HSPRN
health system performance research network

MAKING WAY FOR INTEGRATED ACCOUNTABLE CARE IN ONTARIO: ENABLERS & CHALLENGES OF IMPLEMENTATION

Farmanova, E.
Abdelhalim, R.
Wallar, L.E.
Wodchis, W.P.

Release Date: August 2019

ACKNOWLEDGEMENTS

The Health System Performance Research Network (HSPRN) is a multi-university and multi-institutional network of researchers who work closely with policy and provider decision makers to find ways to better manage the health system. The HSPRN receives funding from the Ontario Ministry of Health and Long-Term Care. The views expressed here are those of the authors with no endorsement from the Ministry of Health and Long-Term Care or from the Ministry of Community and Social Services.

This project was funded by the Province of Ontario through their research grants program.

Competing Interests: The authors declare that they have no competing interests.

Cite as:

> Farmanova E, Abdelhalim R, Wallar LE, Wodchis WP. Making Way for Integrated Accountable Care in Ontario: Enablers and Challenges of Implementation. Toronto: Health System Performance Research Network; 2019.

This report is available at the HSPRN website, http://hsprn.ca.

For inquiries, comments, and corrections please email info@hsprn.ca.

TABLE OF CONTENTS

ABSTRACT

The purpose of this report is to support policy makers, payers, and health organizations who are considering implementation of an accountable care system (ACS) in Ontario to address persistent issues of rising costs and quality and fragmentation of care. We undertook a rapid review of the literature to better understand the scale and scope of organizational changes that may be required, the challenges that might be experienced, and potential policy and regulatory considerations that may be necessary for Ontario to build an accountable and integrated care system. This report expands on recent examinations of the component features and evidence of performance of accountable and integrated care organizations in countries around the world.

In this report, we broadly consider an ACS as an integrated system of care where patients are actively involved in the design and process of care and services, and providers are remunerated based on the value of care and services they provide to their patients. An essential element of all ACSs is strengthening primary health care and improving the interface between primary care and other providers across the continuum of care. ACSs differ in their approach to care integration, governance structures, contracting models, funding and payment mechanisms, incentives, target populations, interventions, and level of engagement with patients and communities. The importance of locally specific factors is particularly apparent in successful implementation of accountable care in the international context. In many international cases, the emphasis is placed on prevention and a social support system. ACSs fund providers across health care settings and across health and social care, providing different incentives to maintain and improve health by improving care quality.

Although diverse and context-driven, ACSs experienced common challenges and were also supported by a set of key enablers. Common challenges were: 1) Improving population health; 2) Embracing a value-based philosophy of care; 3) Addressing the lack of information technology and timely data; 4) Addressing population assignment and patient engagement; 5) Shifting to a value-based payment system; and 6) Sustaining accountable care over time. Three key enablers were: 1) Aligning public health and social care interventions with delivery system redesign; 2) Introducing supportive policies at a macro-level; and 3) Leveraging strengths, knowledge and experience. While not explicitly discussed in many articles, trust is an essential underpinning element of successful collaboration to deliver better and more integrated care in the context of complex multi-organizational systems. Therefore, we highlight trust as a key enabler of successful implementation of accountable care in Ontario.

Considering ACSs as a philosophy of care with diverse implementation approaches rather than as a fixed model is important when considering the applicability of ACSs to Ontario, given that the development, implementation, and success of ACSs is variable and strongly dependent on context. It is the underlying philosophy of integrated and accountable care that can be transferred between health systems with each system determining the best organizational structure that can support accountable care in a specific context. In light of these findings, we used a strength-based approach to highlight the opportunities that exist in the Ontario health system to support the philosophy of accountable care, considering how international challenges and enablers relate to Ontario. While ACS are not a panacea for short-term financial gain, development of these models is an important step toward a more integrated and population-based health-oriented system of care.

EXECUTIVE SUMMARY

BACKGROUND

The purpose of this report is to support policy makers, payers, and health organizations who are considering implementation of an accountable care system (ACS) in Ontario to address persistent issues of rising costs and quality and fragmentation of care. We undertook a rapid review of the literature to better understand the scale and scope of organizational changes that may be required, the challenges that might be experienced, and potential key enablers such as policy and regulatory considerations that may be necessary if Ontario were to build an accountable and integrated care system. In this report, we broadly consider an ACS as an integrated system of care where patients are actively involved in the design and process of care and services, and providers are remunerated based on the value of care and services they provide to their patients. This report expands on recent examinations of the component features and evidence of performance of accountable and integrated care organizations in countries around the world (1–6). Our rapid review more specifically focuses on structural and operational aspects of implementation of accountable care, including organization and delivery of care and services across the continuum of care, population health management, patient and provider engagement, payment, financing, and contracting, quality and value, and use of new technologies. Our review informs the discussion of applicability of ACSs to Ontario by describing implementation of accountable care in relevant international contexts including Germany, the Netherlands, the United Kingdom (UK), New Zealand, Spain, and the United States (US).

KEY FINDINGS

Implementation experience

ACSs differ in their approach to care integration, governance structures, contracting models, funding and payment mechanisms, incentives, target populations, interventions, and level of engagement with patients and communities. These systems of care are often context driven; the importance of locally specific factors is particularly apparent in successful implementation of accountable care in the international context. An essential element of all ACSs is strengthening primary health care and improving the interface between primary care and other providers across the continuum of care. In many international cases, the emphasis is placed on prevention and a social support system. ACSs fund providers across health care settings and across health and social care, providing different incentives to maintain and improve health by improving care quality. In the US, many accountable care organizations (ACOs) are built on existing organizational structures; however, designing and implementing ACOs often requires the development of new infrastructures, redefined capabilities, and behaviors that are congruent with the Triple Aim philosophy (7). In many cases, ACO partners had little or no previous experience managing risk, and also lacked necessary infrastructure for integrating care processes and measuring performance and outcomes (7). International ACSs invested heavily in information management systems that support data analytics and help engage providers in quality improvement activities.

Challenges & Enablers

Although diverse and context-driven, ACSs experienced common challenges and were also supported by a set of key enablers. These challenges and enablers are examined with relevance to the Ontario context, and warrant consideration by Ontario decision makers.

CHALLENGE 1: IMPROVING POPULATION HEALTH

While ACSs developed some expertise in improving quality of care and reducing cost (8), improving population health remains an elusive goal. In the US, it is not prioritized in the design, implementation, and operation of ACOs. Outside of the US, ACSs have made progress but noted a potential conflict between improving population health and compensating providers. In Ontario, improving population health will require use of integrated and population health-based systems. Recent introduction of the *Patients First Act* (2016) and anticipated introduction of the ***People's Health Care Act*** in 2019 should create Ontario Health Teams that provide integrated care to defined populations (9), and improve collaboration between hospitals, home and community care, primary care, and public health to increase access to and quality of care for all Ontarians (10). Existing large and experienced multidisciplinary primary care practices, informal multispecialty physician networks, and community Health Links as coordinating agencies (11,12) provide the necessary foundation for future ACSs in Ontario.

CHALLENGE 2: EMBRACING A VALUE-BASED PHILOSOPHY OF CARE & CLASH OF CULTURES

ACSs face large, paradigmatic cultural shifts that take time, effort, and motivation to create a new organizational culture. Many related cultures, such as culture of quality, provider-driven quality improvement, collaboration, sharing and learning, and partnership and engagement with patients, families, and communities will have to be cultivated and addressed to support changes in organizational culture. Transitioning to value-based care must contend with an embedded, resistant nature of established patterns of behavior in healthcare. An important relational element in the context of a complex, multi-organizational Ontario health system is that of building a culture of trust and accountability between multiple parties involved in the development of ACSs. Trust is an essential underpinning element of successful collaboration to deliver better and more integrated care, and is a key enabler of successful implementation of accountable care in Ontario (13,14). In parallel with building trusting relationships, ensuring strong accountability mechanisms between all interacting parties is essential. We emphasize maintenance of provider autonomy, identified as a concern associated with ACOs in the US (15), as a potential challenge in the Ontario context. The interaction of ACSs with existing governance and accountability mechanisms must also be considered.

CHALLENGE 3: ADDRESSING THE LACK OF INFORMATION TECHNOLOGY AND TIMELY DATA

Differing levels of health information technology sophistication and different (non-interoperable) platforms among ACSs impacted the ability of these organizations to comprehensively plan and deliver care and services as well as measure progress (16). Ontario will need to equip its providers with interoperable electronic health records (EHRs) to promote sharing information across sites, achievement of quality targets, and development of sustainable ACSs. Although access to and use of shared EHRs has been slow (17), Ontario has the capability to use administrative data to monitor risks, to achieve quality targets, and shift care to less expensive settings (e.g., from hospitals to communities).

CHALLENGE 4: ADDRESSING POPULATION ASSIGNMENT AND PATIENT ENGAGEMENT

Although both American ACOs and international ACSs are responsible for an assigned population, the method of assignment is an important distinction as it can have implications on how ACSs design their provider networks, engage with the population, and plan and deliver care and services. International ACSs are responsible for a population in a defined geographic area, while American ACOs are responsible for insurance policy holders or beneficiaries who may or may not be residents of the same geographic area. Important lessons drawn from international ACSs suggest that working with a defined population (e.g., by morbidity or geography) results in positive outcomes, including improved performance and quality of care. ACSs working with geographically defined populations may derive benefits from this context for increased patient and community engagement to support interventions and ensure their success (18). These experiences can drive patient engagement in the design of ACSs as well as increase engagement practices in health care as a norm in Ontario.

CHALLENGE 5: SHIFTING TO A VALUE-BASED PAYMENT SYSTEM

Shifting to a value-based system has been problematic for American ACOs and international ACSs alike, although alternative payment models used by ACSs such as bundled payments (Zio), capitation payments (Better Together, Canterbury), or blended payments (North West London Integrated Care Pilot) seem to better support quality versus quantity of care. In Ontario, policies should address issues with contradictory financial incentives, particularly with respect to physician payment (2), account for differences in complexity across patient populations (19), and ensure appropriate reallocation of funding for greater use (2).

CHALLENGE 6: SUSTAINING ACCOUNTABLE CARE OVER TIME

Short-term sub-optimal performance of ACSs, changing political climates, and concerns about privatizing health care can impact political support for ACS contracts and ultimately their sustainability. Shutting down ACSs may result in loss of a systematic approach to care integration, interoperable information systems accessible to different care sectors and patients, and, in some instances, public confidence. Fiscal sustainability continues to be an important issue for Ontario and must be considered for future ACSs. Past experiences demonstrate that spending cuts led to long- term consequences, such as overcrowding and the need for “catch-up” spending (2). Ontario decision-makers will need to consider how to sustain ACSs if such structures were to develop in Ontario.

ENABLER 1: ALIGNING PUBLIC HEALTH AND SOCIAL CARE INTERVENTIONS WITH DELIVERY SYSTEM REDESIGN

Efforts to bridge the health care delivery system, public health, and social care vary, but many include a requirement and/or incentive for the ACS to establish partnerships, including shared governance arrangements, with local public health agencies and community organizations

(e.g., schools, senior centers, faith-based organizations) for a defined population (20). To support such partnerships, alignment of funding streams for health, social care, and public health services has been successfully undertaken by ACS pilots in the UK (21,22) and as part of regulatory reforms in Spain and New Zealand (23,24). Under the *Patients First Act, 2016*, Ontario's public health units and regional health authorities (Local Health Integration Networks) are already required to work collaboratively to plan integrated health services for geographically defined populations across Ontario. In the future, such collaborations would benefit from aligned funding streams for the organizations charged with public health, health care, and social care planning to optimize system performance and positively impact population health.

ENABLER 2: INTRODUCING SUPPORTIVE POLICIES AT A MACRO-LEVEL

Moving towards accountable care requires a concerted effort by legislators, regulators, policymakers, health care leaders, providers, and the public. Health care delivery system reform should be linked to other system-level strategies to incentivize different sectors and providers to work together. Experiences in Germany, New Zealand, and the US demonstrate that both financial and non-financial incentives can be used to achieve this goal (1). In Ontario, new policies should be introduced to address the following:

1) Innovative collaborative mechanisms to build integrated systems of care (25).
2) Financial and performance accountabilities as well as local platforms to bring together primary care practices to participate in provincial or regional accountable care initiatives.
3) Appropriate payment mechanisms that promote value and address issues with contradictory financial incentives, particularly with respect to physician payment (2). These mechanisms should also use risk adjustment to account for differences in complexity across patient populations (19).
4) Health information technology and procedures, practices, and training for the establishment and utilization of EHRs to support quality improvement and sharing information.

ENABLER 3: LEVERAGING STRENGTH, KNOWLEDGE, & EXPERIENCE.

Experiences across five different countries and health systems demonstrate that accountable care is built on existing structures and networks by leveraging strength, knowledge, and experience of multiple parties and stakeholders. At the organizational level, the following factors enabled implementation of accountable care: involvement of a knowledgeable management partner (5,26); experience with payment experimentation, clinical integration, and large group negotiations (27); team-based care (28); and leveraging existing provider networks (5,6,29) and human resources (29,30). At the system level, flexibility of ACS contracts (31–33) and supportive, suitable payment and care delivery reforms enabled implementation of accountable care.

In Ontario, several important strongholds such as the presence of large and experienced multidisciplinary primary care practices, informal multispecialty physician networks that link each Ontario resident to their primary care provider, growing interest and recognition of relational elements, structural supports for collaboration and delivery of care, focus on patient and family engagement, and other system-level reforms (e.g., regionalisation) can support accountable organizational structures and practices that prioritize population health and experience of care.

APPLICABILITY TO ONTARIO

Considering ACSs as a philosophy of care with diverse implementation approaches rather than as a fixed model is important when considering the applicability of ACSs to Ontario, given that the development, implementation, and success of ACSs is variable and strongly dependent on context. It is the underlying philosophy of accountable care that can be transferred between health systems with each system determining the best organizational structure that can support accountable care in a specific context. In light of these findings, we used a strength-based approach to highlight the opportunities that exist in the Ontario health system to support the philosophy of accountable care, considering how international challenges and enablers relate to Ontario.

Development of accountable care systems is an opportunity to improve and address existing deficiencies in the organization and delivery of care in Ontario. There are existing strengths, rich experiences, and a growing vision for integrated care that can provide the necessary momentum for such development. Importantly, regulatory changes may be required to support ACSs in Ontario. First, key goals must be identified as this will determine the scope of regulatory changes. Second, organizational structures that will support ACSs in achieving their goals must be determined. Third, statutory amendments are needed to ensure ACSs have full control over their management decisions with clearly defined responsibilities, and that all providers within an ACS can share information related to patient care (2).

CONCLUSION

Implementation of ACSs is complex as it requires aligning incentives for value- and population-based care. It is important to consider ACSs as a philosophy rather than a fixed model of care as it is the ACS philosophy of care that is of international interest and transferred between contexts. While ACSs may provide a solution to some of the issues experienced in Ontario health care, they are not a panacea for short-term financial gain. Instead, development of ACSs in Ontario should be viewed as a step towards a more integrated and population health-oriented system of care.

INTRODUCTION

BACKGROUND

An accountable care system (ACS) is an integrated system of care in which payers, providers, and local authorities work collaboratively to deliver services and manage health and health resources for a defined population (31–33). ACSs have developed in a number of countries in the past two decades, including accountable care organizations (ACOs) in the United States (US) (32), integrated care systems in the United Kingdom (UK) (21), public-private partnerships in Spain (34), population-based systems in Germany (35), integrated care networks in New Zealand (24), and others. With preliminary evidence of positive impacts, ACSs have generated considerable international interest as a potential solution to persistent issues of rising costs and quality and fragmentation of care. A number of reports exploring ACSs have focused primarily on performance, with some discussion of challenges, enablers, and applicability in other countries, including Canada (1–6). To inform discussion of the feasibility of ACSs in Ontario, our rapid review incorporates and builds on findings from these reports, specifically focusing on implementation. This review considers ACSs as a philosophy of care (i.e., care that is integrated and remunerated based on value rather than volume and where providers are held responsible for the health of their assigned populations), rather than as a prescriptive model. Using a broad geographic lens, we explore the implementation of accountable care in the US and internationally using practical case study examples from Germany, the UK, the Netherlands, New Zealand, and Spain. Finally, we discuss the applicability of ACSs to Ontario in light of our findings.

Review questions

The following questions guided this review:

- What are the organizational experiences with the implementation of ACSs?
- What organizational changes support transition to an ACS?
- What are the key challenges and enablers of implementation of an ACS?
- What policy, regulatory and other considerations may be required if ACSs were to be implemented in Ontario?

Summary of methods

Using a rapid review methodology (36), a comprehensive search strategy was developed, tested, and applied to multiple databases to identify relevant evidence, followed by a hand search of the literature. Searches were generated and combined across the broad domains of accountable care and integrated care and were limited to literature published from January 2013 to March 2019. The final search terms used are included in Table 1.

Table 1. Search terms using EBSCO platform

Peer-Reviewed Search	Grey Literature Search
The following key terms were used: "ACOs; United States; accountable care organisations; care closer to home; cost effectiveness; integrated care; long term conditions; new models of care; Managed Care Programs; Managed Care Programs: economics; Managed Care Programs: standards; Planning Techniques; Program Evaluation; Public Health Administration; Public Health Administration: economics; Public Health Administration: methods; Reimbursement Mechanisms; State Health Plans; State Health Plans: economics; State Health Plans: standards; *Accountable Care Organizations/td	A combination of the following key terms was used for the search: "Accountable care", "Accountable care organizations", "Value-based care", "integrated care networks", "discourse", "opinions", "new models of integrated care". When reviewing the open Google and google scholar search engine results, the first 30 pages were reviewed or when new items stopped appearing. The search was limited to English language.

[Trends]; *trends; Accountable Care Organizations/lj [Legislation & J; Centers for Medicare and Medicaid Services (U.S.); Chronic Disease; Delivery of Health Care; Disease Management; Forecasting; Health Care Costs; Humans; Integrated; Medicare; Models; Organizational; Patient Care Management; Patient Protection and Affordable Care Act/lj [Leg; Physician Incentive Plans; Primary Health Care; Quality of Health Care; United States; accountable care organization; chronic disease; disease management; forecasting; government; health care cost; health care policy; health care quality; human; integrated health care system; legislation and jurisprudence; medicare; nonbiological model; patient care; personnel management; primary health care"	

Search results were assessed by two reviewers for inclusion. A document was included if it focused on the implementation, challenges, enablers, and performance of accountable and integrated care systems, and fit within the scope of the review questions. Retained documents were divided into international ACSs and American ACOs, and further categorized and abstracted as reports focusing on the implementation, evidence of performance, and challenges and enablers. The review was expanded by a synthesis of a selected seven case studies of accountable care in four countries, which were identified through the literature search and the authors' previous work on integrated care. Key relevant reports (1–4,33,37) were identified, and provided a foundation for our work, including its theoretical framing focused on accountable care (38) and its implementation (39).

ACCOUNTABLE CARE IN THE UNITED STATES

In the US, the concept of accountable care was first enacted by ACOs introduced in 2000 as part of the Physician Group Practice Demonstration Program and further expanded in 2010 with the Medicare Shared Savings Program (MSSP). The number of ACOs has been increasing steadily in the last few years, reaching hundreds of MSSP, commercial, and Medicaid ACOs that serve millions of people across the US (40). While these ACOs vary in size, structure, and geographic representation, all pursue the Triple Aim framework to support improvements in health and experience of care, as well as reduce expenditures (28,41–43). Over time, several ACO models have been developed, including the MSSP, Pioneer Program, and Next Generation models. In the MSSP, providers are jointly accountable for patient health, and are financially incentivized to cooperate and save money by avoiding unnecessary tests and procedures. The Pioneer Program, created by the Centers for Medicare & Medicaid Services (CMS), more specifically supports providers with experience in care coordination (44). The Next Generation model built on the MSSP and Pioneer Program, and includes predictable financial targets, improved opportunities to coordinate care, and high-quality standards of care. Several other federal- and state-level ACO models also exist (Table 2).

Table 2. Federal- and state-level ACO models.

Model	Description
ACO Investment Model	For MSSP ACOs to test pre-paid savings in rural and underserved areas.
Advance Payment ACO Model	For certain eligible providers already in or interested in the MSSP.
Comprehensive ESRD Care Initiative	For beneficiaries receiving dialysis services.
Medicare Shared Savings Program (MSSP)	For fee-for-service beneficiaries.
Next Generation ACO Model	For ACOs experienced in managing care for patient populations.
Pioneer ACO Model	For health systems and providers with experience in coordinating care for patients across care settings.

Within ACOs, different types of health organizations are represented, including integrated delivery systems, multi-specialty physician group practices (with and without hospital involvement), and, to a lesser extent, Federally Qualified Health Centers, and community-based clinics (28). Given different organizational models and provider representation, there is no singular type of ACO, with diversity in size, specialty mix, ownership, leadership, breadth of participating organizations, degree of risk assumed, and other characteristics.

Many ACOs are built on existing organizational structures. However, designing and implementing ACOs often requires the development of new infrastructures, capabilities, and behaviors that are congruent with the Triple Aim framework (7). In many cases, organizations within ACOs had little to no experience managing risk, and lacked necessary infrastructure to integrate care processes and measure performance and outcomes (7). For ACOs to achieve the Triple Aim, their design and implementation had to address structural, economic, and operational aspects of alignment, including organization and delivery of care and services, payment, financing and contracting, quality and value, and use of new technologies. Below we review implementation experiences according to these aspects.

ORGANIZATION AND DELIVERY OF CARE AND SERVICES

There are currently three organizational models intended to promote population-based integrated care, including 1) larger, integrated systems offering a broad set of services including

post-acute care; 2) moderately sized, joint hospital-physician groups with some involvement in post-acute facilities; and 3) smaller, physician-led practices that deliver primary care services (28,45). These organizational models include several components: governance mechanisms; management of population health and health care across the continuum of care; patient engagement; integration of health and health-related services; workforce enhancement; provider recruitment, training, and relations; and alignment of organizations and providers. Below, we discuss each of these components in relation to ACO progress (46,47).

GOVERNANCE

At the federal level, CMS dictates several requirements for ACO governance: 1) ACO payers and providers must have at least 75% control of the ACO with each payer/provider's share proportional to their participation; 2) ACO governance must be shared amongst all payers/providers with each having appropriate power to make decisions; and 3) beneficiaries should be engaged in governance processes (47–49). At the state level, there are additional requirements for the establishment of governing boards. For example, Vermont requires governing boards to be "separate and unique to the ACO", and that the members of the board reflect the types of providers in the community (49). Most states require ACOs to develop formal engagement mechanisms, such as patient advisory committees, to engage and represent beneficiaries and their interests (50). ACOs must interact with these committees regularly for feedback on ACO performance. Many states also require at least two beneficiaries or organizations serving beneficiaries on the ACO governance board.

CARE MANAGEMENT

Care management refers to the development of a range of activities to improve patient care and reduce the need for medical services by helping patients and caregivers effectively self-manage their health conditions (51). Better care management requires a shift away from reactive care towards provision of preventive care and ongoing disease management (52–55). The ability to make such a shift is largely determined by how ACOs define and stratify their populations (28,53). Populations are commonly stratified into subgroups of patients with common characteristics, and is often based on risk factors, disease severity, and identified needs. Preventive care management strategies target high utilizers of emergency departments and patients with low-acuity avoidable emergency department visits to control or reduce cost (28). ACOs focused on preventive care and services tend to build a robust primary care network that supports the care management program. Although evidence of the effectiveness of care management is not robust, examples of successful ACOs such as the Montefiore program in New York demonstrate that effective care management addresses both the patient's medical condition and the social determinants of health. The Montefiore primary care program features a comprehensive assessment that covers psychosocial factors, identification of potential issues, development of a personalized care plan with specific interventions targeted to each issue, use of interdisciplinary teams, and frequent follow-ups (56). Montefiore also has a well-developed infrastructure, with specialized chronic disease management programs, expertise in intensive case management, and advanced data analytics to support the primary care network. Establishment of effective care management requires strong commitment and buy-in from ACO participants and can provide more holistic care and potentially better health outcomes.

POPULATION ASSIGNMENT

American ACOs have taken on responsibility for the patient population assigned to them by CMS. This population is defined in health care delivery terms as beneficiaries who receive care from the ACO, and is not necessarily based on geographic proximity (20). Depending on the track (1, 1+, 2, or 3) chosen by the ACO, its population may be assigned prospectively or retrospectively[1]. Population definition and assignment generated a number of issues (discussed in the challenges section) and may have hindered the shift from treating individuals to maintaining and improving population health.

PATIENT ENGAGEMENT

Compared to early ACOs, current ACOs have increased their use of patient engagement strategies. However, these strategies are not yet systematically practiced. Also, robust evidence for the impact of patient engagement on health outcomes is lacking at this time. One study suggests that patients who receive care from ACOs with high patient-centered cultures report better physical and emotional functioning compared to less patient-centered cultures (57). Given risk-based incentives to lower costs, ACOs should be motivated to engage patients in their care; however, patient engagement has been partially hindered by passive patient assignment to the ACO (58) as well as lack of practical experience in meaningful patient engagement and activation through individual patient-clinician interactions, organizational or "system-level" governance, and the broader community (i.e., patients and organizations beyond the ACO) (59).

INTEGRATION OF MEDICAL & NON-MEDICAL CARE & SERVICES

Efforts to foster collaboration between medical and non-medical entities have included cross-agency partnerships and workgroups at the state level, as well as development of capacity for social service integration (50). Some Medicaid ACO state programs promote social service integration early on while others increase expectations of integration over time. For example, Minnesota used initial ACO experiences to make changes to subsequent requests for participation (50) that now reward inclusion of social services in the ACO and total cost of care. Vermont's "encourage-incent-require" approach for calculating the total cost of care, including social services, increases quality and cost requirements incrementally, allowing ACOs to build capacity to handle risk-based payments over three years without penalty. Although full social service integration is not yet realized, some ACOs are working towards better addressing the social determinants of health via inclusion of social services (50).

INTEGRATION OF BEHAVIOURAL HEALTH & CARE

Although early identification and treatment of mental health conditions were recommended as an important prevention strategy to control future cost of care (53), integration of behavioral and medical services has not yet been achieved (55). ACOs do not have financial or organizational incentives to provide integrated mental health care despite the significant behavioral health needs of certain populations. Some have identified this as a missed opportunity to realize the full potential of ACOs to improve patient outcomes (60). While several integration approaches with varying levels of service and payment integration have been proposed (61), challenges posed by workforce shortages and the slow adoption of costly health information technology by behavioral health providers have precluded consistent integration of mental health

[1] MSSP Track 1 and Track 2 utilize prospective assignment with retrospective reconciliation while MSSP Track 1+, Track 3, and the Next Generation ACO Model use prospective assignment. Generally speaking, assignment is determined based on the use of primary care services.

care in ACOs (55). When behavioral health providers do participate in ACOs, behavioral health measures are seldom used in measuring outcomes or determining shared savings (55).

HUMAN RESOURCES: PATIENT SUPPORT PERSONNEL

Development of effective care management programs often requires redesign of the ACO's workforce. Some innovative ACOs employ patient support personnel (PSP) to support patients and their families and to engage with hard-to-reach populations (62). PSPs, such as care coordinators and community health workers, are deployed across settings (primary care, inpatient services, emergency department, home care, and community), and according to population needs. PSPs in primary care are commonly responsible for: 1) care provision (needs assessment and coaching, medication management); 2) care coordination (making appointments, facilitating information flow); 3) logistical help with transportation; and 4) social and emotional support (62). PSPs in inpatient services and emergency departments may have the same range of responsibilities but are less likely to provide social and emotional support. ACOs commonly deploy PSPs to work with high-cost patients and engage with vulnerable subgroups (e.g., homeless people, patients from skilled nursing facilities, patients with chronic conditions and polypharmacy, pregnant women who use drugs, minority and immigrant adolescents). As a secondary prevention of unnecessary emergency department and hospital use, some ACOs identify all patients who were hospitalized or visited emergency departments for receiving extra care from PSPs.

PHYSICIAN RECRUITMENT, INVOLVEMENT, TRAINING, & LEADERSHIP

Physician-led ACOs are more likely to use comprehensive care management programs. However, while physician-led ACOs are the most common type of ACO (45), ACOs continue to experience difficulty recruiting physicians. This may be related to physicians' beliefs that they can independently provide cost-effective care, lack of knowledge about ACOs, and/or physicians' motivations, needs, and interests, among other factors (63). Often the high turnover of physicians participating in an ACO is related to the small number of ACO patients seen by physicians, increasing reluctance to alter their clinical functions and office operations. While physicians favor the delivery of cost-effective care and use of clinical guidelines and other tools provided by the ACO, most are not convinced that ACOs offer the best method for achieving cost-effective, higher quality care (64). Experience in the US demonstrates that moving physicians or primary care practices to ACOs requires a systematic approach to create interest among and alignment with physicians. It also emphasizes the importance of educating incoming physicians about ACOs, its philosophy of care, and operation.

Many health care providers, including physicians, are new to accountable care. Direct outreach, face-to-face guidance, and strong provider relations are crucial. Some successful ACOs developed programs to help small physician practices participating in the ACO obtain EHR systems and formed groups such as the Physician Quality Initiative Committee to help guide priorities and policies. Evidence suggests that physicians can influence the majority of spending for hospitalizations, post-acute care, pharmaceuticals, devices, tests, and other services (65). Experiences of successful ACOs suggests that physician involvement is particularly important. Some ACOs coach primary care clinicians on care management as many providers are not prepared to tackle patient management in a comprehensive way that considers the social determinants of health and variety of patient needs (53). This training may focus on subspecialty referral practices, different home and community settings, public health department resources for disease management and health promotion, and community resources to compliment care for chronic conditions.

PAYMENT, FINANCING, & CONTRACTING

Organizations interested in forming an ACO need many resources including capital to restructure themselves. In early examples of ACOs, hospitals provided substantial initial financing to help build infrastructure, including staffing, network establishment, data collection and management, and linking with physician groups (53). However, financing provided by hospitals gave rise to concerns about repaying early hospital investments. In some instances, early financing was provided by the Centre for Medicare and Medicaid Innovation projects or state innovation grants. This also became a concern as financing based solely on state contracts was unpredictable as they were influenced by state budgets, and thus, were less favorable. To enable ACOs to pursue extensive restructuring efforts, CMS provided a series of "waivers" which allowed MSSP ACOs and their participants some flexibility to provide services such as telehealth or to reward beneficiaries for staying in the ACO (66) (Table 3).

Table 3. ACO Waivers

• Currently, there are five waivers for MSSP ACOs: (1) ACO Pre-Participation Waiver); (2) ACO Participation Waiver); (3) Shared Servicing Distribution Waiver; (4) Patient Incentive Waiver; and (5) Compliance with Physician Self-Referral Law Waiver.
• The ACOs that plan on using the waiver must demonstrate that it is reasonably related to the Triple Aim.
• Limitations include that waivers only apply to Medicare ACOs, they have no impact on state law restrictions, and shared savings distributions waiver is limited to payments received from CMS for shared savings.
• The final rule introduced at the end of 2018 continues these waivers with new limitations set on hospitals to preclude payments to induce a physician to reduce or limit medically necessary services. The "home health supplier" waiver, which generally applies to start-up arrangements, was eliminated.

There are many types of ACO payment and reimbursement structures and mechanisms. They typically include some form of value-based reimbursement with various levels of risk assumption including capitated, full-risk payment, shared-savings or care management arrangements, or a combination of these arrangements for various population groups. In a widely used shared savings arrangement, ACOs receive bonuses if they achieve cost and quality targets. The MSSP program also includes an Advance Payment ACO option in which smaller groups can receive their potential savings in advance to help fund infrastructure costs. The majority of ACOs tend to opt for less elaborate shared savings and care management arrangements as an interim step to providers bearing more risk for meeting their population health targets. This allows providers to engage in cost-reduction efforts without risking substantial financial losses if targets are not met. Gradually, providers may bear additional financial risk by moving to capitated payments. While capitation increases risk, it also increases the potential to earn greater financial rewards than what is paid in a fee-for-service scheme. This approach incentivizes effectiveness and efficiency in contrast to traditional fee-for-service reimbursements.

Until recently, payment mechanisms included one-sided risk (no downside liability) which allowed track 1 ACOs to share in savings; two-sided risk which allowed track 2 ACOs to share in savings but also made them liable for losses; and a two-sided risk for track 3 ACOs which allowed them to take greater risk/reward than track 2. Under the final ruling (67), all ACOs will transition to two-sided models in which they share in savings and are accountable for repaying shared losses. CMS created these policies to promote regulatory flexibility and free market principles. The final ruling also introduced a policy that differentiates between high and low revenue ACOs (40). From the perspective of CMS, its high-low revenue distinction offers more flexibility, especially for most physician-led ACOs that tend to outperform hospital-based ACOs, while

realizing the goal of increasing participation in risk-bearing ACOs. There are concerns among ACO leaders that two-sided risk may be less attractive both for existing and especially for new ACOs (68).

Forming an ACO requires identification of willing and capable partners to enter into the contract. Research demonstrates that “management partners” are central to many ACOs by providing data, administrative, educational, and care coordination services (46). In 2015, close to 40% of US ACOs had a management partner and two-thirds of these ACOs reported that the partner shared in the financial risks or rewards. ACOs with partners were more heavily focused on primary care than other ACOs. Emerging evidence into financial incentives and physician participation in Medicare value-based reforms suggests that physician practices with prior experience and success with performance incentives participate in MSSP ACO arrangements more often (27). In other words, practices with greater risk experience are viewed as more capable and are given preference for inclusion in the ACO. This might explain why some may join and others abstain from value-based payment reforms.

QUALITY & VALUE

An ACO must meet quality performance standards to be eligible to share in any savings generated. ACOs must report quality data which CMS uses to calculate and assess performance. Given that payments to ACOs are based on data reports, it is important that quality assessment be complete and accurate. Currently, ACOs report on 33 nationally-recognized quality care measures, set by the CMS, including patient/caregiver experience, care coordination/patient safety, at-risk populations, several chronic diseases, and preventive care (69). To successfully report these quality measures, healthcare providers use a combination of administrative data, a Web Interface database for practice- or ACO-level clinical quality measure reporting, and a patient experience of care survey.

There is a need for a consistent and manageable number of quality measures that include long-term outcomes in defining value for care. Along with reports to CMS, ACOs often use quality assessments to help drive transformation, providing training and ongoing coaching for physicians and nurses in quality assessment and improvement. Assessments include preventive services as well as process measures for common chronic conditions, emergency department use, and general health status measures. There is both a need and an interest in new measures that better reflect the outcomes of care management, coordination of care, and social determinants of health as well as more specific measures for specialized ACOs.

USE OF NEW TECHNOLOGIES

Healthcare technology greatly impacts the ability of ACOs to deliver integrated care and measure performance. To implement population-based management, ACOs must obtain, aggregate, and analyze data from multiple electronic record platforms in practices, hospitals, and payer datasets. Technology is needed to share clinical and financial data among disparate systems, providers, and organizations in real-time. However, less than half of ACOs use real-time data and less than a third of ACO providers use a single EHR system (70). This complicates data integration, decision making, and population management. Moreover, existing EHR systems and health information exchanges record patient care information during an episode of care, but not over time, and are limited to each care setting’s organizational boundaries. These systems do not support integration across boundaries for care coordination, delivery, reporting, and payment. Another issue is the prohibitive cost of information technology systems. Although hospitals were able to finance these systems in the past, concerns with repayment may motivate new ACOs to look for alternative investments.

More recently, new technologies are being used by ACOs to enhance care management. There is an increasing use of telemedicine to provide care in geographically remote and underserved areas to improve access to care. Some telemedicine kiosks in community pharmacies have been linked with a central hospital, enabling telehealth consultations that led to improved patient access to care and decreased emergency department use (53). Cloud-based and Web-enabled devices can make data easily available to authorized providers, which can improve triage times and support providers in making informed decisions during critical episodes of care. These innovative technological designs can improve patient safety and care outcomes while lowering costs. For example, such technologies can prevent inappropriate use of emergency departments, and also eliminate unnecessary and redundant tests ordered by other providers caring for the same patient.

EVIDENCE OF PERFORMANCE

Evidence on the performance of ACOs is mixed. Overall, it appears that MSSP ACOs may not have performed as expected, with one study finding that commercial ACOs were more efficient than MSSP ACOs (71). While there was low uptake of quality and efficiency activities among all ACOs, commercial ACOs used more disease monitoring tools, quality improvement methods, care coordination and analytics, and information technology than MSSP ACOs. Despite this investment, however, EHR capacity remains low across all ACOs (71). Overall, a low proportion of all ACOs established high-level care coordination processes including implementation of chronic care programs (<40%), involvement of patients in healthcare decisions (<30%), and integration of behavioural health with primary health care (<20%) (71).

Some MSSP ACOs were able to reduce costs and improve quality of care. For example, the first 32 Pioneer ACOs were successfully meeting quality measures in the first year, and 25 ACOs had lower risk-adjusted readmission rates compared with the benchmark rate for all Medicare fee-for-service beneficiaries (72). Further, 18 of the 32 ACOs generated savings after the first year (72). However, when the Pioneer program ended in 2016, only nine of 32 ACOs remained in the cohort. A 2016 evaluation showed that almost half of MSSP ACOs kept spending below benchmarks set by CMS (73). The ACOs that achieved savings were concentrated in regions with high per capita costs in the traditional FFS program. However, when bonus payments were considered, the overall MSSP ACO program increased Medicare spending. Some studies suggested that savings from ACOs may be greater than what is assessed by strictly considering ACO-attributed cost given that physicians and other providers adjust their practice patterns for all patients, not just those assigned to an ACO. Still, even when some potential “spillover” savings is included, overall savings have been modest to date.

ACCOUNTABLE CARE SYSTEMS: EVIDENCE FROM THE UK, GERMANY, THE NETHERLANDS, SPAIN, & NEW ZEALAND

ACSs have been developing in other countries for over two decades. Interest in the philosophy of accountable care is driven by a global need to improve the organization and delivery of care and services, and to rethink the meaning of health and health care. Our review of select examples of international ACSs showcases relevant and recent policy contexts that motivated interest in accountable care to support regional integrated care efforts for high-risk and -cost populations in the UK (21,22,74–76); development of an integrated population-focused care in Germany (26,35,77,78); managing demands for hospital and comprehensive chronic disease-specific care in the Netherlands and New Zealand (30,33); and restructuring and devolution of the care delivery system that enabled public-private partnerships in Spain (23,34). These countries and their corresponding ACSs include Gesundes Kinzigtal (GK) in Germany, Canterbury District Health Board in New Zealand, Zorg In Ontwikkeling (Zio) in The Netherlands, North west London ICP, Torbay Care Trust and Mid Nottinghamshire Better Together Health and Social Care (Better Together) in the UK, and Alzira in Spain (Table 4). These ACSs were identified and selected through the literature search conducted to identify key reports for the review, and were also known to the authors from their previous investigations on integrated care systems (33,79,80). Below is a summary of their implementation efforts focusing on the organization and delivery of care and services, payment, financing and contracting, quality and value, use of new technologies, and evidence of performance (see Appendix for details).

ORGANIZATION AND DELIVERY OF CARE AND SERVICES

GOVERNANCE

ACSs have differing structures and governance mechanisms that are determined by local circumstances. In many cases, an elaborate system of boards, committees, and other structures were built to ensure accountability across the system. Notably, “integrators” were often used as a governance mechanism. The integrator, as a new structure or a single organization, is responsible for forming a support system and optimizing care for their patient population (78,79). In this sample of initiatives, the integrator role varied based on community needs and the goal of the initiative, but commonly was accountable for health outcomes and allocation of resources. For example, GK in Germany has a regional integrator, Healthy Kinzigtal Ltd., that guides the development of this population-based integrated care system by taking over the redesign of health and care services and achieving system integration at the regional level (79). In North West London ICP, a new integrator structure, the Integrated Management Board, was established to ensure agreement around funding flows, access to the central database, and arrangements for data sharing among the ICP partners, and to permit mutual accountability and collective decision making (80). Structured partnerships in many international ACSs between the integrator and health actors facilitated the design and delivery of needs-based programs and have succeeded in improving population health outcomes and either reducing the cost of services (74) or delivering cost savings (9,29). Examples in the UK (Better Together) and Germany (GK) support citizen engagement via structures such as patient ombudsman and citizen boards, which have been identified as important enablers of effective ACS leadership (1). While a collaborative approach has been adopted widely across ACSs, formal representation of provider groups and patients was inconsistent on governing boards.

POPULATION SEGMENTATION AND CARE MANAGEMENT

Among these ACSs, population size varied greatly from 24,000 (Zio) to 500,000 individuals (Canterbury DHB). Population characteristics also varied and tended to be determined regionally, although many ACSs targeted older adults. ACSs applied different methods to stratify their patient population, commonly using risk-based stratification. The scope of services differed with some ACSs specializing in chronic disease management (29,30). However, most developed a variety of care programs across the continuum from primary prevention to inpatient care (GK, Canterbury, Ribera Salud, Zio) with others also offering social care services (Better Together, Torbay). Although the level of effort to promote integration of care varied (1), programs tended to support care and services across organizational boundaries, as well as increase investment in community-based services and strengthen primary care (24,33,81). In addition, many ACSs invested in telehealth services, facilitated after-hours access to primary health care, created programs to integrate mental and behavioural health with primary care, and implemented strategies to eliminate duplication of services and overuse of unnecessary services. ACSs commonly relied on multidisciplinary teams to deliver new care programs, and many also introduced new roles as well as reassigned tasks among existing roles. In Better Together and GK, primary care physicians were incentivized to assist in care navigation to help guide patients across the continuum of care (35,66). In Zio, tasks were actively delegated such that physicians and nurses could collaboratively oversee low and medium intensity care, while specialists responded only to high intensity needs, thus reducing the number of outpatient specialist visits (6,30).

PATIENT ENGAGEMENT

Engagement is typically described at the point of care as supporting providers in implementing interventions to improve outcomes and involving and empowering patients to co-design and fulfil their own care plans (GK, ALzira/Ribera Salud, NWL ICP, Torbay). Engagement practices were implemented through coordination of care and provision of individualized care plans, timely access to services, and access to shared health records and interpretable results (1,21,30,34,35,74,82). The majority of ACSs used patient portals and personal health records to facilitate patient engagement in their own care and supplementary educational opportunities. In some instances, patients had considerable leverage over the use of their EHRs by controlling access to and use of their records (1).

The scope of engagement varied according to governance, (re)design of care, delivery of care, quality improvement, achievement of cost and quality outcomes, and other elements of change management, such as developing strategic vision. Beyond the delivery of care, few ACSs incorporated multiple, varied opportunities for patient and provider engagement. Notably, GK provided a range of opportunities including governance representation for both providers and patients, involvement in the design of ACSs and associated metrics, sharing in financial risk and gain, long-term contracting for providers, and making improvements to support patients in their care experiences (1,35). GK is also known to use innovations such as “patient university”, consisting of regular health education and counselling by medical experts (77) alongside traditional provider engagement strategies such as multidisciplinary team meetings. Multidisciplinary team or group meetings figure prominently in other ACSs (21,23,75,83). Opportunity for engagement in governance for other non-physician providers is less consistent across ACSs (1). Similarly, patients are not consistently engaged in governance. When patients are not represented in the organizational structure, ACSs have invited patients to provide regular feedback as part of project teams and evaluation (30,34) or as invited guests to management meetings (Torbay). In another example, Canterbury DHB (New Zealand) solicited providers and other employees to participate in the development of their shared vision (33). This was also useful

for developing a permanent quality improvement program as well as several new programs to improve capability and skills in innovation and service improvement among staff (33).

Table 4. International ACS examples

	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay & South Devon Care Trust	Mid Nottinghamshire Better Together Health & Social Care (Better Together)	Alzira
Country	Germany	New Zealand	Netherlands	UK	UK	UK	Spain
Description	Private health management organization that delivers population-based integrated care services at a local level.	Program of integrated transformation focused on keeping people (particularly older people) well and healthy in their homes and communities.	Integrated primary care group that provides chronic disease management.	Innovative program designed to improve the coordination of care for people with diabetes and those older than 75 years in North West London.	England's first Integrated Care Organization (ICO), bringing together acute and community health and adult social care services under one provider organization.	Pilot program, supported by the UK government, to test and evaluate the implementation of accountable care at the local level.	Public-private partnership in Valencia where the first Spanish public hospital (Hospital de La Ribera), managed under what is referred to as an administrative concession.
Start year	2005	2007	2010	2011-13	2015	2014	1999-2018
Target population and size	Residents of rural communities in southwest Germany; > 10 000 lower SES	Residents of Canterbury; 567 870	Patients with diabetes, asthma, COPD, cardiovascular diseases, mental health conditions, and frailty; > 24 500	550 000 people, 15 200 patients with diabetes (of whom about 8700 are older than 75 years) and 22 800 patients who are older adults.	Residents of Torbay, 300 000	Residents of Nottinghamshire; 310 000	Residents of the Valencia area; >1000 000

PAYMENT, FINANCING, & CONTRACTING

All reviewed examples of international ACSs received government funding through local public health insurance. Government oversight of commissioning of public funds varied with some governments providing strict regulations and others giving more autonomy to providers. This may influence similar achievement of ACS outcomes in different contexts (34). ACS implementation necessitated new financing models and contracting arrangements. Financing models included

fee-for-service (GK), mixture of per capita funding, additional service reimbursement, payment-for-performance incentives (Torbay, Better Together, Canterbury, Alzira), and bundled payments (Zio). Global capitation was used by several ACSs (Alzira, Better Together, NWL ICP, Torbay). However, only UK ACSs used global capitation payments at both the ACS and provider levels. While all reviewed ACSs gave provider incentives, no clear patterns emerged on common design features. Generally at the provider level, more traditional models of salary, fee-for-service, or fee-for-service with partial capitation for selected populations or health conditions were used (1). Incentives at the provider level were small with 10% or less of provider income related to performance incentives (Alzira, GK). In addition to shared savings, some ACSs (Canterbury, GK) provided financial incentives for participation in quality improvement and other activities.

In keeping with a singular budget for a unified system, ACSs organized and contracted as joint ventures (GK), public-private partnerships (Alzira), care groups (Zio), and partnership alliances (Torbay, NWL ICP, Better Together, Canterbury). Alliance contracting was most common, and involved organizations working together to manage care collectively and share resulting risks and gains. A variety of financial strategies were used including annual block grants to providers (Canterbury), resource envelopes (NWL ICP), fixed base payment, and flexible payment tied to performance (Zio). Provider groups had varying flexibility to negotiate alliance contracts with some required to comply with contract terms to receive financing from the alliance or payer. Contracting physicians into integrated care alliances may be challenging when physicians are not employees of partner organizations as it may involve difficult negotiations or double payments, once to the practice and again to the new service (23). Despite substantial government payments for health care provision, ACSs that integrated social care into the capitation sum (Torbay, NWL ICP, Alzira) experienced restricted financial support for social care (Torbay, Alzira), motivating some ACSs to seek new partners (34).

QUALITY & VALUE

ACSs are intended to promote value-driven care and services. The meaning of “value” is highly contextualized and often connected to specific goals. For some ACSs, value corresponded to creating an integrated health and social care system that delivers accountable and user-oriented care via a single gateway, and performance measurements were tied to this particular goal (24,75,83). Integration and quality improvement efforts may have motivated ACSs to develop their own key performance indicators in addition to mandatory measures required by the payer. Using both ACS-specific and mandatory performance measures balanced top-down and bottom-up mechanisms for measuring performance and cultivating value.

All ACSs are required to report on nationally set measures and standards of care as part of their contractual arrangements with the payers and as an incentive to deliver high-quality care. *Quality of care outcomes* focused on hospital admissions/re-admissions, unnecessary emergency department visits, outpatient clinic services, waiting times, patient adherence rates to treatment plans, and disease management. *Cost outcomes* included proportion of shared savings, percentage decreases in total cost of care or savings to the system, and expenditure reductions for high-risk patients, among others. In addition, ACSs routinely collected *clinical outcomes* (often specific to the initiative) and administered patient experience surveys. In some cases, performance reporting has drawn criticism for being too narrow in focus and using few process measures (23).

Development of ACS-specific quality indicators and engagement of providers and patients/caregivers in this process differed across ACSs with some only informing and others collaborating with stakeholders to develop their metrics. Most ACSs measured outcomes in four domains: population health, quality of life, quality of care, and care effectiveness. In many cases, ACSs included process measures such as level of integration, financial performance and resource use, percentage of patients provided with self-management support, and percentage of patients

using integrated care. Performance metrics were commonly shared with ACS providers to increase awareness and support improvement, and with payers/insurers to determine shared savings and losses (30). In the majority of ACSs, all providers could access their own performance data benchmarked against peers, facilitating continuous improvement.

USE OF NEW TECHNOLOGIES

All reviewed examples of ACSs invested in information systems and technology, including development of interoperable EHRs, creation of system-wide data-sharing arrangements among participating partners, and use of data analytics to identify performance variations among providers, support population stratification, and improve care planning and delivery of quality care. Most ACSs developed capacity to monitor physician- and team-level performance in real time, and engaged providers regularly using data to analyze and act on performance variation. EHRs also enabled partners to share, manipulate, store, and analyze patient data. These data were used to risk stratify patients based on their medical and social characteristics to support care planning (21). EHRs also provided access to information for all participating providers, enabling streamlined communication pathways and referrals. Some ACSs used legally binding information sharing protocols to regulate the sharing of identifiable information (75).

EVIDENCE OF PERFORMANCE

Individual reports from several reviewed ACSs demonstrate improvements in quality of care (21,23,29,30,34,35,77), reduction in cost (24,30,35), achievement of savings and returns on investment (21), improvements in clinical outcomes (24,30,77), and high patient satisfaction (30,34,35). However, it is difficult to generalize these ACS-specific results given variation in context, measurement, intervention, time, and other factors. In addition, general performance evaluation is difficult given potential misalignment of policies governing health care processes, lack of theoretical understanding of accountable care, and the introduction of multiple changes at similar times. Evaluation of adverse outcomes such as complications, emergency admissions, and readmissions provide minimal insight into changes in patient health status. In addition, appropriate process and intermediate outcome standards may not exist. In other words, current evaluation approaches may not have adequately captured the impact of ACSs. The impact of integration and focus on both physiological and social aspects of patients' lives has not yet been properly understood or measured (1). However, there is preliminary evidence that these changes have modified demand for health care and reduced acute care need in some instances (24,35). Reviewed examples demonstrate that full ACS implementation takes time such that impact may not be observable in the short-term (1), highlighting the importance of intermediate indicators to measure performance.

IMPLEMENTATION OF ACCOUNTABLE CARE: CHALLENGES & ENABLERS

Given the large variation in American ACOs and international ACSs to date, it is important to recognize major challenges and enablers in transforming care to effectively improve population health, engage providers and patients in new practices and new ways of service delivery, including a shift to a value-based payment system, and in sustaining ACSs. Six key conceptual, organizational, and macro-level challenges and three enablers to ACSs are summarized below.

CHALLENGE 1: IMPROVING POPULATION HEALTH

While ACSs developed some expertise in improving quality of care and reducing cost (8), improving population health remains an elusive goal due to a number of challenges. First, many ACSs, and particularly American ACOs, have focused on interventions to reduce cost and improve quality of care, often without addressing the underlying causes of poor health in their patients and communities. As a result, population health has not been prioritized in the design, implementation, and operation of ACOs in the US. Second, population health as a concept is not yet well understood in health care practice, which makes it difficult for health care leaders, health care professionals, other providers, and policy makers to act upon it or consider it as a viable strategy to cutting cost and improving quality of care. Neither is there enough expertise in population health practices in health care, especially in primary or secondary care, to be able to take on and lead population health interventions. Third, outside of the US, ACSs noted a potential conflict between improving population health and providing provider compensation. Improving population health will likely reduce costs, but concomitantly, it may lead to lower risk compensation received by the providers, potentially creating a disincentive for innovative health interventions (26).

CHALLENGE 2: EMBRACING A VALUE-BASED PHILOSOPHY OF CARE & CLASH OF CULTURES

Transitioning to value-based care has many challenges, one of which is an embedded, resistant nature of established patterns of behavior in healthcare. Some ACSs experienced resistance from providers to adopt a new way of working together. Particularly, physicians resisted the transition to integrated care due to a perceived loss of autonomy, strict protocols, and delegation of care to nurses (33,74,83). In some instances, physicians overcame this hesitation after initial results showed integrated care was beneficial to them (24). Another challenge was for health professionals to accept and work with non-traditional providers such as care coordinators (74,75). Resistance also existed at various levels of government involved in the approval process of ACSs, due to lack of familiarity with accountable care, concerns about integration of health and social care, and the good performance of a proposed ACS (83). To achieve improved care and reduce costs, the payers, ACS leadership and providers “need to acknowledge that integrated care requires, above all else, genuine teamwork” (1). Teamwork has been identified as the ‘unshakeable cultural priority’ (1) for success in improving quality of care and cost-efficiency. Clearly, ACSs face large, paradigmatic cultural shifts that take time, effort and motivation to create a new organizational culture. Many related cultures, such as culture of quality, provider-driven quality improvement, collaboration, sharing and learning, and partnership and engagement with

patients, families and communities will have to be cultivated and addressed to support changes in organizational culture.

CHALLENGE 3: ADDRESSING THE LACK OF INFORMATION TECHNOLOGY & TIMELY DATA

Strong information technology and data analytics (ie. shared interoperable systems) can enable an ACS to improve performance, adequately stratify patient populations according to physiological and social needs, engage patients, enable care coordination, and effectively allocate resources (23,24,30,33). Differing levels of health information technology sophistication (e.g., different platforms) among ACS participants impacted the ability of these organizations to comprehensively plan and deliver care and services as well as measure progress (16). Furthermore, in the US, receiving patient population data retrospectively from CMS inhibited the targeting of services to generate the biggest return on investment (84).

CHALLENGE 4: ADDRESSING POPULATION ASSIGNMENT & PATIENT ENGAGEMENT

Although both American ACOs and international ACSs are responsible for an assigned population, the method of assignment is an important distinction as it may have repercussions on how the organization designs its network of providers and partners, engages with the population, and plans and delivers care and services. International ACS are typically responsible for a population in a defined geographic area, while American ACOs are responsible for insurance policy holders or beneficiaries who may or may not be residents of the same geographic area. The fundamental problem with population assignment in the US is that it can avoid direct engagement of ACOs with their Medicare beneficiaries (58). ACO beneficiaries are assigned, prospectively or retrospectively, based on their use of physician services (i.e., beneficiaries whose primary doctor has joined an ACO are, by default, considered to be enrolled ACO members). It was expected that physicians and hospitals would join ACOs for bonus payments, and their patients would follow and enroll. However, patients can also elect to see other physicians, including those outside of ACOs. In some cases, patients were not even aware that they were enrolled in an ACO. Physicians participating in ACOs are not entirely sure who among their Medicare patients are in their ACO, which makes it difficult for physicians to manage care. This situation creates an inactive, unengaged patient population which can inhibit effective accountable care.

CHALLENGE 5: SHIFTING TO A VALUE-BASED PAYMENT SYSTEM

Shifting from a traditional fee-for-service model to a value-based system has proven to be problematic for American ACOs and international ACSs alike, although the latter may have had more success with it. This shift is not automatic and is related to a number of factors. First, this shift requires providers to prioritise quality of care over quantity of care. The ACO providers working in traditional models of either salary, fee-for-service, or fee-for-service with partial capitation for selected populations or health conditions (1) are not well positioned to make this shift. Incentives to providers are a minor component of their payment compared with status quo reimbursement models, and thus, these incentives do not create a strong leverage for change. Second, this shift to value-based payment requires the application of systems thinking to create

a system that aligns a range of programs and services with measurable quality, cost, and population health outcomes. Some ACSs employ alternative payment models such as bundled payments (Zio), capitation payments (Better Together, Canterbury) or blended payments (NWL ICP) that better support focus on quality of care and help create an aligned system with the vision of “one system, one budget” (Canterbury).

CHALLENGE 6: SUSTAINING ACCOUNTABLE CARE OVER TIME

ACSs face many internal and external challenges that may affect its sustainability over time. Challenges with implementation and achieving potential benefits among early adopters of ACOs in the US were reminiscent of the failed integrated delivery networks of the 1990s (7) causing some to suggest that ACOs are similarly fated. Lack of appreciable quality and cost improvement in the second or third year suggest that ACOs may be unsustainable after the most obvious opportunities for improvement have been taken. Along the same vein, ACSs’ performance, if judged insufficient, may result in government funding being withdrawn. The NWL ICP, a large-scale ACS designed to integrate care across primary care, acute and community teams for people living with diabetes and/or those aged 75 or older in the UK, lost funding at the end of the second year due to lack of evidence for timely improvements in cholesterol levels, HbA1c values, and blood pressure after being on a care plan for three months as well as insignificant changes in emergency admission rates and associated costs (74,85). The same evaluation emphasized that the ACS was very new, and the changes should be seen as a medium-term objective (74). The demise of NWL ICP resulted in the loss of a systematic approach to drive integration of care in North West London.

Changing political climates and concerns about privatizing public health care may cause ACS contracts to fall in or out of favour with political parties. In April 2018, Valencia's Health Authority in Spain decided to terminate the public-private partnership with Ribera Salud (Alzira), and to revert to direct public provision (34). While the left-wing regional government was in favour of reverting to public provision, advocates of the Alzira model argued that the model was superior in terms of productivity, per capita expenditure, and quality (34). The termination of the Alzira model led to regulatory changes enacted in a new law that favoured exclusive public provision as a model of service delivery.

ENABLER 1: ALIGNING PUBLIC HEALTH & SOCIAL CARE INTERVENTIONS WITH DELIVERY SYSTEM REDESIGN

The following steps could potentially bridge the health delivery system, public health, and social care (20) :

1) Define the population for which responsibility is shared;
2) Require or incentivize ACSs to first establish clinical partnerships and co-design care pathways for patients, perhaps including shared governance arrangements for some components with local public health agencies and community organizations (e.g., schools, senior centers, faith-based organizations);
3) Involve specialists in public health and community health in an ACS to make it more feasible and acceptable to hold organizations in ACSs including hospital, physician, community care and public health agencies jointly accountable for health outcomes;
4) Align funding streams and incentivize health, social care, and public health agencies to advance delivery system objectives in population health.

Organizational alignment of processes, incentives, understanding, attention, trust, and values is needed to foster cooperation and enable coordination among multiple ACS partners. Vertical and horizontal integration alone will not address misalignments in how partners approach action on health, quality, or cost. This alignment is not automatic and requires the use of strategic practices including informing, involving, enhancing, motivating and evolving (86). Furthermore**,** improving alignment requires ACSs to act at all levels simultaneously, ensuring ongoing dialogue, organizational learning, and flexible adaptation.

ENABLER 2: INTRODUCING SUPPORTIVE POLICIES AT A MACRO-LEVEL

Supportive government policy and regulatory frameworks enable flexible governance with patients and consumer advocates including shared savings payments, referrals, care coordination and quality initiatives; ensure the financial stability of entities responsible for providing care to patients; and provide clear, legally sanctioned methods for sharing data among ACS participants and with other providers (87). In the US, Congress enacted the Patient Protection and Affordable Care Act (2010) to create ACOs, and also amended the Social Security Act to establish the MSSP and other high-profile initiatives, including Pioneer ACO, and Next Generation ACO programs. While ACOs could pursue a variety of operational models in pursuit of the Triple Aim goal, CMS set strict eligibility requirements and performance standards that ACOs must meet or exceed (46,88). A series of regulatory measures, including waivers, have been used to help build ACO capacity across the continuum of care. In Spain, a legislation was enacted in the late 1990s to support self-managed hospitals and devolve health care planning responsibilities to autonomous communities supported the introduction of the Alzira model (34). Specifically, these changes expanded the type of legal mechanisms for care provision and enacted the development of PPP that provided hospital and primary care to the population who lives in a health care area. Alignment of many related policies, regulations, and complementary programs can enable ACSs to achieve their goals.

ENABLER 3: LEVERAGING STRENGTHS, KNOWLEDGE, & EXPERIENCE

American ACOs in particular are often described as driven by physicians, hospitals, and other health care providers, but research shows that involvement of a management partner can contribute to performance (5,26). Because of the flexible nature of ACO contracts in the US, management organizations can become partners and share in financial risks and rewards. Management partners are not exclusive to American ACOs; in Germany, GK is a joint venture between a network of physicians in Kinzigtal and a Hamburg-based health care management company, OptiMedis AG. Management partners add expertise in data, administrative, educational, and care coordination services.

At an organizational level, experience with payment experimentation, clinical integration, and large group negotiations enabled ACO implementation (27). ACOs prefer to build their networks by including physicians and physician groups with prior experience with elements of accountable care (27). Team-based healthcare delivery models led by physicians, such as patient-centered medical homes, also enabled ACO development (28). Internationally, building on one's strength was a viable strategy for GK that used its vast physician network as a base for strengthening primary health care (5,6,29). In the Netherlands, Zio utilized its health workforce, including nurses, as a foundational platform for building its ACS network (29,30).

ACCOUNTABLE CARE IN ONTARIO: BALANCING CHALLENGES & ENABLERS

There is ongoing discussion about applicability of ACSs in Ontario as a potential solution to fragmented, volume-incentivized, and costly health care (3,4,89,90). Several key Canadian reports have described the development, implementation, and performance of American ACOs focusing primarily on their operational features (e.g., specific costs and quality performance measures, business models, regulatory aspects, etc.) (2–4,12). However, the underlying philosophy of care has received little attention to date. One of the important findings of our review is that the development, implementation, and success of ACSs is diverse and strongly dependent on context. It is the underlying philosophy of accountable care that is common across health systems, with each system then determining the best operational model of care driven by local priorities, context and resources. In light of these findings, we use a strength-based approach to highlight the opportunities that exist in the Ontario health system to support the philosophy of accountable care, with a discussion of how select challenges and enablers identified elsewhere may relate to Ontario. Considering ACOs and ACSs as a concept rather than a fixed model of care that can be directly transferred from one health system to the next is central to this discussion.

IMPROVING POPULATION HEALTH

Reorientation of the Ontario health system towards population health has been slower than expected given Canada's leadership in the population health movement (91–94). However, there are positive changes in policy and practice that continue to reorient care to more integrated approaches. In Ontario, at the time of this report, the *People's Health Care Act* has been introduced to legislature. This Act is expected to consolidate care under a larger agency termed Ontario Health, and to create Ontario Health Teams of health providers that provide integrated care to defined populations. Prior to this, the *Patients First Act* (2016) required hospitals, home and community care, primary care, and public health to work together to plan and deliver a range of services to improve access to and quality of care for Ontarians (10). This work is underway and is supported by research and demonstration initiatives that focus on strategies aligning population and primary health care to address the social determinants of health (95–99).

Attempts to align interventions to improve population health, reduce costs, and provide provider compensation have not yet been successfully implemented in Ontario (2). Providers continue to focus on activities within limited domains, and on achieving short-term results. However, the presence of large and experienced multidisciplinary primary care practices, such as Family Health Teams and Community Health Centres, many of which have adopted a population health approach, offers the potential to develop formal accountable care networks. A study estimated that, in 2013, there were 78 informal multispecialty physician networks that linked each Ontario resident to their primary care provider in Ontario (100). These networks included physicians, specialists and hospitals, and were reasonably self-contained in that residents could receive most of their care within their respective networks. These natural networks could provide the foundation for an ACS, leveraged by the growing number of community Health Links as coordinating agencies (as of 2019, there were 82 Health Links in Ontario). The integration of various sectors will be important for the implementation of ACSs in Ontario, including shared savings.

EMBRACING A VALUE-BASED PHILOSOPHY OF CARE & CLASH OF CULTURES

The seminal Lalonde report (1974) (101), the Ottawa Charter (1986), and restructuring reforms of the 1990s have influenced thinking about population health in Canada (102), and gradually increased consideration of equity and application of the Triple Aim framework at various government levels and health care organizations in 2000s. Passage of the *Patients First Act* (2016) in Ontario placed patient and caregiver needs of individuals and the determinants of health philosophy at the centre of service delivery and offered the opportunity to apply it systemically.

In the midst of these changes, the belief that "organizational change is facilitated first and foremost by structural change" is being replaced by a growing interest and recognition of relational elements outlined in contemporary design principles for collaboration to improve population health (103). An important relational element in the context of a complex, multi-organizational Ontario health system is that of building a culture of trust and accountability between multiple parties involved in the development of ACSs. While not explicitly discussed in the articles reviewed here, trust is an essential underpinning element of successful collaboration to deliver better and more integrated care. Therefore, we highlight trust as a key enabler of successful implementation of accountable care in Ontario (13,14). Indeed, trust was identified as key to the development of some of the first ACOs in the US Pilot Program (104), and has further been identified as central to success with bundled care and integrated care in Ontario (14,105). Trust must exist across multiple relational planes including trust between different providers that have partnered together in a given ACS to deliver high-quality care or trust between providers and patients in navigating more engaged, patient-centered care in which the patient has more agency in the care received (105). Trusting relationships must develop over time through frequent formal and informal interaction (106), and arise from shared vision and goals, strong understanding of each partner's role and how they contribute to the overall function of the ACS, empathy and respect, and strong communication that is ongoing, accurate, and solution-focused (14,107). Establishing trust can help to facilitate stronger interdependence between partners, better collaboration and communication, and may contribute to better care outcomes (107,108). In addition, trust can help to improve the quality of partnerships and can empower providers and patients as new relational norms are established within ACSs (106).

ADDRESSING THE LACK OF INFORMATION TECHNOLOGY & TIMELY DATA

Access and use of shared EHRs remain limited in Ontario (4). Health records that span beyond traditional medical care also remain underdeveloped. Similarly, the rate of adoption of electronic medical records has been slow, and attributed to financial constraints, including financial support for the transcription of patient data from paper to electronic media, interoperability of electronic medical records for hospitals, pharmacies, and clinics and lack of experienced, knowledgeable technical support during implementation (17). Despite these limitations, Ontario has a superlative capability to use administrative data to monitor risks and achieve quality targets as well as shift care to less expensive settings (e.g., from hospitals to communities). However, Ontario needs to identify priorities for quality goals, and equip its providers with interoperable EHRs, which will be essential for sharing information across sites to support the achievement of quality targets and development of ACSs.

ADDRESSING POPULATION ASSIGNMENT & PATIENT ENGAGEMENT

In the past decade, the number of adults who have access to a primary care provider increased from 92% in 2006 to 94% in 2015 in Ontario (109). Ontario primary care providers have been shifting towards group and inter-professional practices for several decades now and many have well-maintained patient rosters that would facilitate population assignment and patient engagement. Given that population assignment may be dependent on access to primary care providers (21,30,35), Ontario may not face this particular challenge to the same degree as the American system. There are, however, opportunities for improvement within particular sub-populations of Ontario residents. Notably, rural Ontarians and recent immigrants have lower rates of access to primary care providers (88% and 86% respectively). Recent immigrants, low-income individuals and people with comorbidities are also less likely to have access to group and inter-professional care (109). To improve access to care in rural communities, the use of telemedicine complemented with regular community outreach into rural communities can be used to identify and assign patients (6,110).

There are various patient engagement initiatives currently underway in Ontario and in other provinces that engage patients, caregivers and citizens in health care (e.g., co-designing health and healthcare interventions)(18). Important lessons drawn from these and other ACSs included in our review suggest that working with patients and populations supports interventions and their success (18). The use of community advisory boards in governance structures is crucial to ensuring adequate design and delivery of care and services and improved outcomes (110). These experiences can be useful to drive patient and caregiver engagement in the design of ACSs as well as increase engagement practices in health care as a norm in Ontario.

INTRODUCING SUPPORTIVE POLICIES AT A MACRO-LEVEL

Ontario's decision-makers will need to assess whether the province's policy and regulatory framework supports or hinders growth of accountable care as well as consider changes that would sustain ACSs. Ontario has introduced several recent reforms that intend to support integrated, patient-centered, and accountable care, including Health Links, new funding models with bundled care programs, the *Patients First Act* (2016), and most recently, the *People's Health Care Act* (2019) (111) (Table 5). The last of these reforms will substantially change health organization.

Recent regionalisation spearheaded by the *Patients First Act* established new sub-regions that act as "integrators" of region-wide improvement efforts across public health, health care, and non-health sectors. Regionalisation can support innovative and accountable organizational structures that prioritize primary care and population health (116). This approach could help achieve the following: 1) build a system-wide base for ACSs (greater geographic reach, enhanced clinical capacity, increased care coordination, economies of scale, and a more robust asset base); 2) establish clear lines of responsibility and accountability; and 3) shift focus of spending to value-based care (117). Specifically, performance-based incentives that link investments to outcomes could help shift the focus of health care spending to value rather than volume. It is important to link regionalization to other integration strategies to incentivize physicians to help improve the quality, cost, and access of specialty services at the system level. For this to happen, Ontario physicians need to become an accountable and integrated part of ACSs (116). Experiences in Germany and the US demonstrate that both financial and non-financial incentives can be used to achieve this goal. Specifically, increasing physician leadership via physician-led systems of care where physicians make a contribution to design care and are held accountable for the overall quality and cost results of their patients is likely to help achieve this goal (118,119).

Table 5. Recent patient-centered reforms in Ontario health care

Reform	Description
Legislation	
People's Health Care Act, 2019	Legislation that will create Ontario Health Teams to provide singly-funded integrated care to defined populations and create a new super-agency called Ontario Health by consolidating the Local Health Integration Networks, Cancer Care Ontario, eHealth Ontario, Trillium Gift of Life Network, Health Shared Services, Health Quality Ontario, and HealthForce Ontario Marketing and Recruitment Agency (111).
Patient's First Act, 2016	Legislation that expands the mandate and responsibilities of Local Health Integration Networks to include home care and primary care planning in addition to hospitals, long-term care homes, community services, and mental health and addiction services. These services are coordinated in new, smaller geographic sub-regions to ideally improve local delivery, integration, and responsiveness of services to community needs (112).
Service Delivery	
Health Links	Geographically-based integration of health providers to manage and deliver care for patients with complex health needs. Health Links are associated with LHIN geographic sub-regions (11).
Bundled Care	Piloted at several hospitals across Ontario, Bundled Care (also known as Integrated Comprehensive Care or Integrated Funding Models) is a service delivery model that integrates care between acute and post-acute settings (except physician funding) for select surgical procedures and chronic disease conditions using care coordinators, singular electronic patient records, virtual care, and an integrated team of health providers (113).
Funding of Health Services	
Integrated Funding Models	A service delivery and funding model that provides one payment to cover all needs along a continuum of care for a specific procedure (e.g., hip and knee replacement surgery) to a team of health providers that deliver these services(114) .
Health System Funding Reform	A hospital funding model that allocates a portion of funds based on expenses for expected service volumes that adjust for hospital characteristics, location, and services provided as well as population clinical and sociodemographic characteristics. An additional portion of funds are allocated to provide specific procedures (e.g., cataract surgery, elective aortic aneurysm repair), with remaining funds provided for global, unlinked expenses (115).

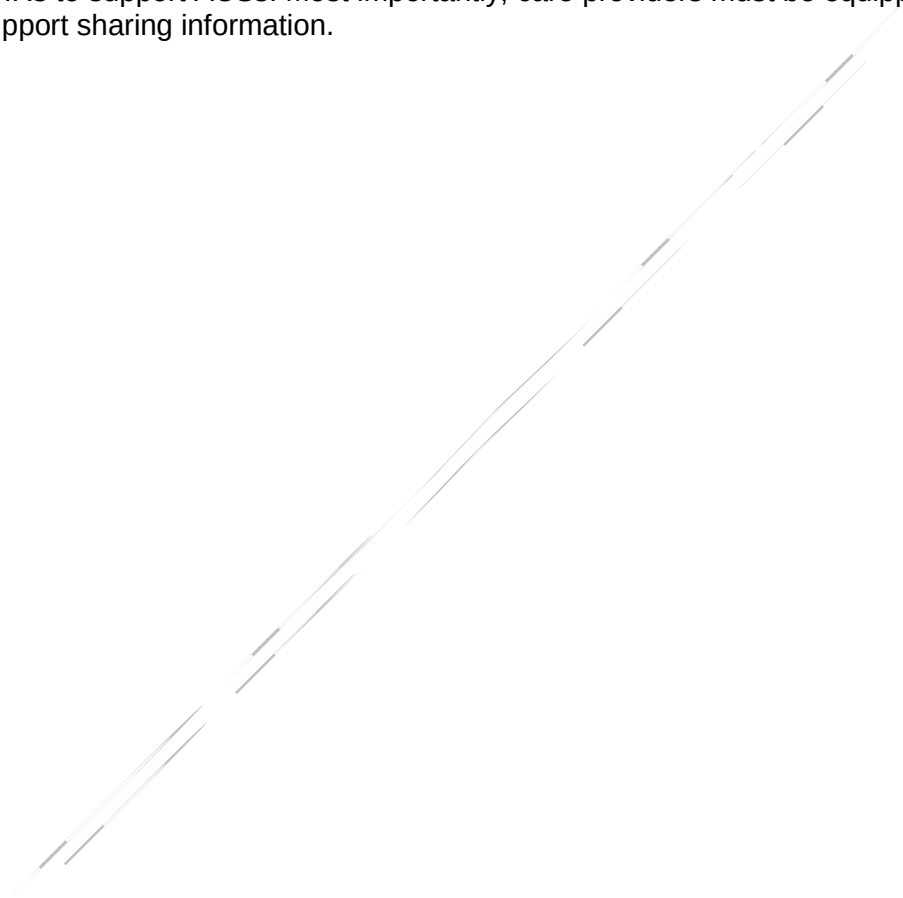
While a report evaluating applicability of ACOs to Ontario (2) suggested that very little regulatory change will be required for implementation, some changes will likely be needed[2]. Supporting the implementation of ACSs with statutory amendments is needed to ensure ACSs have full control over their management decisions with clearly delineated responsibilities, and that all providers within an ACS can share information and are knowledgeable of a patient's care (2). There are a number of policy enablers that can be introduced to support ACSs in Ontario. The following opportunities for improvement should be considered:

- Align interventions that address population health, costs, and experience of care, and provide adequate provider compensation (120). Creating this alignment requires policies that support innovative ways of working together and combine multiple, conflicting perspectives to create value-based care. These policies should focus on strengthening primary care, building integrated health systems, implementing appropriate health payment schemes that promote value, and enabling health information technology (25).
- Revise accountability mechanisms and streamline responsibilities among multiple agencies (117). Policy considerations should address financial and performance accountabilities to MOHLTC and beyond, providing a platform to bring together primary care practices to participate in provincial or regional accountable care initiatives. These policies must consider innovative ways of increasing accessibility of care and services

[2] Detailed analysis of legislative context can be found in Huynh, Baker, Bierman et al. *Exploring Accountable Care in Canada*, 2014

for rural Ontarians and recent immigrants. Policies should also support the spread of community governance structures for inter-professional primary care models (2).

- Implement shared savings structures (2). Policies should address issues with contradictory financial incentives, particularly with respect to physician payment (2), account for differences in complexity across patient populations (19), and ensure appropriate reallocation of funding for greater use (2). Notably, the MOHLTC is currently piloting a bundled care approach where a group of healthcare providers determine a single payment to cover all care needs of an individual patient's hospital and home care (121). Results of this pilot could inform development of payment mechanisms for future ACSs in Ontario.
- Increase availability and use of shared EHRs (4). Policy makers should set priorities and address policies, procedures, practices, and training for the establishment and utilization of EHRs to support ACSs. Most importantly, care providers must be equipped with EHRs to support sharing information.



CONCLUSION

ACS implementation is complex as it requires the alignment of incentives for value-based and population-focused care. ACSs as a philosophy rather than a fixed model of care is an important distinction that supports consideration of feasibility and transferability to different contexts. Portraying accountable care as a fixed model suggests that there is a singular definition of how services should be organized and delivered (122). In reality, however, the design and implementation of ACSs is dependent on context. One of the strengths of this review is its conceptualization of ACSs as a philosophy of care as this can be more easily transferred to different contexts as opposed to fixed models of care.

Challenges described in this review are not exhaustive. However, they highlight the need to embrace population health issues as part of a health care delivery system. In addition, there is a need to pursue a broad, coordinated range of changes to align organizational structures, capabilities, and behaviours with the philosophy of care, while ensuring sustainability. The lack of proper technology is emphasized as it severely limits the ability of ACSs to comprehensively plan and deliver a broad range of care and services as well as measure progress. To build integrated ACSs in Ontario, access to and use of shared and interoperable EHRs must be improved.

Our review also identified a number of enablers that facilitate successful implementation of ACSs in various contexts. These enablers include practical strategies to align public health and social care interventions with the delivery system redesign, and supportive policies and regulatory measures which ACSs can leverage to sustainably offer a broad range of services. Most importantly, both the US and international experiences demonstrate the importance of identifying and leveraging existing strengths as a starting point for implementing an ACS, and then pursuing change with persistence, creativity, commitment, and supportive policies.

While ACSs may provide a solution to some Ontario health care issues, it is not a panacea for short-term financial gain. Instead, development of ACSs in Ontario should be viewed as a step towards a more integrated and population health-oriented system of care.

REFERENCES

1. Jan S, Colla C, Pimperl A, Groene O, Mosques J, Johnson T, et al. Accountable care organisations: Evidence Check [Internet]. 2018 [cited 2019 Jun 4]. Available from: www.saxinstitute.org.au
2. Huynh TM, Baker GR, Bierman A, Gilbert S, Klein D, Rudoler D, et al. Exploring Accountable Care in Canada [Internet]. 2014. Available from: http://www.cfhi-fcass.ca/sf-docs/default-source/reports/exploring-accountable-care-brown-en.pdf?sfvrsn=2
3. Guta A, Wilson MG, Lavis JN. Examing the Impacts of Accountable Care Organizations on Patient Expereince, Population Health and Costs [Internet]. Hamilton; 2016. Available from: https://www.mcmasterforum.org/docs/default-source/Product-Documents/rapid-responses/examining-the-impacts-of-accountable-care-organizations-on-patient-experience-population-health-and-costs.pdf?sfvrsn=2
4. Peckham A, Rudoler D, Bhatia D, Fakim S, Allin S, Marchildon G. Accountable Care Organizations and the Canadian Context [Internet]. 2018. Available from: https://ihpme.utoronto.ca/wp-content/uploads/2018/11/NAO-Rapid-Review-9_EN.pdf
5. Busse R SJ. Integrated Care Experiences And Outcomes In Germany. Netherlands, Engl Heal Aff. 2014;33(13):1558.
6. McClellan M, Udayakumar K, Thoumi A, Gonzalez-Smith J, Kadakia K, Kurek N, et al. Improving Care And Lowering Costs: Evidence And Lessons From A Global Analysis Of Accountable Care Reforms. Health Aff [Internet]. 2017 Nov [cited 2019 Mar 26];36(11):1920–7. Available from: http://www.healthaffairs.org/doi/10.1377/hlthaff.2017.0535
7. Burns LR, Pauly M V. Accountable Care Organizations May Have Difficulty Avoiding The Failures Of Integrated Delivery Networks Of The 1990s. Health Aff [Internet]. 2012 Nov 2 [cited 2019 Mar 26];31(11):2407–16. Available from: http://www.healthaffairs.org/doi/10.1377/hlthaff.2011.0675
8. Clarke JL, Bourn S, Skoufalos A, Beck EH, Castillo DJ. An Innovative Approach to Health Care Delivery for Patients with Chronic Conditions. Popul Health Manag [Internet]. 2017 [cited 2019 Mar 27];20(1):23–30. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27563751
9. Ministry of Health and Long-Term Care. Patients First Act [Internet]. Government of Ontario. 2016 [cited 2019 Jun 4]. Available from: https://news.ontario.ca/mohltc/en/2016/12/ontario-passes-legislation-that-delivers-better-health-care-for-families.html
10. Expert Panel on Public Health. Public Health within an Integrated Health System. 2017.
11. MOHLTC. Health Links [Internet]. MOHLTC. 2015 [cited 2019 Mar 26]. Available from: http://www.health.gov.on.ca/en/ms/ecfa/healthy_change/healthlinks.aspx
12. Mery G, Wodchis W. Assessing Value in Ontario Health Links. Part 1: Lessons from US Accountable Care Organizations [Internet]. Toronto; 2014 [cited 2019 Mar 27]. Available from: http://hsprn.ca/uploads/files/HSPRN AHRQ Health Links Par 1 Value in ACOs.pdf
13. Alderwick H, Shortell SM, Briggs ADM, Fisher ES. Can accountable care organisations really improve the English NHS? Lessons from the United States. BMJ [Internet]. 2018 Mar 2 [cited 2019 Mar 26];360:k921. Available from: https://www.bmj.com/content/360/bmj.k921
14. Embuldeniya G, Kirst M, Walker K, Wodchis WP. The Generation of Integration: The Early Experience of Implementing Bundled Care in Ontario, Canada. Milbank Q [Internet]. 2018 Dec 12 [cited 2019 Mar 26];96(4):782–813. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/1468-0009.12357
15. Biesen T van, Weisbrod J, Sawhney R, Julie C. Front Line of Healthcare Report 2015: The shifting Us healthcare landscape [Internet]. Bain & Company. 2015 [cited 2019 Mar

27]. Available from: https://www.bain.com/insights/front-line-of-healthcare-report-2015/
16. Intelligent Medical Objects. Technology the key to overcoming ACO challenges | IMO Intelligent Medical Objects, Inc. [Internet]. Intelligent Medical Objects. 2016 [cited 2019 Mar 26]. Available from: https://www.e-imo.com/news/technology-key-overcoming-aco-challenges
17. Chang F, Gupta N. Progress in electronic medical record adoption in Canada. Can Fam Physician [Internet]. 2015 Dec [cited 2019 Mar 27];61(12):1076–84. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27035020
18. Mcmurchy D. Co-created, Co-delivered, Co-lived: Toward Better Health and Care for Inner-City Populations A Canadian Casebook [Internet]. Canada; 2018 [cited 2019 Jun 20]. Available from: https://www.cfhi-fcass.ca/sf-docs/default-source/reports/triple-aim-toward-better-health-and-care-inner-city-populations-e.pdf?sfvrsn=d153a844_2
19. Sibley LM, Glazier RH. Evaluation of the equity of age-sex adjusted primary care capitation payments in Ontario, Canada. Health Policy (New York). 2012;
20. Gourevitch MN, Cannell T, Boufford JI, Summers C. The challenge of attribution: responsibility for population health in the context of accountable care. Am J Public Health [Internet]. 2012 Jun [cited 2019 Mar 26];102 Suppl 3(Suppl 3):S322-4. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22690966
21. Sullivan A, Udayakumar K, Gonzalez-smith J. Case Study : Better Together , United Kingdom Overview. 2017.
22. Steeden A. The Integrated Care Pilot in North West London [Internet]. Vol. 5, London Journal of Primary Care. 2012 [cited 2019 Jun 4]. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4413716/pdf/LJPC-05-008.pdf
23. Acerete B, Stafford A, Stapleton P. Spanish healthcare public private partnerships: The “Alzira model.” Crit Perspect Account [Internet]. 2011;22(6):533–49. Available from: http://dx.doi.org/10.1016/j.cpa.2011.06.004
24. Timmins N, Ham C. The quest for integrated health and social care: A case study in Canterbury, New Zealand [Internet]. 2013 [cited 2019 Jun 4]. Available from: www.kingsfund.org.uk
25. Putera I. Redefining Health: Implication for Value-Based Healthcare Reform. Cureus [Internet]. 2017;9(3):1–11. Available from: https://www.researchgate.net/publication/314198423_Redefining_Health_Implication_for_Value-Based_Healthcare_Reform
26. Struckmann V, Boerma W, van Ginneken E. The Gesundes Kinzigtal programme , Germany. 2016;1–18.
27. Markovitz AA, Ramsay PP, Shortell SM, Ryan AM. Financial Incentives and Physician Practice Participation in Medicare’s Value-Based Reforms. Health Serv Res [Internet]. 2017 Aug [cited 2019 Mar 27];53:3052–69. Available from: http://doi.wiley.com/10.1111/1475-6773.12743
28. Shortell SM, Wu FM, Lewis VA, Colla CH, Fisher ES. A Taxonomy of Accountable Care Organizations for Policy and Practice. Health Serv Res [Internet]. 2014 Sep 1 [cited 2019 Mar 26];49(6):n/a-n/a. Available from: http://doi.wiley.com/10.1111/1475-6773.12234
29. Nolte E, Frølich A, Hildebrandt H, Pimperl A, Schulpen GJ, Vrijhoef HJM. Implementing integrated care: A synthesis of experiences in three European countries. Int J Care Coord. 2016;19(1–2):5–19.
30. Udayakumar K, Gonzalez-smith J. Case Study : Zio Integrated Care Network , The Netherlands Overview. 2017;(January).
31. Moberly T. Accountable care systems and accountable care organisations. BMJ [Internet]. 2017 Sep 4 [cited 2019 Jun 4];358:j4105. Available from: http://www.ncbi.nlm.nih.gov/pubmed/28871038
32. Shortell SM, Casalino LP. Health Care Reform Requires Accountable Care Systems.

JAMA [Internet]. 2008 Jul 2 [cited 2019 Jun 4];300(1):95. Available from: http://jama.jamanetwork.com/article.aspx?doi=10.1001/jama.300.1.95
33. Charles A. Developing accountable care systems. King's Fund [Internet]. 2017;(August). Available from: https://www.kingsfund.org.uk/sites/default/files/2017-08/Developing_ACSs_final_digital_0.pdf
34. Comendeiro-Maaløe M, Ridao-López M, Gorgemans S, Bernal-Delgado E. Public-private partnerships in the Spanish National Health System: The reversion of the Alzira model. Health Policy (New York) [Internet]. 2019 Apr 1 [cited 2019 Jun 4];123(4):408–11. Available from: https://www.sciencedirect.com/science/article/pii/S0168851019300223
35. Pimperl A, Hildebrandt H, Groene O, Schulte T, Meyer I, Udayakumar K, et al. Case Study : Gesundes Kinzigtal , Germany Overview. 2017.
36. Khangura S, Konnyu K, Cushman R, Grimshaw J, Moher D. Evidence summaries: the evolution of a rapid review approach. Syst Rev [Internet]. 2012 Feb 10 [cited 2019 Mar 26];1:10. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22587960
37. Hacker K, Walker DK. Achieving Population Health in Accountable Care Organizations. Am J Public Health [Internet]. 2013 Jul [cited 2019 Jun 4];103(7):1163–7. Available from: http://ajph.aphapublications.org/doi/10.2105/AJPH.2013.301254
38. Thoumi A, Udayakumar K, Patel H, Abou Samra A. Implementing Accountable Care to Achieve Better Health at A Lower Cost [Internet]. 2016 [cited 2019 Jun 11]. Available from: https://www.wish.org.qa/wp-content/uploads/2018/01/IMPJ4495_WISH_Accountable_Care_Report_WEB-1.pdf
39. Fisher ES, Shortell SM, Kreindler SA, Van Citters AD, Larson BK. A Framework For Evaluating The Formation, Implementation, And Performance Of Accountable Care Organizations. Health Aff [Internet]. 2012 Nov [cited 2019 Jun 11];31(11):2368–78. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23129666
40. National Association of ACOs. NAACOS Analysis of The Final MSSP Pathways To Success Rule Overview [Internet]. 2019 [cited 2019 Mar 26]. Available from: www.naacos.com
41. Barnes AJ, Unruh L, Chukmaitov A, van Ginneken E. Accountable care organizations in the USA: Types, developments and challenges. Health Policy (New York) [Internet]. 2014;118(1):1–7. Available from: http://dx.doi.org/10.1016/j.healthpol.2014.07.019
42. Brennan A, Gaus C. ACOs at a Crossroads : Cost, Risk and MACRA [Internet]. White Paper. 2016. Available from: https://www.naacos.com/assets/docs/news/acosatacrossroads-naacoswhitepaperfinal.pdf
43. Matulis R, Lloyd J. The History, Evolution, and Future of Medicaid Accountable Care Organizations. CHCS - Br. 2018;(February):22.
44. CMS. Pioneer ACO Model | Center for Medicare & Medicaid Innovation [Internet]. CMS. 2018 [cited 2019 Mar 26]. Available from: https://innovation.cms.gov/initiatives/Pioneer-ACO-Model/
45. Meritage Medical Network. Physician Leadership in Accountable Care Organizations | Meritage Medical Network [Internet]. 2014 [cited 2019 Mar 26]. Available from: https://meritagemed.com/physician-leadership-accountable-care-organizations/
46. Lewis VA, D'Aunno T, Murray GF, Shortell SM, Colla CH. The hidden roles that management partners play in accountable care organizations. Health Aff. 2018;
47. Barnes AJ, Unruh L, Chukmaitov A, van Ginneken E. Accountable care organizations in the USA: Types, developments and challenges. Health Policy (New York). 2014;118(1):1–7.
48. Mark B. Governance of accountable care organizations (ACO). YouTube [Internet]. 2010;(September). Available from: http://www.youtube.com/watch?gl=GB&v=RACfQe7mo0I
49. Center for Health Care Strategies. Comparing State Medicaid Accountable Care

Organization Governance Models [Internet]. 2015 [cited 2019 Mar 26]. Available from: www.chcs.org
50. Mahadevan R, Houston R. Supporting Social Service Delivery through Medicaid Accountable Care Organizations: Early State Efforts [Internet]. 2015 [cited 2019 Mar 26]. Available from: www.chcs.org
51. Agency for Healthcare Research and Quality. Care Management Issue Brief Care Management: a Fundamental Vehicle for Managing the Health of Populations Overview [Internet]. 2015 [cited 2019 Mar 26]. Available from: www.ahrq.gov
52. Lowell KH. Next Generation Accountable Care Organization (NGACO) Model Evaluation: First Annual Report. 2016;
53. Perrin JM, Zimmerman E, Hertz A, Johnson T, Merrill T, Smith D. Pediatric accountable care organizations: Insight from early adopters. Pediatrics. 2017;139(2).
54. Shortell AS, Addicott R, Walsh N, Ham C. Accountable care organisations in the United States and England Testing , evaluating and learning what works. Kings Fund. 2014;1–17.
55. Gordon SY. Integrating Behavioral Health into Accountable Care Organizations: Challenges, Successes, and Failures at the Federal and State Levels [Internet]. 2016 [cited 2019 Mar 27]. Available from: www.nasmhpd.org
56. Institute for Healthcare Improvement. Care Coordination Tips from a Pioneer ACO [Internet]. Institute for Healthcare Improvement . 2019 [cited 2019 Mar 26]. Available from: http://www.ihi.org/communities/blogs/care-coordination-tips-from-a-pioneer-aco
57. Ivey SL, Shortell SM, Rodriguez HP, Wang Y (Emily). Patient Engagement in ACO Practices and Patient-reported Outcomes Among Adults With Co-occurring Chronic Disease and Mental Health Conditions. Med Care [Internet]. 2018 Jul [cited 2019 Mar 27];56(7):551–6. Available from: http://www.ncbi.nlm.nih.gov/pubmed/29762273
58. Capretta JC. Replacing Medicare ACOs with a Better Integrated Care Option [Internet]. Mercatus On Policy. 2017 [cited 2019 Mar 26]. Available from: https://www.mercatus.org/publications/healthcare/replacing-medicare-acos-better-integrated-care-option
59. Decamp M, Sugarman J, Berkowitz SA. Meaningfully engaging patients in ACO decision making. Am J Accountable Care [Internet]. 2015;32(2):30–3. Available from: http://www.ajmc.com/journals/ajac/2015/2015-vol3-n2/Meaningfully-Engaging-Patients-in-ACO-Decision-Making
60. O'Donnell AN, Williams BC, Eisenberg D, Kilbourne AM. Mental health in ACOs: Missed opportunities and low-hanging fruit. Am J Manag Care. 2013;19(3):1–5.
61. Brown D, Mcginnis T. Considerations for Integrating Behavioral Health Services within Medicaid Accountable Care Organizations [Internet]. 2014 [cited 2019 Mar 26]. Available from: www.chcs.org
62. Gorbenko KO, Fraze T, Lewis VA. Redesigning care delivery with patient support personnel: Learning from accountable care organizations. Int J Care Coord [Internet]. 2016 Sep 10 [cited 2019 Mar 26];19(3–4):73–83. Available from: http://journals.sagepub.com/doi/10.1177/2053434516676080
63. Harkinss K. Six reasons ACOs struggle with network physicians and recruitment efforts [Internet]. Becker's Hospital Review. 2017 [cited 2019 Mar 27]. Available from: https://www.beckershospitalreview.com/hospital-physician-relationships/six-reasons-acos-struggle-with-network-physicians-and-recruitment-efforts.html
64. Schur CL, Sutton JP. Physicians In Medicare ACOs Offer Mixed Views Of Model For Health Care Cost And Quality. Health Aff [Internet]. 2017 Apr 17 [cited 2019 Mar 27];36(4):649–54. Available from: http://www.healthaffairs.org/doi/10.1377/hlthaff.2016.1427
65. Smith MD. Mark Smith on Offering Physicians a Grand Bargain | Health Affairs [Internet].

Health Affairs. 2012 [cited 2019 Mar 26]. Available from: https://www.healthaffairs.org/do/10.1377/hblog20120906.022909/full/
66. Sullivan T. CMS and HHS-OIG Release Stark Law Practice Waivers for ACO's – Policy & Medicine [Internet]. Policy and Medicine a Rockpointe Publication. 2018 [cited 2019 Mar 26]. Available from: https://www.policymed.com/2015/12/cms-and-hhs-oig-release-stark-law-practice-wavers-for-acos.html
67. CMS. CMS finalizes rule on the risk adjustment program for the 2018 benefit year | CMS [Internet]. CMS. 2018 [cited 2019 Mar 27]. Available from: https://www.cms.gov/newsroom/press-releases/cms-finalizes-rule-risk-adjustment-program-2018-benefit-year
68. Daly R. Q & A: ACO Executive Expects Impacts from New Rules [Internet]. HFMA: Healthcare Business News. 2019 [cited 2019 Mar 26]. Available from: https://www.hfma.org/Content.aspx?id=62730
69. Guide to Quality Performance Standards for Accountable Care Organizations Starting in 2012: Pay for Reporting and Pay for Performance [Internet]. [cited 2019 Mar 26]. Available from: http://www.cms.gov/sharedsavingsprogram/37e_Quality_Measures_Standards.asp#TopOfPage
70. Performance Evaluation: What is Working in Accountable Care Organizations? [Internet]. 2016 [cited 2019 Mar 26]. Available from: https://www.premierinc.com/downloads/What-Is-Working-In-ACOs-Report-10.16.pdf
71. Peiris D, Phipps-Taylor MC, Stachowski CA, Kao L-S, Shortell SM, Lewis VA, et al. ACOs Holding Commercial Contracts Are Larger And More Efficient Than Noncommercial ACOs. Health Aff (Millwood) [Internet]. 2016 [cited 2019 Mar 26];35(10):1849. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27702959
72. Bunis D. Pioneer Accountable Care Organization First-Year Results Include Savings and Losses | [Internet]. Commonwealth Fund. 2013 [cited 2019 Mar 27]. Available from: https://www.commonwealthfund.org/publications/newsletter-article/pioneer-accountable-care-organization-first-year-results-include
73. Saunders R, Muhlestein D, McClellan M. Medicare Accountable Care Organization Results For 2016: Seeing Improvement, Transformation Takes Time [Internet]. Health Affairs Blog. 2017 [cited 2019 Mar 27]. Available from: https://www.healthaffairs.org/do/10.1377/hblog20171120.211043/full/
74. Soljak M, Cecil E, Gunn L, Broddle A, Hamilton S, Tahir A, et al. North West London Integrated Care Pilot Evaluation: Report on Work Programme 3 Quality of care and health outcomes [Internet]. London, UK; 2013 [cited 2019 Jun 4]. Available from: www.nuffieldtrust.org.uk/publications/evaluation-nw-
75. Harris M, Greaves F, Patterson S, Jones J, Pappas Y, Majeed A, et al. The North West London Integrated Care Pilot: Innovative Strategies to Improve Care Coordination for Older Adults and People With Diabetes. J Ambul Care Manage [Internet]. 2012 [cited 2019 Jun 4];35(3):216–25. Available from: http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00004479-201207000-00009
76. Torbay and South Devon NHS Foundation Trust Annual Report and Accounts 2017/18 [Internet]. 2018 [cited 2019 Jun 4]. Available from: https://www.torbayandsouthdevon.nhs.uk/uploads/annual-report-and-annual-accounts-2017-18.pdf
77. Hildebrandt H, Hermann C, Knittel R, Siegel A. Gesundes Kinzigtal Integrated Care: improving population health by a shared health gain approach and a shared savings contract [Internet]. Vol. 10, International Journal of Integrated Care. 2010 [cited 2019 Jun 4]. Available from: https://www.ekiv.org/assets/pdf/Hildebrandt-et-al-2010-Gesundes-

Kinzigtal-Integrated-Care.pdf
78. Lupiañez-Villanueva F, Theben A. Gesundes Kinzigtal (Germany) Case Study Report Strategic Intelligence Monitor on Personal Health Systems Phase 3 (SIMPHS3). 2014 [cited 2019 Jun 4]; Available from: https://ec.europa.eu/jrc
79. Kuluski K, Sheridan N, Kenealy T, Breton M, McKillop A, Shaw J, et al. “On the Margins and Not the Mainstream:” Case Selection for the Implementation of Community Based Primary Health Care in Canada and New Zealand. Int J Integr Care [Internet]. 2017 Jun 27 [cited 2019 Jun 4];17(2). Available from: http://www.ijic.org/articles/10.5334/ijic.2501/
80. Farmanova E, Baker GR, Cohen D. Combining Integration of Care and a Population Health Approach: A Scoping Review of Redesign Strategies and Interventions, and their Impact. Int J Integr Care [Internet]. 2019 Apr 11 [cited 2019 Jun 4];19(2). Available from: http://www.ijic.org/articles/10.5334/ijic.4197/
81. Ham C. Making sense of integrated care systems, integrated care partnerships and accountable care organisations in the NHS in England. Kings Fund. 2018;(February):https://www.kingsfund.org.uk/publications/making-s.
82. Struijs JN, Drewes HW, Stein KV. Beyond integrated care: challenges on the way towards population health management. Int J Integr Care. 2016;15(4):7–9.
83. Thistlethwaite P. Integrating health and social care in Torbay: improving care for Mrs Smith - The King’s Fund, March 2011 [Internet]. 2011 [cited 2019 Jun 4]. Available from: https://www.kingsfund.org.uk/sites/default/files/integrating-health-social-care-torbay-case-study-kings-fund-march-2011.pdf
84. From Families USA. Designing Consumer-Friendly Beneficiary Assignment and Notification Processes for Accountable Care Organizations [Internet]. From Families USA. 2012 [cited 2019 Mar 27]. Available from: https://familiesusa.org/sites/default/files/product_documents/ACO-Assignment-and-Notification-Processes.pdf
85. Willis T, Chandok R, Delgado R, Razak Y, Robertson L, Dornhorst A. The NWL-DTP: the journey so far in optimising diabetes care within NW London - Practical DiabetesPractical Diabetes [Internet]. Practical Diabetes. 2019 [cited 2019 Jun 4]. Available from: https://www.practicaldiabetes.com/article/the-nwl-dtp-the-journey-so-far-in-optimising-diabetes-care-within-nw-london/
86. Hilligoss B, Song PH, McAlearney AS. Aligning for accountable care: Strategic practices for change in accountable care organizations. Health Care Manage Rev [Internet]. 2017 [cited 2019 Mar 26];42(3):192–202. Available from: http://insights.ovid.com/crossref?an=00004010-201707000-00002
87. Bernstein WS, Frohlich JPB, Lapallo FJ, Patel AR, Thompson MJ. Accountable Care Organizations in California: Programmatic and Legal Considerations California HealtHCare foundation [Internet]. 2011 [cited 2019 Jun 4]. Available from: www.chcf.org.
88. Lieberman SM, Bertko JM. Building regulatory and operational flexibility into accountable care organizations and “shared savings.” Health Aff. 2011;30(1):23–31.
89. Bear R. Heads up: there are lessons for Canada in U.S. health care reform - Healthy Debate [Internet]. Healthydebate. 2012 [cited 2019 Mar 26]. Available from: https://healthydebate.ca/opinions/heads-up-there-may-be-lessons-for-canada-in-u-s-health-care-reform
90. Bell B. Busting the myth of bloated government bureaucracy - Healthy Debate [Internet]. 2017 [cited 2019 Mar 26]. Available from: https://healthydebate.ca/opinions/myth-government-bureaucracy-health
91. Glouberman S, Millar J. Evolution of the determinants of health, health policy, and health information systems in Canada. Am J Public Health. 2003;93(3):388–92.
92. Huynh TM. Exploring a Population Health Approach in Health System Planning and Decision-Making. 2014.

93. Cohen D, Huynh T, Sebold A, Harvey J, Neudorf C, Brown A. The *population health approach* : A qualitative study of conceptual and operational definitions for leaders in Canadian healthcare. SAGE Open Med. 2014;2:205031211452261.
94. Neudorf C. Integrating a population health approach into healthcare service delivery and decision making. Heal Manag Forum. 2012;25(3):155–9.
95. Etches V. “Public Health Units and LHINs Working Together for Population Health.” Ottawa, ON: Public Health Ontario; 2017.
96. Green ME, Weir E, Hogg W, Etches V, Moore K, Hunter D, et al. Improving collaboration between public health and family health teams in Ontario. Healthc Policy. 2013;8(3):e93--104.
97. Barr VJ, Robinson S, Marin-Link B, Underhill L, Dotts A, Ravensdale D, et al. The expanded Chronic Care Model: an integration of concepts and strategies from population health promotion and the Chronic Care Model. Hosp Q. 2003;7(November 2003):73–82.
98. Collins P, Resendes SJ, Dunn JR. The Untold Story: Examining Ontario’s Community Health Centres’ Initiatives to Address Upstream Determinants of Health. Healthc Policy. 2014;10(1):14–29.
99. Working Group on Social Determinants of Health. Activities to Address the Social Determinants of Health in Ontario Local Public Health Units. Sudbury, ON; 2010.
100. Stukel TA, Glazier RH, Schultz SE, Guan J, Zagorski BM, Gozdyra P, et al. Multispecialty physician networks in Ontario. Open Med. 2013;
101. Hancock T. Lalonde and beyond: looking back at “A New Perspective on the Health of Canadians”. Health Promot. 1986;1(1):93–100.
102. Lavis JN, Forest P, Church J. Paradigm Freeze: Why it is so hard to reform health care policy in Canada. Kingston: Institute of Intergovernmental Relations, School of Policy Studies, Queen’s University; 2013.
103. Ham C, Alderwick H. Place-based systems of care, a way forward for the NHS in England. London, UK; 2015.
104. Larson BK, Van Citters AD, Kreindler SA, Carluzzo KL, Gbemudu JN, Wu FM, et al. Insights From Transformations Under Way At Four Brookings-Dartmouth Accountable Care Organization Pilot Sites. Health Aff [Internet]. 2012 Nov [cited 2019 Mar 27];31(11):2395–406. Available from: http://www.healthaffairs.org/doi/10.1377/hlthaff.2011.1219
105. Wodchis WP, Dixon A, Anderson GM, Goodwin N. Integrating care for older people with complex needs: key insights and lessons from a seven-country cross-case analysis. Int J Integr Care [Internet]. 2015 [cited 2019 Mar 26];15:e021. Available from: http://www.ncbi.nlm.nih.gov/pubmed/26528096
106. Stout SS, Simpson LA, Singh P. Trust Between Health Care and Community Organizations. JAMA [Internet]. 2019 Jun 10 [cited 2019 Jun 20]; Available from: http://jama.jamanetwork.com/article.aspx?doi=10.1001/jama.2019.1211
107. Rundall TG, Wu FM, Lewis VA, Schoenherr KE, Shortell SM. Contributions of relational coordination to care management in accountable care organizations: Views of managerial and clinical leaders. Health Care Manage Rev [Internet]. 2016 Apr 1 [cited 2019 Mar 26];41(2):88–100. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25978003
108. Kirst M, Im J, Burns T, Baker GR, Goldhar J, O’Campo P, et al. What works in implementation of integrated care programs for older adults with complex needs? A realist review. Int J Qual Heal Care. 2017;(September):1–13.
109. Milne V, Nolan M, Petch J. The Price-Baker report: What does it mean for primary care reform in Ontario? - Healthy Debate [Internet]. Healthydebate. 2015 [cited 2019 Mar 27]. Available from: https://healthydebate.ca/2015/11/topic/baker-price-primary-care-report
110. Duncan M, Basnett I, Citrin D, Schwarz R, Udayakumar K. Case Study : Possible , Nepal Overview. 2017.

111. Mike Crawley M, Janus A. Ford government creating Ontario Health super-agency | CBC News [Internet]. CBC. 2019 [cited 2019 Mar 26]. Available from: https://www.cbc.ca/news/canada/toronto/doug-ford-ontario-health-super-agency-lhin-cancer-care-1.5032830
112. Newsroom : The Patients First Act [Internet]. Government of Ontario. 2016 [cited 2019 Mar 26]. Available from: https://news.ontario.ca/mohltc/en/2016/12/the-patients-first-act.html
113. St.Joseph's Healthcare. Integrated Comprehensive Care (ICC) [Internet]. St.Joseph's Healthcare Hamilton. 2014 [cited 2019 Mar 26]. Available from: https://www.stjoes.ca/hospital-services/integrated-comprehensive-care-icc-
114. MOHLTC. Bundled Care (Integrated Funding Models) [Internet]. MOHLTC. 2018 [cited 2019 Mar 26]. Available from: http://www.health.gov.on.ca/en/pro/programs/ecfa/funding/ifm/
115. MOHLTC. Health System Funding Reform [Internet]. MOHLTC. 2013 [cited 2019 Mar 26]. Available from: http://www.health.gov.on.ca/en/pro/programs/ecfa/funding/hs_funding_qa.aspx
116. Marchildon GP. Physicians and regionalization in Canada: Past, present and future. Cmaj. 2017;189(36):E1147–9.
117. OMA - Ontario Medical Association. Premier ' s Council on Improving Healthcare and Ending Hallway Medicine OMA Summary of Interim Report. 2019.
118. Fisher ES, Corrigan J. Accountable health communities getting there from here. JAMA - Journal of the American Medical Association. 2014;312(20):2093–4.
119. Pimperl A, Schulte T, Mühlbacher A, Rosenmöller M, Busse R, Groene O, et al. Evaluating the Impact of an Accountable Care Organization on Population Health: The Quasi-Experimental Design of the German Gesundes Kinzigtal. Popul Health Manag. 2017;20(3):239–48.
120. Goodrick E, Reay T. An Institutional Perspective on Accountable Care Organizations. Med Care Res Rev. 2016;73(6):685–93.
121. MOHLTC. Bundled Care (Integrated Funding Models) [Internet]. MOHLTC Ontario. 2016 [cited 2018 Feb 8]. Available from: http://www.health.gov.on.ca/en/pro/programs/ecfa/funding/ifm/
122. NSW Agency for Clinical Innovation. Understanding the process to develop a Model of Care. 2013.

APPENDIX

International ACS examples.

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
Country	Germany	New Zealand	Netherlands	UK	UK	UK	Spain
Description	Private health management organization that delivers population-based integrated care services at a local level	Program of integrated transformation focused on keeping people (particularly older people) well and healthy in their homes and communities.	Integrated primary care group that provides chronic disease management	Innovative program designed to improve the coordination of care for people with diabetes and those older than 75 years in North West London.	England's first Integrated Care Organization (ICO), bringing together acute and community health and adult social care services under one provider organization	Pilot program, supported by the UK government, to test and evaluate the implementation of accountable care at the local level.	Public-private partnership in Valencia where the first Spanish public hospital (Hospital de La Ribera), managed under what is referred to as an administrative concession.
Start year	2005	2007	2010	2011-2013	2015	2014	1999- 2018
Target population and size	Residents of rural communities in southwest Germany; > 10 000 lower SES	Residents of Canterbury; 567 870	Patients with diabetes, asthma, COPD, cardiovascular diseases, mental health conditions, and frailty; > 24 500	550 000 people, 15 200 patients with diabetes (of whom about 8700 are older than 75 years) and 22 800 patients who are older adults.	Residents of Torbay, 300 000	Residents of Nottinghamshire; 310 000	Residents of the Valencia area; >1000 000
ACS Partners	• 52 physicians' practices (22 general practitioners, 5 pediatricians, 3 psychotherapists, 22 specialists), • 6 hospitals • 3 pharmaceutical manufacturers • 9 nursing homes • 4 ambulatory	• Canterbury DHB, • Pegasus Health, • Pharmacy, • public and private nursing organizations, • Laboratory providers.	• Insurer VGZ and multiple providers (81 GPs and primary care professionals from 55 general practices and 1 academic hospital)	• 100 general practices • 2 acute care trusts • 5 primary care trusts • 2 mental health care trusts • 3 community health trusts • 5 local authorities	• South Devon and Torbay Clinical Commissioning Group • South Devon Healthcare NHS Foundation Trust • Torbay and Southern Devon Health and Care NHS Trust • Torbay Council Devon	• 2 NHS commissioners that represent Nottinghamshire's 2 CCGs • Local authority commissioner • 7 providers across care pathways such as primary, mental health, acute, ambulatory, after-	• A single private management company that integrates care between a hospital, 28 primary care physician offices, 8 basic care facilities, 5 integrated health centers

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
	• home health agencies • 5 physiotherapists • 14 pharmacies • 22 health and sports clubs, and 6 gyms.			• 2 voluntary sector organizations (Age UK and Diabetes UK)	Partnership NHS Trust, Devon Health and Wellbeing Board, Torbay Health and Wellbeing Board, Devon County Council, Rowcroft Hospice, South Devon and Torbay Strategic Public Involvement Group, Northern, Eastern and Western Devon Clinical Commissioning Group	hour service, and community-health services.	and I specialty center.
Governance	• Four advisory councils: 1) patient board; 2) patient ombudsman; 3) physician's board; 4) provider's board. • All business-critical decisions require the consensus of the Physician's Board and the CEO, who is appointed by OptiMedis AG	• Alliance leadership team, alliance support team, and a number of service-level alliances and work groups •	• Executive Board • Boards of the regional associations of GPs, physiotherapists, and dieticians • Independent control board monitors and advises Zio.	• Integrated Management Board made of representatives from provider organizations and the GPs who were to chair multidisciplinary groups. • Committees included Finance and Performance, Evaluation and Research, Clinical &	• Board of directors has collective responsibility for the exercise of all the powers of the Trust. • Committees e.g., Audit and Assurance Committee, Quality Assurance committee, Finance, Performance, Investment Committee	• Strategic Board governs the alliance. • Citizens' Board provides stakeholders' feedback. • Organizational Statutory Bodies helps involve state institutions in high-level decisions.	• Governed through the Hospital de La Ribera board. • This board receives input from doctors and coordinators

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
				Education, and Information Technology.			
Financing	• Partners sign a shared savings contract that holds GK accountable for managing care for enrolled patients with a particular focus on high-risk patients. • GK contracts health providers and reimburses them through FFS and bonus payments for integrated and value-based.	• DHB allocates annual block grants to its providers and makes collective decisions with alliance partners on how to allocate savings from improvement initiatives •	• Zio reimburses health providers using singular bundled payments covering a continuum of disease-specific services. • 10% of these payments is linked to performance.	• Providers are reimbursed using a capitated payment to conduct care integration activities, with flexibility in how to allocate these payments. • All ICP partners receive a proportion of any funding surplus at the end of the pilot if hospital admissions were reduced by 16.2%.	• Providers are reimbursed using capitated payments where 1 % of the payment is linked to performance.	• Providers are reimbursed using capitated payments where 2.5% of the payment is linked to performance. • Providers share cost savings related to prescribing equivalent but cheaper medications, and they share risk associated with discharge transitions.	• Capitation system (hospital + primary care) follows the patient journey. • Provider is paid an annual fee based on the size and anticipated health conditions of the population to be served •
Patient engagement	• Patient advisory board • Patient ownership of medical records Self-management and education	Patient satisfaction surveys	Patient experience surveys	Patient experience surveys	Patient experience surveys	• Early patient consultations in the design phase of the pilot • Development of metrics Patient experience surveys	Patient satisfaction surveys
Performance measurement	Measures include	Measures cover 4 domains;	Measures are grouped into 2 groups;	Measures cover 4 domains;	Measures span 3 domains;	Measures spans 4 domains:	• 48 indicators were identified and

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
	• total cost per patient • patient and provider satisfaction • percent of patients with avoidable negative health outcomes • percent of patients/physicians adhering to clinical guidelines • quality of life • percent of patients with avoidable hospitalizations, • percent of patients with a prescription of antibiotics percent of patients in integrated care	• ***Prevention Services*** **(**Women aged 50-69 years having a mammography in the last two years, young women completing an HPV vaccination program), • ***Early Detection & Management Services*** *(*People receiving subsidized diabetes self-management support from their general practice when starting on insulin), • ***Intensive Assessment and Treatment Services*** *(*Young people (0-19 years) accessing specialist mental health services & • ***Rehabilitation and Support Services*** *(*People accessing community-based	• ***Disease specific measures*** (Prevalence of DM, Patient division between GP's and specialists, Percentage of patients not included in disease management program, Percentage of patients less than 80 years of age who had an LDL cholesterol (less than 2.5 mmol/L) test in previous 5 years, Percentage of patients using lipid lowering medications, Percentage of patients tested for late stage chronic kidney disease, Percentage of patients that have been tested for kidney disease using urine test, Percentage of diabetes patients with known smoking behavior, Percentage of patients that smoke,	• reduction of unwarranted service utilization and costs • improvement of clinical outcomes • improvement of quality of care • improvement of patient and professional experience	• ***Developing well*** (reduce self-harm attendances by 10% a year, improve experience of people using the service by: to be agreed with service users, rate of increase of alcohol related hospital admissions: 0%, attainment of personal goals set with individuals for the outcomes they want), • ***Living well and working well*** (reduce the numbers of frequent attenders to secondary care with MUS by >10%), • ***Aging well and dying well*** (reduce hospital admissions by 10% a year improve experience of person with dementia/families by: measures to be determined at engagement,(increase the	• population health, • quality of life • quality of care care effectiveness.	grouped into three categories: quality, service, and management. • Indicators include ***process indicators*** (for example, waiting times and clinical activity); • ***Clinical outcomes*** (including immunization and mortality rates); • ***patient experience*** (such as satisfaction and involvement in care, and the number of complaints handled on time).

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
		pulmonary rehabilitation courses, and people (aged 65 years or older) accessing the community-based falls prevention service)	Percentage of patients with fundus examination in previous two years, Percentage of patients that had a foot examination and • ***Measures of patient perspectives of chronic care delivery*** (percentage of patients provided with self-management support and the percentage of patients experiencing integrated care)		number of people supported to die at home if that is their wish support the reduction in hospital deaths by 10% per year support a 25% reduction in the average length of stay in hospital for patients in the last two weeks of life)		
Evidence of performance	• sustained lower hospitalization rates, higher life expectancy and higher mean age at the time of death than in a control group • 92 percent patient satisfaction rate, • exclusively financed out of shared savings (after start-up	• acute admissions rate remains one of the lowest in the country (at 5,341 per 100,000 people, compared with a national rate of 7,644 per 100,000 people)	• 54% decrease in hospital admission costs for patients assigned to specialty nurses • 15% decrease in proportion of patients with poor glycemic control	Patient and provider experiences were positive while there was no significant reduction in utilization	• The daily average number of occupied beds fell from 750 in 1998/99 to 502 in 2009/10. • Emergency bed day use in the population aged 65 and over is the lowest in the region at 1920 per 1000	• Reduced ED utilization across all age groups as compared to the previous period • In 2016–2017, generated £22.275 million ($27.67 million USD, 2016) in total savings, £3.5 million ($4.35 million	• 27% decrease in cost per capita • Electronic patient records for all patients • Average length of stay reduced by 20% • Average elective waiting time

Name	Gesundes Kinzigtal (GK)	Canterbury District Health Board (Canterbury DHB)	Zorg In Ontwikkeling (Zio)	North West London Integrated Care Pilot (NWL ICP)	Torbay and South Devon Care Trust	Mid Nottinghamshire Better Together Health and Social Care (Better Together)	Alzira
	financing for the first year); • total cost savings of ~$38.2 million (USD 2014 from 2007-2014, cost reduction of 7 percent per insured person in the ninth year (2014) of the project (€5.5 million total, $7 million USD 2014).	• avoidable admission rate is also lower than average (2,637 per 100,000 people, compared with 3,717 per 100,000 people nationally). the proportion of people aged over 75 living in care homes fell from around 16 per cent in 2006 to 12 per cent in 2013, and this trend has continued	Improved patient satisfaction scores, with 89 % of the patients saying they would recommend the model.		population compared with an average of 2698 per 1000 in 2009/10. • Emergency bed day use for people aged 75 and over fell by 24 per cent between 2003 and 2008 and by 32 per cent for people aged 85 and over in the same period. Delays in care transition from hospital significantly reduced and sustained over time.	USD, 2016) in gross savings, and a 122% return on investment. • a gross financial benefit of $39 million to the local health and social care economy by 2018/19 is anticipated.	reduced by 55% • 54% reduction in average A&E waiting time • 34% reduction in hospital readmissions within 3 days • 91% patient satisfaction 93% staff satisfaction