospital

A large multihospital system, which operates a center for integrative medicine that is intended to integrate medical care with behavioral health, acupuncture, and chiropractic care.

Citation

<https://www.nm.org/conditions-and-care-areas/integrative-medicine>

Ohio Nationwide Children's Hospital

The hospital offers community-based services including home-based care, group therapies at schools, and youth support groups for at-risk youth.

Citation

<https://www.nationwidechildrens.org/specialties/behavioral-health/community-based-services>

E2: Integrated Delivery Systems

The primary example of such a system in the U.S. is Kaiser Permanente. It can be considered as hospitals as hubs but in Kaiser's model it is more complex with additional corporate layers and inclusive of an insurance mechanism and a physician entity.

Kaiser Permanente

Kaiser is unique, even in the US. A very big integrated care delivery system that incorporates hospitals, physicians, and the insurance mechanism. It is an ownership based model that originated in California but is now present in multiple states. In California alone, there are two Kaiser entities operating, Kaiser North and Kaiser South. There are multiple hospitals and each hospital has its own spokes that are clinics located in communities that surround the hospital. Kaiser consists of three entities: health plan, hospital, and physician group. Kaiser provides and invests in community services by providing grants and scholarships, organizing volunteer programs, and school-based programs.

Citation

<https://about.kaiserpermanente.org/>

E3: Accountable Care Organizations

The concept of ACO was introduced around the time of passage of the Affordable Care Act (ACA) in 2010. Medicare implemented several demonstrations of Medicare Shared Savings Plans to assess whether ACOs are viable models of care delivery and can reduce Medicare expenditures. Frequently ACOs are virtual organization with a lead entity that can be a hospital, medical group, or an insurer. When the lead entity is a hospital, the ACO is similar to a H&S models. In these ACOs the relationships are formalized in contractual relationships with clear delineation of upside (profits) and downside (losses) risk sharing. Following the Medicare demonstrations, other variations of private and public ACOs have emerged. UCLA ACO is an example of such a model.

UCLA ACO

UCLA is an academic hospital and one the five universities operated by Regents of the University of California. The system is private but has been heavily subsidized by state funds for many years, hence the hospital is a “designated public hospital”. This hospital is included in this report because it is an example of an academic organization that operates similar to an ACO using an ownership model.

| Structures | |
|--|---|
| What type of hospital is at the hub of the model? (private, public, academic) | UCLA Health System. It is an academic institution. UCLA has participated both in Medicare Shared Savings Plan ACOs and also has other private risk bearing contracts with some private insurance companies that is similar to private ACOs. The model is not structured like most other ACOs, when a number of organization came together and developed a new legal entity to be the ACO. In this case, UCLA is using its own providers and infrastructure primarily. UCLA has two ACO like PPO plans with about 45,000 lives with no downside risk. The health plans have an annual budget for their members and UCLA will get to keep what is not spent at the end of the year but will have no penalty. UCLA has one HMO “UC Blue and Gold” that has a downside risk. This plan is the UC system-wide self-insured product, which is administered by Health Net. |
| What is the vision, mission, aim of the model? | Apart from the academic mission, the hospital’s vision for moving in this direction is not to capture more patients in the hospital (by developing spokes) but their long term vision is to become a fully integrated system like Kaiser where the insurance, hospital, and physicians groups form a complete system of care. This is because they have realized that without the insurance entity, they bear the risk but don’t receive the savings. |
| How do the partners connect to the hub (and other spokes)? Describe the nature of the relationships between the organizations (e.g. direct funding, contracts, informal, formalized and in what capacity?) | The multi-specialty Faculty Group practice is joined at the hip with the hospital and is the risk-bearing entity similar to other medical groups that take on capitation under managed care. The hospital provides the needed funds for innovation and improvements such as the population health program. Effectively, the FG is a separate entity but it operates in concordance with the hospital. There are a few informal partners at the post hospitalization phase of care including skilled nursing facilities and home health agencies. There relationships are based on memoranda of understanding. |

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| Who are the partners (“spokes”)? | The multi-specialty FG is the primary spoke but it can be considered many spokes. It includes about 2,000 physicians spread across three large counties in Southern California. Several years ago, UCLA began to decentralize its FG to locations outside the two hospitals in the system within the communities that surround the two hospitals. Next, UCLA began to acquire primary care and specialty practices all over. These practices are owned by UCLA but their physicians are contracted. These physicians continue to provide care but under UCLA quality of care guidelines, use the same system-wide EMR, even the same look (staff have the same uniform blue top and black bottom). UCLA has a small ownership part of a single SNF but has a working relationship with more. UCLA doctors visit patients at these facilities to work on quality metrics and there is also data exchange. There are agreements with three home health agencies as part of a preferred network that UCLA will refer patients to. This is a big incentive for participation of HH agencies as the referral is valuable to them. UCLA can give SNFs performance reports at the provider level which is useful to these organizations as they don’t have these quality tools on their own. The original data comes from QROs through CMS but it is only at the facility level. UCLA is working with partners to standardize their notes in the medical record. |
| Describe the scope of the model. E.g., what services are offered? Who is covered? | <p>Primary care, specialty care, PT, pharmacy, urgent care, care-coordination, performance measurement, population health activities.</p> <p>UCLA used EPIC, a single EMR across community and hospital providers. One advantage of users of EPIC is that if the patients goes to another provider outside the system and provides consent, UCLA can access their medical records to capture that information.</p> <p>Care coordination provides the ability to coordinate care across providers in the system and refer if needed. It is a robust program that started a few years ago and has not expanded system-wide. It includes care coordinators, behavioral health specialists, and clinical pharmacists.</p> |
| Describe how the patients connects to the hub (and other spokes)? | Integrated delivery system. Patients go to the practices that they have always gone to. The providers may use community hospitals in their vicinity. However, since UCLA has the tertiary and quaternary hospitals, the chances are that the most complex cases still flow back to the hospital. Once the community practices are acquired all billing is centralized under the system so the process is seamless from patient perspective. |
| Governance, accountability | |
| What is the formal mechanism that connects the hospital with the partners? (E.g., contracts, MOU) | Ownership of community practices and contract with the physicians that previously owned these practices. The SNF and HH agencies partners have MOUs. |
| What are the mechanisms for enforcement (e.g., financial penalties for not meeting the terms of the agreement)? | Provider contracts has incentives and disincentives. The FG is the main risk bearing entity, so presumably all the financial incentives and disincentives are distributed down to FG members. The FG monitors provider performance |
| Was there any regulatory change or waiver granted to allow for H&S model, and if so, describe/name the regulation/waiver. | ACA has promoted growth of private ACOs even though it was not necessarily intended. |

| | |
|--|--|
| Financing | |
| Describe the funding model. | See above. The FG and hospital together have managed care and PPO contracts. |
| Is funding tied to outcomes (e.g., performance based funding, if they don't achieve baseline outcomes funding is affected)? If yes, how so? | See above. UCLA like other hospitals participates in many programs including CMS efforts to improve the quality of care and they include both incentives and penalties. All these programs impact funding to contracted and FG spokes. |
| Is there any shared savings arrangement between H&S? | See above. |
| Implementation | |
| Describe the engagement strategy for initiating and sustaining partnerships. | Expansion of the system by acquiring practices. No detail on how these practices are approached. Not enough information on how the SNFs and HH agencies were engaged. UCLA may have been approached rather than doing the approaching. |
| Are there opportunities to adapt and evolve as local needs change? If so, describe. Is there flexibility to modify or adapt aspects of partnerships? | Yes, most likely. The system has been responding to the smaller changes in the marketplace (competing with other local hospitals who are following the same expansion model) and very broad national trend of moving towards value-based care. |
| Describe the level of effort and length of time to get off the ground and operating effectively? | The level of effort must have been extensive as the number of practices that are acquired is high. All these practices have to change to UCLA in look and function. UCLA tries to keep the 'brand' constant. |
| Outcomes and evaluation | |
| Has there been an evaluation conducted? If so, how were they designed, what did they seek to assess, and what did they find. | No, but there are papers published by the FG that describe various accomplishments. |
| If no evaluations, why not? Are there plans to conduct evaluations? | Unknown and unlikely. |
| Describe other efforts to monitor impact. | UCLA undergoes significant internal monitoring and has a robust quality improvement program that is extended to the spokes including the SNFs and HHAs. |

Note: Most data comes from an interview with a representative of UCLA ACO conducted on 4/9/19

Citations

<https://www.youtube.com/watch?v=CaUnQ2eRGCw>

<https://www.ncbi.nlm.nih.gov/pubmed/26287920>

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<https://www.ncbi.nlm.nih.gov/pubmed/26618365>

<https://www.ncbi.nlm.nih.gov/pubmed/28811089>

Cedars-Sinai ACO

This hospital is also a tertiary and quaternary hospital similar to UCLA. It is privately-owned but has academic ties. It uses a similar approach to UCLA in forming its CEO and operates in similar market conditions and same city as UCLA. The template is not completed as it is similar.

Citations

<https://www.cedars-sinai.edu/Patients/Patient-and-Visitor-Resources/Cedars-Sinai-ACO-Public-Reporting-Requirements.aspx>

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<https://www.beckershospitalreview.com/accountable-care-organizations/cedars-sinai-caremore-health-to-coordinate-care-for-seniors-in-la.html>

E4: Accountable Care Communities

There are not many examples of these types of organization. Only one such arrangement is identified and explained briefly.

Santa Clara Valley Health and Hospital System (SCVHHS)

This is an example of an accountable care community, where different providers form partnerships to address social determinant of health (see citation below).

Santa Clara Valley Health and Hospital System participates in the Whole Person Care (WPC) Pilot program in California. The hospital is the lead entity under the current Medicaid 1115 pilot called “Medi-Cal 2020”. The pilot is intended to address the needs of high utilizer populations in a given county by addressing the needs of these patients including addressing mental health, substance use disorder, housing, and other social service needs as they choose. The hospital is county owned and operated and is considered a safety net provider. These hospitals provide care to the majority of the low-income and uninsured patients in their county and operate under budgets allocated by the county from local taxes but also receive payments from Medicare, Medicaid, and private payers.

Under the WPC, the hospital has formed contractual partnerships with community-based providers to provide non-medical services such as housing assistance, sobering centers, and peer support. The hospital coordinates the care of each enrollee and refers them to the partners as needed. Significant health information infrastructure is developed to share data with partners. The program is a five year demonstration and it is not clear whether it will be sustained as a follow-up waiver is not anticipated.

The WPC program is being independently evaluated but the final results are not available till the end of the program. The hospital may be conducting a self-evaluation.

Citations

Main home page: <https://www.scvmc.org/Pages/home.aspx>

Overview of the WPC program: <https://www.dhcs.ca.gov/services/pages/wholepersoncarepilots.aspx>

Application for WPC: <https://www.dhcs.ca.gov/provgovpart/Documents/SantaClaraWPCApplication.pdf>

Brief pilot description: <http://caph.org/wp-content/uploads/2018/07/santa-clara-wpc-pilot-7.12.2018.pdf>

Brief pilot description https://harbageconsulting.com/wp-content/uploads/2017/02/WPC-Summary_Final_02282017.pdf

Hospital self-report to the state on progress:

https://www.dhcs.ca.gov/services/Documents/MCQMD/WPC%20Narrative%20Reports/Santa_Clara_2017_Annual_Narrative_Report.pdf

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