

Jurisdictional Scan on Select Integrated Care Systems

The following document presents some findings from the research literature, grey literature, and relevant websites on topics pertaining to Integrated Care Systems (ICSs) around the world that integrate care across the full continuum of care (i.e., across public health, primary care, acute care, home and community care, and long-term care) and serve a large population over a wide geographical area. In particular, topics of interest regarding ICSs included:

- Services offered;
- Method of care coordination;
- Use of digital care and/or connectivity;
- Funding mechanisms or models, including information on:
 - How base funding amounts are calculated;
 - How funds are allocated; and
 - Funding incentives;
- Outcomes achieved for:
 - Cost and utilization;
 - Patient and population health outcomes; and
 - Patient and caregiver experience;
- Performance measurement and the respective monitoring attributes, including information on:
 - Indicators used to track outcomes;
 - Process for selecting and updating indicators;
 - Indicator monitoring processes; and
 - Linkages between outcomes and payment mechanisms.

This jurisdictional scan is a high-level overview of selected integrated care systems in Canada and internationally based on publically available information, and is not intended to be a systematic or fully comprehensive review. The findings presented here reflect the information that was identified within the scope of this jurisdictional scan, and may not represent consensus positions or the most updated literature. Further, in many cases, the wording presented in this jurisdictional scan was taken directly from the cited source documents; please refer to these documents when citing the literature.

SUMMARY OF MAIN FINDINGS

- The eight Integrated Care Systems (ICS) reviewed in this jurisdictional scan included: Group Health Centre (Ontario), Kaiser Permanente (United States [US]), Geisinger (US), Group Health Cooperative (US), Nuka System of Care (Alaska, US), Integrated Care Systems (United Kingdom [UK]), the Canterbury Health System (New Zealand), and the Alzira Model (Spain).

Services Provided

- The eight ICS models varied in structure and operation, but all generally involved integrating a wide range of health services under a full continuum of care (e.g., primary care, mental health care, long-term care). These models were often adapted regionally to respond to the needs of a population in a particular region.
- Use of digital technology to enhance care coordination and provision varied across the ICS models. Health information systems, such as electronic health records, were commonly used by all the ICSs, except for the Canterbury Health System. Such digital technology allowed for efficient tracking and sharing of patient records between providers, as well as enhanced communication

between patients and providers and between providers who shared care responsibilities for a patient.

- Care coordination often involved general and specialized health care providers all working collaboratively to coordinate integrated care for patients, largely through the formation of teams where providers adjusted their roles and responsibilities such that each provider would be able to operate at the highest level of their expertise.

Funding Mechanisms

- Limited information was identified on how base funding amounts were calculated in the ICS models.
- Examples of compensation models for health care providers included mixed salary and productivity-based compensation, salary with team-based bonuses for meeting performance targets, and practice-based payments.
- Some ICS models included financial incentives, which were often linked to the quality of care provided and patient satisfaction. In general, these incentives were shared between health care providers and their work practices.

Performance Measurement

- Indicators, when identified at the point of establishment of ICSs, were used to guide performance of providers towards set goals for improving care provision. Regional adaptation of indicators were noted when the population served by the ICS were diverse (e.g., the Canterbury Health System has a set of indicators specific to the health outcomes of its Māori population).
- Indicators were generally related to health outcomes of patients, quality of care, and management of care. The ICS in the UK was unique in their performance measurement approach as they included indicators related to health outcomes and the experience of providers.
- Limited information was identified about the process of selecting indicators, monitoring the performance of ICSs, and linkages between performance measurement and payment mechanism.

Reported Outcomes

- Limited information was identified on the outcomes achieved by the eight ICSs, particularly related to cost/utilization. Generally, they were associated with improved access to care, some health population health outcomes (e.g., reduced emergency hospital admissions and improved access to primary care services), and provider and patient satisfaction with care.

CONTEXT

According to a 2018 King's Fund report on integrated care systems (ICSs), ICSs have been emerging in response to the need for more integrated care, particularly for a growing number of older people and people living with long-term and complex health conditions. The report noted that ICSs encourage and enable health care providers to effectively collaborate to use resources efficiently and provide quality care to patients to improve their health and well-being.¹

Eight ICS models were identified from Ontario (Group Health Centre), the United States ([US]; Kaiser Permanente, Geisinger, Group Health Cooperative, and Nuka System of Care), the United Kingdom ([UK]; Integrated Care Systems), New Zealand (Canterbury Health System), and Spain (Alzira Model). The following aspects of these eight ICSs are discussed below: 1) background; 2) services offered and methods of care coordination; 3) digital care use; 4) funding mechanisms; 5) performance measurement; and 6) reported outcomes.

1. Group Health Centre (Sault Ste. Marie, Ontario)

1.1 Background

According to Group Health Centre, the organization was founded in 1963 by thousands of Sault Ste. Marie steelworkers. It was one of the first union-sponsored community health centres in Canada, and it provided its members with primary and preventative care with no out-of-pocket cost at a time before provincial health insurance existed.²

As of 2019, Group Health Centre serves over 80,000 patients in the community with a combined total of over 300,000 visits across eight sites in Sault Ste. Marie. The Centre is home to:

- 80 primary and specialty care physicians;
- 11 nurse practitioners;
- Over 100 nurses;
- 33 allied health professionals;
- Over 12 clinical programs;
- 70,000 rostered patients;
- The largest community-based diagnostic imaging facility in Sault Ste. Marie; and
- The largest physiotherapy department in Sault Ste. Marie (includes five physiotherapists and two physiotherapy assistants).²

1.2 Services

The Group Health Centre is the first contact and principal point of continuing care for many Algoma District patients to the health care system, and coordinates other specialist care that patients may need. Primary care services are provided by general practitioners and family physicians.³

According to the Group Health Centre, the following programs and services are offered by the Centre:

- Breast health;
- Diabetes education and care;
- Respiratory education program;
- Anticoagulation program;
- Audiology;
- Cardiac rehab;
- Child and youth mental health program;
- Congestive heart failure;
- Diagnostic imaging;
- Foot care;
- Hepatitis care program;
- HIV/AIDS resource program;
- Nutritional services;
- Obstetrics and gynecology;
- Occupational health and wellness services;
- Ophthalmology;
- Pediatrics;
- Phototherapy;

- Physical therapy;
- Same-day clinic; and
- Surgery.²

1.3 Digital Care

A dedicated registered nurse at the Group Health Centre provides digital care through telemedicine. Telemedicine uses telecommunications technology to provide clinical health care in Ontario at a distance.³

1.4 Funding

The Group Health Centre organization is a collaborative model jointly managed by two independent corporations: the Group Health Association (GHA), a non-profit corporation providing administrative and management services to the GHC, including the employment of the interdisciplinary health care providers, and the Fera Medicine Professional Corporation. The Fera Medicine Professional Corporation (FMPC) is a physician corporation which receives funding for provision of General Practitioner services under a capitated compensation model similar to a Family Health Organization and specialist services which are compensated using a notional rate or salary.³

1.5 Performance Measurement

The Transfer Payment Agreement (Agreement) established between the Ontario Ministry of Health and Long-term Care and the Group Health Centre sets out the responsibilities of each organization including FMPC's obligation to provide in and out-patient care to its enrolled patients admitted at Sault Area Hospital, as well as an obligation for the GHA and the FMPC to co-ordinate the efforts of their organizations and to work collaboratively through the overseeing governance of the Group Health Centre (GHC). The GHC Board of Directors is comprised of four members from each of the FMPC and the GHA.³

1.6 Outcomes

The Group Health Centre provides a range of primary and specialist health care, health promotion, diagnostic and other services to approximately 80,000 patients, which represents 80% of the population of Sault Ste. Marie and 60% of Algoma District in northern Ontario.³

2. Kaiser Permanente (US)

2.1 Background

Kaiser Permanente (KP), founded in 1945, encompasses three mutually interdependent organizations:

- A hospital system (Kaiser Foundation Hospitals);
- A capitated insurance plan (Kaiser Foundation Health Plan); and
- A network of organized physicians (Permanente Medical Groups).⁴

As of 2018, KP is headquartered in Oakland, California and serves 12.2 million members. Health plan memberships by region are as follows:

- Northern California: 4,288,153;
- Southern California: 4,530,385;
- Colorado: 655,437;
- Georgia: 356,744;

- Hawaii: 252,977;
- Mid-Atlantic States: 772,340;^a
- Northwest: 606,159;^b and
- Washington: 705,267.⁵

As of 2018, the number of medical facilities and employees in KP are as follows:

- Hospitals: 39;
- Medical offices: 690;^c
- Physicians: 22,013;^d
- Nurses: 58,345;^e and
- Other employees: 212,173.⁵

The annual operating revenue of KP in 2017 was CAD \$90.9 billion.^{6,f}

2.2 Services

According to a 2009 study on KP's electronic health record (EHR) system, KP members receive the entire scope of health care services: 1) preventive care; 2) well-baby and prenatal care; 3) immunizations; 4) emergency care; 5) hospital and medical services; and 6) ancillary services, including pharmacy, laboratory, and radiology.⁶

According to a 2004 commentary published in the British Medical Journal, KP recruits clinicians who believe in a “whole systems approach”^g to health care and who embrace team-based environments.^h KP is organized so that all doctors from primary, secondary, and tertiary care share the budget and responsibility for all care. The commentary stated that:

- The primary and secondary doctors at KP have decided that the most cost-effective way to allocate their shared budget in an era of sophisticated speciality medicine is to have patients diagnosed and treated in multi-speciality health centres where primary care teams work, lunch, and socialize with specialty nurses and doctors, laboratory and imaging technicians, and with the pharmacy team. Patients choose their own primary care doctor, but rapid referral and assessment to the more common specialties and testing is on site.

^a Comprising Virginia, Maryland, and Washington, D.C.⁵

^b Comprising Oregon and Washington.⁵ It is unclear why a separate figure is then listed for Washington State if the Northwest region comprises both Oregon and Washington. It is likely that the separate figure for Washington State represents members of the former Group Health Cooperative which was acquired by KP in 2017.

^c No information provided as to what is meant by “medical offices.”

^d Approximate as of June 30, 2018, representing all specialties.⁵

^e Approximate as of December 31, 2017, representing all specialties.⁵

^f KP reported figures of USD \$72.7 billion. All Canadian Dollar (CAD) amounts were calculated using Purchasing Power Parities (PPPs) as published by the Organisation for Economic Co-operation and Development (OECD) for 2017 (1 US Dollar [USD] = 1.25 CAD). PPPs are the rates of currency conversion that eliminate the differences in price levels between countries ([OECD, 2017](#)).

^g The term “whole systems approach” was not further defined in the source document.⁷

^h According to the 2004 BMJ commentary, KP's recruitment method came about as a result of necessity. KP's pre-paid, fixed budget design initially aroused fierce opposition from the county, state, and national medical societies which barred KP doctors from existing facilities so that KP had to build its own hospitals and become a self-contained delivery system with its own full-time doctors, nurses, and staff.⁷

- An important lesson underlying the KP model of truly integrated commissioning is that it does not commission hospital care specifically. What it commissions is specialty care, often by nurses. The specialty teams then decide what hospital services they need to contract for and what social or community services are needed to help patients stay out of hospital.⁷

2.3 Digital Care

The 2009 study on KP's EHR system stated that KP began implementing KP HealthConnect in 2004, which is a comprehensive health information system with numerous functionalities, including:

- An EHR with comprehensive documentation across care settings – inpatient and outpatient, clinical decision support, and complete, real-time connectivity to lab, pharmacy, radiology, and other ancillary systems;
- Secure patient-provider messaging available through a member website that also provides personal health records; and
- Electronic inter-provider messaging about care that is automatically incorporated into patients' records.⁶

According to the 2009 study, the introduction of the new EHR system created operational efficiencies by offering non-traditional, patient-centered ways of providing care. For example, after the implementation of the new EHR system, the following outcomes were observed for KP in Hawaii between 2004 and 2007:

- Total office visit rate by patients decreased by 26.2%;
- The adjusted primary care office visit rate decreased by 25.3%;
- The adjusted specialty care office visit rate decreased by 21.5%; and
- Scheduled telephone visits increased more than eight-fold, and secure e-mail messaging increased nearly six-fold by 2007.⁶

2.4 Funding

According to the 2004 British Medical Journal commentary, KP is organized so that all doctors from primary, secondary, and tertiary care share the budget and responsibility for all care. This arrangement has required generalists and specialists to resolve their differences and figure out ways to minimize costly hospital services and maximize cost-effective services.

- Everyone at KP is on salary, with small, team-based bonuses for meeting performance targets. Staff are not allowed to build up a private practice in KP.
- All clinicians share incentives to treat patients early and quickly, so any inefficiencies and waste affect their budgets.⁷

2.5 Performance Measurement

No information was identified.

2.6 Outcomes

The following information was identified on patient and provider outcomes in the KP model:

- **Patient Health Outcomes:** According to a 2016 study on quality of care in KP, patients fared better in terms of mortality and failure-to-rescue (i.e., death for surgical patients who experienced one of 39 possible complications) in KP hospitals compared with non-Magnet hospitals and equally

as good as in Magnet hospitals. The study attributed the advantage to differences in nursing care practices in KP hospitals.^{8,i}

- **Provider Experience:** Two studies were identified that reported positive outcomes associated with health care provider experience in the KP health model:
 - A 2016 study on physician professional satisfaction found that eight in 10 KP physicians surveyed (N=636, 61.5% response rate) in the Southern California region reported satisfaction with their day-to-day professional life as a physician.
 - Primary care physicians were only minimally less likely to report being satisfied than were other non-KP physicians.
 - Nearly all KP physicians (98.2%) were satisfied with the quality of care they were able to provide.
 - Approximately eight in 10 physicians reported satisfaction with their income.⁹
 - The 2016 study on quality of care in KP found the following positive outcomes experienced by nurses working in KP:
 - Workload and Environment: When compared to other non-Magnet hospitals, KP hospitals had significantly lower nurse workloads and better quality of the work environment for nurses.
 - Staffing Ratios: When compared to other non-Magnet hospitals, KP hospitals had a greater proportion of Registered Nurses (RNs) among all nursing services personnel.
 - Education: When compared to other non-Magnet hospitals, KP hospitals had a higher percentage of nurses with bachelor's degree.
 - Turnover: Nurses working in KP hospitals were significantly less likely to report being dissatisfied or intending to leave their job than nurses in other hospitals, including Magnet hospitals. According to the study, intent to leave is especially important because of its relationship to turnover, which is expensive because of the costs associated with using supplemental nurses as well as recruiting, orienting, and training new permanent nurses to replace those who leave.
 - Leadership Positions: KP has a highly visible and empowered nurse in an executive leadership position who is involved in decisions within the organization and is a national leader in nursing and quality of care. No other information was provided about leadership positions in KP.⁸

3. Geisinger (US)

3.1 Background

Geisinger is an integrated health care delivery system located in Central and Northeastern Pennsylvania, comprising:

ⁱ According to the study, the Magnet hospital concept, which became formalized as a voluntary accreditation program in the 1990s through the American Nurses Credentialing Center Magnet Recognition Program, originally evolved from the observation that hospitals that were successful in attracting and retaining qualified nurses resembled the most highly ranked US corporations. Hospitals with these characteristics were identified as being good places for nurses to work. Thus, the study thought that Magnet hospitals made an excellent comparison group to evaluate how nursing is organized in Kaiser hospitals and how nursing is associated with patient and nurse outcomes.⁸

- Nearly 700 physicians (250 providing primary care and 450 providing specialty care) across 55 clinical practice sites;
- Three acute care hospitals (one employing Geisinger physicians only and the other two with a mix of Geisinger and non-Geisinger physicians);
- Specialty hospitals and ambulatory surgery campuses; and
- 215,000 members of the Geisinger Health Plan (GHP).¹⁰

A 2008 article on the Geisinger system described Geisinger as having an “open yet integrated delivery system” (as opposed to a closed system such as that of KP). An open system means that Geisinger actively serves both its own GHP enrollees and non-GHP consumers in its service area.¹⁰

3.2 Services

According to the 2008 article on the Geisinger system, Geisinger services include:

- Adult and pediatric primary and specialty care;
- Prenatal outreach; and
- Community-based care for the frail elderly.¹⁰

From a care delivery perspective, Geisinger physicians provide approximately 40% of GHP’s patient care services, with the remainder provided by a network of more than 10,000 physicians and 40 hospitals. Geisinger manages 22 system-wide clinical service lines, each co-led by a physician-administrator pair. These service lines, along with each hospital, GHP, and central support functions,^j are responsible for achieving their own annual quality and financial budget targets.¹⁰

3.2.1 Primary Care

As reviewed below, primary care under Geisinger includes a patient-centred medical home initiative, chronic care program, and acute care program.

3.2.1.1 ProvenHealth Navigator (Patient-Centred Medical Home Initiative)

In 2008, Geisinger implemented a patient-centred medical home initiative,^k called “ProvenHealth Navigator”, which is designed to deliver value by improving care coordination and optimizing health status for each individual. Components for consumers include:

- Round-the-clock primary and specialty care access;
- A GHP-funded nurse care coordinator in each practice site;
- Predictive analytics to identify risk trends;
- Virtual care management support;
- A personal care navigator that responds to consumers inquiries;
- A focus on proactive, evidence-based care to reduce hospitalizations, promote health, and optimize management of chronic disease;
- Home-based monitoring and interactive voice-response surveillance; and

^j Strategic functions such as innovation and quality are centralized, although they retain strong linkages to operational leaders and frequently share common performance-incentive goals.¹⁰

^k Conceptually, patient-centred medical home can be defined as the following: Provision of comprehensive primary care services that facilitates communication and shared decision-making between the patient, his/her primary care providers, other providers, and the patient’s family.¹¹

- Support for end-of-life care decisions.¹⁰

According to a 2015 study on Geisinger, as a part of patient-centred primary care, population management activities have been moved to the ProvenHealth Navigator sites via embedded nurse case managers. These case managers receive lists of high-risk patients from GHP, and they review these lists together with the primary care provider at their respective sites. The case manager takes the clinic's knowledge of the patients and couples it with the claims-based intelligence (i.e., predictive models and risk stratification software based on claims data) in order to target those most in need of intervention with the most intensive services. The study noted that this approach establishes a system of care, particularly for the sub-populations identified as high-risk, via case management. The study observed that under this model, each patient-centred medical home designs a care system that identifies acting physicians at other care sites and increases communication and coordination between them and the medical home.¹¹ For example:

- **Special Needs Unit (SNU) for Medicaid Population:** In 2013, Geisinger began providing for 170,000 Medicaid members in Pennsylvania.¹ To address the more complex Medicaid population, Geisinger's enhanced approach to case management included a SNU. In particular, Geisinger re-designed its ProvenHealth Navigator program to include more community-based outreach and efforts focused on social service needs to facilitate early interventions for prevention and timely care support.
 - The SNU team addresses patient needs associated with costly medical conditions combined with other variables that tend to increase their patterns of utilization, including challenging psychological, social, and financial circumstances.
 - The SNU complements the nurse case managers with social workers to address social determinants of health. It provides an added support structure that addresses the high-needs Medicaid population's diverse yet identifiable set of issues, including homelessness, pediatric and obstetric high risk, and behavioural health, with clinicians and team members with training and experience in these areas.¹²

Since Geisinger began enrolling Medicaid members, it has relied on a committee, called the "Medicaid Cost Trends Review Committee," to evaluate its utilization and cost experience. This committee continues to meet on a weekly basis to identify and review specific trends using claims and other available data, such as EHRs. In addition, information is shared from real-life, on-the-field experiences uncovered by clinical management team members.

- **Committee Members:** A key characteristic is the multidisciplinary nature of the committee, which includes medical data analysts and clinical representation (e.g., physicians, nurses, and pharmacists), as well as representation from finance and provider network management. This facilitates alignment and coordination of clinical, financial, and contracting areas to more effectively address all identified issues and areas of variation in need of intervention.

¹ In recent years, the Affordable Care Act in the US has expanded the Medicaid program by allowing states to lower income eligibility thresholds and providing subsidies to state governments. Although this has reduced the number of uninsured individuals in the US, it also has increased the administrative and financial burden on state governments for managing the Medicaid program. In response, some states have opted to rely on private managed care organizations to attempt to manage Medicaid cost growth. In Pennsylvania, the state Department of Human Services has contracted with private insurers, including Geisinger, who agree to accept the full risk of coverage in exchange for per-capita reimbursement from the state, with severity adjustment based on member diagnoses and risk factors.¹²

- **Data Management:** Systematic application of this approach relies on all key data findings that are captured as early as possible to enable identification of emerging issues and then to quickly develop management action plans. This process contrasts with more conventional approaches that are subject to claims data lags. For instance, pharmacy claims and health plan authorization data have been important sources of information used for early identification of adverse trends with resultant changes in case management and medical management.¹²

Please see Exhibit 1 in the [Appendix](#) for further information about the five core components of the Geisinger's ProvenHealth Navigator patient-centred medical home: patient-centred primary care, population management, medical neighbourhood, performance management, and value-based reimbursement.¹¹

3.2.2 Chronic Care

Geisinger has a program focusing on preventive care to address chronic diseases. This program uses Geisinger's EHR and data infrastructure to embed care workflows that eliminate, automate, or delegate tasks whenever possible. Clinical practices are standardized using a newly developed nursing tool to capture and summarize information before the patient enters the exam room. Patients' care plan needs are identified electronically and incorporated into physician order sets along with EHR-based health maintenance alerts. A condition-specific "snapshot report" aggregates all relevant clinical information on a single screen.¹⁰

3.2.3 Acute Care

According to the 2008 article on the Geisinger system, to begin to reengineer episodes of acute care, Geisinger created a new model for coronary artery bypass graft (CABG) surgery, consisting of three core components:

- Establishing implementable best practices across the entire episode of care;
- Developing risk-based pricing, including an upfront discount to the health plan or payer for the historical readmission rate; and
- Establishing a mechanism for patient engagement.¹⁰

For the ProvenCare CABG program, several multi-disciplinary teams consisting of Geisinger staff were formed. Implementation of the program consisted of the following steps:

- A clinical leadership team systematically translated professional society guidelines into 40 discrete care-process steps.
- A multidisciplinary clinical operations team (including clinical, information technology, process improvement, and operations staff) then embedded these steps into both human and electronic workflows to ensure reliability. For example, an EHR flow sheet was created to track key clinical elements, to alert providers if a step was incomplete, and to automatically route related messages and orders to facilitate flow and keep the broader care delivery team informed.¹⁰

The ProvenCare program has been expanded to include hip replacement, cataract surgery, and percutaneous coronary intervention. According to the 2008 article, further expansion to bariatric surgery, lower back surgery, and perinatal care was actively under way.¹⁰

3.3 Digital Care

According to the 2008 article on the Geisinger system, a commercial EHR platform was adopted in 1995 and is fully used across the system for ambulatory services. The article noted that one of the hospitals (the Geisinger Medical Center) has a fully implemented EHR for all inpatient care, and other hospitals were undergoing phased implementation. The EHR is made available (as read-only) to non-Geisinger referring physicians and to consumers (selected elements with limited data entry only) via customized web portals.¹⁰

3.4 Funding

The 2008 article on Geisinger system stated that, from a payment perspective, GHP accounts for a minority of Geisinger's direct patient care revenue, with two-thirds collected from other payers (e.g., Medicare, Medicaid).

From a care delivery perspective, the article noted that Geisinger implements “practice-based payments” for physicians to encourage physician engagement and to support the costs of transformation. This practice consists of:

- A fixed monthly payment of CAD \$2,214 per physician in order to recognize the expanded scope of practice.
- A fixed monthly transformation stipend of CAD \$6,150 per thousand Medicare members are paid to the practice to help finance additional staff, support extended hours, and implement other practice-infrastructure changes.
- An incentive pool that is created based on differences between the actual and expected total cost of care for medical home enrollees. However, incentive payments from this pool are conditional upon performance in meeting quality indicators, with actual payment amounts pro-rated based on the percentage of targets met for 10 quality metrics. To encourage team-based care and support, incentive payments are split between individual providers and the practice. It is anticipated that over time these payments will replace the fixed monthly payments described above.^{10,m}
 - For the ProvenHealth Navigator program, total reimbursement for the Navigator sites is linked to their performance via bonus payments and a shared-savings program based on documented metrics of quality and utilization. These metrics include widely accepted measures such as the Healthcare Effectiveness Data and Information Set and the Consumer Assessment of Healthcare Providers and Systems.¹¹
 - For the chronic disease preventive care program, financial incentives of up to 20% of total cash compensation per physician are linked to patient satisfaction, quality, and value goals, including overall bundle-score improvements.¹²

A 2017 article on bundled payment innovations noted that Geisinger has engaged with multiple innovative and iterative episode-based care delivery and financial models during the past 10 years. In particular, Geisinger adopted the “Bundled Payments for Care Improvement Initiative (BPCI)”ⁿ Model 2, which uses episode-based payment bundling for defined medical services rendered during a particular instance of care. The article noted that the basic financial methodology inherent in BPCI Model 2 is that an episodic

^m The 2008 article reported figures of USD \$1,800 as fixed monthly payment per physician and USD \$5,000 as fixed monthly transformation stipend. All CAD amounts were calculated using PPPs as published by the OECD for 2015 (1 US Dollar [USD] = 1.23 CAD) ([OECD, 2017](#)).

ⁿ BPCI is a US federally driven bundled payment innovation projects. For more information on BPCI, please consult [this webpage](#) on the website of the Centers for Medicare and Medicaid Services.

financial target is established based on the institution's actual historical performance, adjusted for various trend factors and discounts. Medicare fee-for-service billing proceeds as usual during the care episode. A complex process later ensues where an "actual" cost for Medicare services rendered to the BCPI participants is determined. For a given three-month period, for all BPCI patient episodes of a given type, the actual amounts Medicare paid are compared to the episode target. If the amount paid is less than the target, then a net payment reconciliation amount (NPRA) is paid to the participating institution. If the NPRA is greater than target, then the difference is paid back by the institution to Medicare.⁹

- In 2014, Geisinger adopted the BPCI Model 2 for the major joint replacement lower extremity bundle for two of its hospitals. BPCI Model 2 is defined by care of selected Diagnosis-Related Groups (DRG)^p in the acute hospital care and defined post-acute care period. It covers all Medicare Part A and B services, and is paid retrospectively.¹³
- Geisinger also adopted the BPCI Model 2 for chronic obstructive pulmonary disease, hip and femur except major joint, major bowel, spinal fusion (cervical), and spinal fusion (non-cervical) bundles for two of its hospitals.¹³

3.5 Performance Measurement

According to the 2008 article on the Geisinger system, detailed monthly performance reports of quality and efficiency results are provided to each medical home practice and are reviewed together by an integrated GHP-practice site team monthly. Trends and associated opportunities for improvement are identified, and change management plans are created to address any deficiencies. Senior managers from both the community practice service line and GHP participate to identify and rapidly spread best practices.¹⁰ For example:

- **Chronic Disease Preventive Care Program:** For this program, Geisinger tracks performance using an "all-or-none bundle approach," where only full compliance with all individual performance metrics is scored a success. For diabetic patients, the bundle consists of nine discrete evidence-based care elements, including: HbA1c, low-density lipoprotein (LDL), and blood pressure testing and target levels; non-smoking status; urine protein measurement; and influenza and pneumococcal vaccination. Diabetic patients are automatically identified prior to their arrival at the clinic, and a patient-specific, evidence-informed order entry set is generated (including standing orders for routine testing such as for HbA1c and LDL) that can be accepted by the physician with a single electronic click.¹⁰

3.6 Outcomes

Reported outcomes were identified on the following components of the Geisinger health care model:

- **ProvenHealth Navigator:** Two studies were identified which found promising results associated with implementation of the patient-centred medical home initiative:
 - The 2008 article on the Geisinger system noted that a primary target outcome for the patient-centred medical home initiative is reduced hospital use. According to the article,

⁹ Medicare additionally applies a three-month delay to readjust the "actual cost" based on delayed billing decisions as well as inclusions or exclusions of patient episodes based on relatively complex precedence rules. When the financial evaluation and re-evaluation periods and other timeline factors (such as three subsequent three-month, post-acute observation periods, known as "true-ups") are all considered, in some instances over 17 months can pass between the start of an episode quarter and the final decision as to whether an institution will receive a positive or negative NPRA.¹³

^p A DRG is a patient classification system that standardizes prospective payment to hospitals and encourages cost containment initiatives.¹³ In general, a DRG payment covers all charges associated with an inpatient stay from the time of admission to discharge. The DRG includes any services performed by an outside provide ([HMSA Provider Resource Center, n.d.](#)).

early results from first-year experience at two pilot sites have been promising: preliminary data showed a 20% reduction in all-cause admissions and 7% total medical cost savings.^{10,q}

- A 2015 study on ProvenHealth Navigator found that over a 90-month period (from 2006 through the first half of 2013), total costs associated with the program declined by approximately 7.9%. The largest source of this savings was acute inpatient care which accounts for about 64% of the total estimated savings. The study noted that this finding suggests that the ProvenHealth Navigator, as a primary care program, was effective in reducing downstream costs associated with acute inpatient care.¹¹
- **Chronic Disease Care:** According to the 2008 article on the Geisinger system, for the chronic disease preventive care program, initial results from more than 20,000 diabetic patients have been promising, including statistically significant increases in overall diabetic bundle performance, glucose control, blood pressure control, and vaccination rates.¹⁰
- **Medicaid Patient Care:** A 2016 study of Geisinger's experience with Medicaid populations found that during the first 19 months since beginning Medicaid member enrollment, Geisinger's Medicaid members, particularly those eligible for the supplemental security income benefits, have incurred lower inpatient, outpatient, and professional costs of care compared to expected levels. However, the total cost savings were partially offset by the higher prescription drug costs. The study noted that these early data suggest that an integrated care management effort may achieve significant cost of care savings.¹²
- **BPCI Model 2:** According to the 2017 article on bundled payment innovations, Geisinger's approach to participating in the BPCI for the total joint replacement of the lower extremity bundle has yielded positive results in quality, cost, and patient experience. Geisinger's preliminary results to date have shown a 40% relative decrease in 90-day readmissions, and an 25% increase in patients discharged to home for the two hospitals that adopted BPCI for the lower extremity bundle.¹³

4. Group Health Cooperative (US)

4.1 Background

Group Health Cooperative (GHC) is an integrated health care delivery system based in the State of Washington. According to a 2017 press release, GHC was acquired by KP in February 2017.¹⁴

No further information about the background of GHC was identified.

4.2 Services

According to a 2009 article on GHC, GHC implemented an initiative called the "Access Initiative" to improve patients' access to care in 2003. Access Initiative encompassed the following five components as part of its delivery system:

- A patient website providing patient access to secure patient-physician e-mail, electronic medical records (EMR), medication refills, and health promotion information;

^q Based on this early favourable experience and participants' assessment of a strong clinical impact, this initiative was expanded to 10 additional Geisinger sites and one non-Geisinger practice to cover more than 25,000 Medicare Advantage and fee-for-service Medicare patients. According to the authors of the article, it remains to be determined whether or not this early favourable trend continues over the longer term and in additional sites.¹⁰

- Advanced access to primary care physicians (e.g., appointments with a patient’s primary care physician at the preferred time of the patient);
- Redesigned primary care services to enhance the efficiency of care (e.g., increased physician influence and accountability for daily practice environment, reduced wait times for patients);
- Direct access to physician specialists and removal of primary physician gatekeeping; and
- Primary physician compensation aligned with incentives for patient satisfaction, physician productivity, and secure messaging with patients.¹⁵

4.2.1 Primary Care

GHC launched “Advanced Access”, a component of the Access Initiative, as part of its patient-centred transformation to ensure access to primary care by all patients. Patients could schedule appointments with primary care physicians on the same day or whenever they preferred through phone or GHC’s patient website. GHC also sought to extend the bounds of traditional Advanced Access programs by improving the timeliness of all care. This meant achieving enhanced service and shorter wait times whenever an enrollee engaged with the system, whether through phone contact or via laboratory, radiology, or pharmacy services.¹⁵

As another component of primary care redesign, GHC sought more uniform productivity across physicians to ensure adequate capacity to achieve the goals of Advanced Access to primary care by all patients. In particular, GHC reorganized staffing and patient flow at medical centres. In 2000, staffing in primary care clusters was switched from a 2-1-1-4 staffing model (two physicians, one mid-level provider, one registered nurse, and four licensed practical nurses/medical assistants per team) to a 5-1-2-7 staffing model (five physicians, one mid-level provider, two registered nurses, and seven licensed practical nurses/medical assistants per team) in an attempt to enable each member of the team to operate at a higher level of expertise and to better support workflow efficiencies. These efficiency improvements were seen as important for the sustainability of Advanced Access in primary care.¹⁵

4.2.2 Speciality Care

According to the 2009 article on GHC, following the launch of the Advanced Access initiative, GHC focused on direct access to specialty care for patients. In 2003, GHC enrollees could schedule their own appointments with specialists in 16 different specialities (e.g., cardiology, urology, audiology) without referral by their primary care physician, eliminating the requirement that the primary physician act as the gatekeeper. GHC limited the implementation of access to specialty providers within the integrated delivery system. Access to specialty care outside of the integrated delivery system continued to require a primary care referral.¹⁵

4.3 **Digital Care**

In 2000, GHC launched its patient website with the goal of providing online services that patients value and that support the patient-physician relationship. The website allowed patients to:

- Exchange secure messages with their health care team, including primary and specialist physicians;
- Access their EMR in real-time, including laboratory data, problem lists, medication lists, allergy history, and immunization history;
- Obtain after-visit summaries with hyperlinks to the “Healthwise Knowledge Base” (a searchable health and drug reference library on more than 5,000 topics);

- Obtain refills on medications with free shipping to patients' homes; and
- Schedule office appointments online with physicians.¹⁵

Patient access to the EMR over the patient website was provided through a direct link to GHC's Clinical Information System (CIS) known as EpicCare. All GHC physicians, nurses, and other providers in its integrated delivery system used the EpicCare CIS, which integrated clinical communication and information processes into a single interface that included physician order entry (e.g., laboratory tests, prescriptions, referrals), systematic clinical documentation, clinical decision support, clinical messaging among physicians, secure online messaging with patients, and automated reminders at the point of care.

- According to the 2009 article on GHC, GHC providers were expected to engage in secure messaging with patients. Providers were given a financial incentive beyond their salary to encourage electronic messaging with patients. All normal and most abnormal laboratory tests were visible to patients at the same time as they became available to physicians.¹⁵

To meet patients' needs and preferences for better access to care, GHC implemented the patient website in advance of other physician-focused CIS components, such as computer physician order entry and integrated physician documentation tools. According to the 2009 article, physician leadership was seen as key to the success of the early rollout of the patient website, particularly around patient–physician secure messaging.¹⁵

4.4 Funding

According to the 2009 article on GHC, to meet the combined needs of the Access Initiative, Advanced Access, and a lower overall health plan enrollment, GHC downsized the primary care provider group and shifted to a mixed salary- and productivity-based compensation model for physicians. Productivity was measured by the number of daily outpatient visits and was adjusted for the complexity of patients seen. In particular, the method of primary physician compensation changed from 100% of guaranteed salary to a variable compensation plan that incorporated productivity, patient satisfaction, and coding accuracy.

- By 2004, all primary care physicians received an 80% guaranteed base salary, plus additional variable compensation up to 120% of the guaranteed base. Productivity, including the number and intensity of in-person patient encounters, remained the main component of this flexible compensation plan.
- Physicians, however, had to meet a benchmark for patient satisfaction based on a random survey of patients seen in order to qualify for the productivity incentive. Physicians who achieved outstanding patient satisfaction also received a bonus beyond their variable compensation. These changes in compensation were focused on primary care providers.¹⁵

4.5 Performance Measurement and Outcomes

According to the 2009 article on GHC, the following outcomes have been reported:

- **Patient Experience with Access to Care:** Four of the eight items measuring components of satisfaction with care showed statistically and practically significant increases in the percentage of patients stating they were “very satisfied” in the post-Access Initiative period. For example, patients reported shorter wait times and higher satisfaction for some services. The majority of this change appeared to be due to improvements in the proportion of patients being taken to the exam room within 15 minutes. Furthermore, following the Access Initiative, respondents more often reported recommending their personal doctor or nurse to friend or family member.¹⁵

- **Provider Experience:** Providers reported a modestly less favourable work environment during the rollout phase of the Access Initiative that rebounded in the post-Initiative period. Five measures met the benchmark for statistically significant declines during the rollout period, including perceptions of GHC leadership’s organizational priorities, pride in the quality of care delivered, recommending GHC as a place to receive care, and overall satisfaction with working at GHC.
 - All these measures returned to pre-Initiative levels in the post-Initiative period. Three measures met the benchmark for significant improvement in the post-Initiative period compared to the pre-Initiative period, including providers’ perception of GHC’s leadership taking the organization in the right direction, the quality of service to patients, and pride in the quality of service.
- **Health Plan Enrollment:** GHC enrollment declined during the rollout period of the Access Initiative and stabilized in the two years following the Initiative. However, the 2008 article noted that these changes paralleled the overall changes in the percentage of the Washington state population with health care coverage.¹⁵

5. Nuka System of Care (Alaska, US)

5.1 Background

According to the Patient-Centered Primary Care Collaborative (PCPCC),^r the Southcentral Foundation's (SCF) Nuka System of Care is an Alaska Native-owned primary health care system.¹⁶ The SCF serves a population of around 65,000 Alaskan Indigenous peoples, where approximately 55,000 of the population are located in Anchorage and the remaining 10,000 people in 55 smaller village communities in Alaska.¹⁷

According to a 2013 study on SCF, "Nuka System of Care" is a term that describes the entire health care system created, managed, and owned by Alaska Indigenous peoples to achieve physical, mental, emotional, and spiritual wellness. It is inclusive of all parts of the organization, including behavioural, dental, medical, and traditional services, and all the systems, processes, and departments supporting the service delivery.¹⁸

5.2 Services

Services provided in the Nuka System of Care include:^s

- [Alaska Native Health Resource Advocate Program](#)
- [Audiology](#)
- [Behavioural Health](#)
- [Complementary Medicine](#)
- [Dental Services](#)
- [Elder Program](#)
- [Emergency Department](#)
- [Family Wellness Warriors Initiative](#)
- [Family Health Resources](#)
- [Health & Wellness Program](#)
- [Home Based Services](#)
- [Native Men's Wellness](#)
- [Obstetrics & Gynecology](#)
- [Optometry](#)
- [Pediatrics](#)
- [Pharmacy](#)
- [Physical Therapy & Exercise](#)
- [Primary Care Clinics](#)
- [Soldier's Heart](#)
- [Traditional Healing](#)
- [Research](#)

^r PCPCC is a not-for-profit multi-stakeholder membership organization dedicated to advancing an effective and efficient health system built on a strong foundation of primary care and the patient-centered medical home. The PCPCC positions itself as an advocacy organization, educating and advocating for ideas, concepts, policies, and programs that advance the goals of high-performing primary care ([PCPCC, n.d.](#)).

^s To find more details about these services, please view the respective hyperlinks.

5.2.1 Primary Care

A 2015 King's Fund report on the Nuka System of Care noted that primary care and integrated teams of health care providers provide patient services in primary care clinic settings.

- Integrated teams sit within or rotate through the primary care clinics, supporting the primary care teams and providing rapid consultations with customer-owners^t where needed. Integrated care teams are composed of a team manager, dietician, pharmacist, behavioural consultants, and midwives. In general, doctors delegate tasks to nurses, who further delegate tasks to medical assistants and administrators, thereby allowing them to work at the top of their licence.
- Primary care teams are composed of a general practitioner, a nurse case manager, case management support staff, and a certified medical assistant. The primary care teams are able to provide holistic care for their populations, by combining a range of generalist skills covering both physical and mental health in the teams and bringing specialist skills into the teams where needed. However, the aim is for the primary care team to retain a coordination role where referrals are needed, and to return people to the primary care team's care as soon as possible.¹⁷

5.3 **Digital Care**

According to the 2015 King's Fund's report on the Nuka System of Care, the SCF has made a small number of significant investments to improve its data management and information technology infrastructure. For example:

- **EHR:** In 2011, SCF adopted an electronic patient record system to complete patient records quickly to high standards, allow care providers to easily use the system on their laptops avoiding the need for any paper records, and centralize primary care population data into a single system.¹⁷
- **Online Health Management Tool:** SCF uses this tool to allow their service users to book and cancel primary care and hospital appointments online, see test results, and communicate securely with their health care team. It also allows service users to view their patient records.¹⁷
- **Telemedicine Technology:** Clinical teams regularly travel to villages accessible only by air or boat to deliver care services. Where village clinics are in place, clinicians use electronic communication, including telemedicine technology, to consult on assessment and treatment.¹⁸

5.4 **Funding**

According to the PCPCC, 45% of the Nuka System of Care's funding comes from an annual block grant from the Indian Health Service,^u another 45% comes from Medicaid, Medicare and private insurers, and the remaining funding comes from philanthropy and grants.¹⁶ SCF and the Alaska Native Tribal Health Consortium^v agreed to share all third-party revenues^w and split them by agreed-upon formulas.^x This funding approach results in the sharing of the financial risks and efficiency benefits, such as better coordination and better population management, across the care system.¹⁷

^t Service users are referred to as 'customer-owners' in the Nuka System of Care rather than patients or passive beneficiaries of care.¹⁷

^u The Indian Health Service, an agency within the US Department of Health and Human Services, is responsible for providing federal health services to American Indians and Alaska Natives. The provision of health services to members of federally-recognized Tribes grew out of the special government-to-government relationship between the federal government and Indian Tribes ([Indian Health Service, n.d.](#)).

^v The Alaska Native Tribal Health Consortium is a non-profit Tribal health organization designed to meet the unique health needs of Alaska Native and American Indian people living in Alaska ([The Alaska Native Tribal Health Consortium, n.d.](#)).

^w Third-party payments include a mixture of daily rates, episode-of-care payments, and volume-based activity payments.¹⁷

^x No further information was identified about these formulas.

The 2015 King's Fund report noted that both primary care and hospital doctors are salaried. SCF's doctors and primary care teams receive an annual evaluation, which may adjust their merit pay by a percentage point or two. SCF identifies the available resources for the coming year, taking account of any increases in revenues or cost-savings from improvement projects. It uses an agreed upon formula^y to allocate resources to the frontline teams and supporting functions so that they can retain existing services and training and development. It also returns to individual teams a proportion of the cost savings from their improvement initiatives. SCF then allocates the remainder to its priorities for the year.¹⁷

5.5 Performance Measurement

According to the 2015 King's Fund report on the Nuka System of Care, performance measures for individual primary care teams may include:

- Breast, cervical, and colorectal screening;
- Diabetes annual HbA1c;
- Pediatric diabetes poor control;
- Diabetes LDL <100mg/dL;
- Diabetes LDL screening;
- Cardiovascular disease control <100mg/dL;
- Screening, brief intervention, and referral to treatment for problematic use, abuse, and dependence on alcohol and illicit drugs;
- Screening for depression;
- Pediatric body mass index; and
- Customer service measures (e.g., availability of appointments, whether customer-owners saw their designated doctor or team during recent visits).¹⁷

5.6 Outcomes

The 2015 King's Fund report noted that the Nuka System of Care has achieved a number of positive outcomes, including:

- Significantly improved access to primary care services;
- Significantly improved performance in using health effectiveness data and information set measures;
- Customer satisfaction, with respect for cultures and traditions; and
- Reductions in hospital activity, including reductions in hospital days, urgent and emergency care services, and visits to specialist clinics.¹⁹

6. Integrated Care Systems (UK)

6.1 Background

According to a 2018 King's Fund report on integrated care systems, in March 2017, the National Health Service (NHS) England set out an ambition to move to integrated care through the development of sustainability and transformation partnerships (STPs), which are local "place-based" partnerships of NHS and local authority organizations. The report noted that the most advanced local partnerships in 10 areas of

^y No further information identified about this formula.

England have been tasked with developing ICSs.^z The report observed that many, if not all, of these systems have been building partnerships to join up local services for several years, and their journeys as integrated systems can often be traced back to well before the latest national initiatives.¹

The 2018 King's Fund report noted that eight ICSs that were part of the initial wave of implementation cover a combined population of approximately 7.8 million – slightly more than 14% of the total population of England.^{aa} The report stated that there is no single or defined ICS model, and each area is developing an ICS differently according to local circumstances.¹

6.2 Services

The 2018 King's Fund report noted that the services provided in ICSs include primary care, acute care mental health care, ambulance, and emergency services. Moreover, integrated community teams or community hubs are encouraged within ICSs; these are composed of health care professionals, including physicians, community nurses, social care workers, mental health professionals, voluntary sector workers, and others.¹

6.3 Digital Care

The 2018 King's Fund report suggested that ICSs are working to improve information-sharing which will allow clinicians and other health care professionals across an ICS to share information on individual patients, thus improving quality and safety of care and user experience. Some ICSs are developing infrastructure for data analytics, bringing together information across systems to identify needs and determine service priorities – particularly in relation to population health management.¹ For example:

- The Greater Manchester Health and Social Care Partnership use digital technology in health and social care. Staff in care homes uses Skype to communicate with dedicated nurses at the local hospital when patients within the homes become unwell. As such, the hospital nurses are able to provide expert advice and guidance through a video conversation over Skype. This support means that patients who would normally have been directed to a hospital or emergency department can remain comfortable in their own bed while staff provide advice on the right course of treatment or action to take.²⁰

6.4 Funding

According to a 2017 NHS report on models of care provision for whole populations, there are three elements to the overall payment approach for ICS care models:

- **Whole Population Budgets (WPB) for Delivering Services:** WPBs are integrated budgets derived from current commissioner^{bb} expenditure. WPBs are a simplified version of capitated

^z Originally, the ICSs were called Accountable Care systems, but NHS England changed the name in 2018 to provide a more accurate description of the work done by these systems (Patients4NHS.org, n.d.).

^{aa} The eight ICSs are located in: 1) Bedfordshire, Luton and Milton Keynes; 2) Berkshire West; 3) Buckinghamshire; 4) Dorset; 5) Frimley; 6) Lancashire and South Cumbria (which has grown out of the smaller Blackpool and Fylde Coast ICS); 7) Nottingham and Nottinghamshire; and 8) South Yorkshire and Bassetlaw.¹

^{bb} NHS services are commissioned by clinical commissioning groups (CCGs) and NHS England on a local, regional, and national basis. CCGs are groups of general practices (GPs) which come together in each area to commission the best services for their patients and population. CCGs are responsible for about 60% of the NHS budget, and they commission most secondary care services such as planned hospital care and rehabilitative care (NHS.UK/commissioning, n.d.).

payments, providing periodic payments for a range of services, initially based on current commissioner spend, according to the size and needs of the population.^{21,cc}

- **Improvement Payment Scheme (IPS) for ICS Providers:** The IPS uses payments to incentivize performance improvement across a small number of priority areas.^{21,dd} The degree of performance improvement is determined based on a subset of indicators from an incentives framework for ICSs which provide commissioners, and the populations on whose behalf they commission care, with an overview of the performance and impact of the ICS.^{ee} The IPS payment constitutes a portion of the contracted integrated budget value and is paid upon delivery against targets for agreed metrics.^{22,ff}
- **Gain/Loss Sharing:** Gain/loss sharing is the sharing of savings (gains) or overspends (losses), generated through lower/higher than expected use of a service, between one or more commissioners and one or more providers. Gains and losses are calculated as the difference between the expected (i.e., baseline) commissioner spend on contracting for specified services for a defined population and the actual spend. Gain/loss sharing can build and align financial incentives across local areas and manage the transfer of utilization risk from commissioner to provider that is associated with implementing a WPB.^{21,gg}

6.5 Performance Measurement

According to a 2017 NHS report, the incentives framework for ICSs provides commissioners with a view of the overall performance of the ICS and the contribution that the ICS is making to the wider health economy. Through a combination of financial and non-financial incentivized indicators, the incentives framework is designed to signal and encourage change across a range of priority areas that meet the NHS ambition of closing the three gaps outlined in the [Five Year Forward View](#): 1) the health and wellbeing gap; 2) the care and quality gap; and 3) the funding and efficiency gap. This framework sets out a consistent structure for commissioners to use when procuring ICSs to deliver population care; however, there is flexibility for local areas to supplement additional indicators and thresholds, which are applicable for their own local circumstances. The framework also describes how payment for performance will operate within these contracts.

The incentives framework has two components: 1) a dashboard includes the totality of indicators in the framework; and 2) the IPS, which constitutes a subset of the dashboard indicators that are linked to payment that is paid upon delivery against targets for agreed metrics. The framework is divided into four parts, with notable indicators described below:^{hh}

- **Health and Wellbeing:** Indicators that are linked to population health outcomes and lifestyle factors, which may include, for example, health-related quality of life for carers and preventing ill health by risky behaviours (e.g., alcohol, tobacco).

^{cc} For more information on calculating the WPB baseline contractual value of services in scope of the ICS care model, estimating WPB values for the full contract term to support multiyear contracting, and converting estimated WPB values to contractual values, please see pages 15-57 of the [Integrated Budgets Handbook](#).²¹

^{dd} No further information identified on the priority areas.

^{ee} The incentives framework: 1) provides a consistent data set for ICS benchmarking purposes and evaluation of impact; 2) assists in improving the quality of out-of-hospital data sets; and 3) uses payment to incentivize performance improvement across a small number of priority areas.²²

^{ff} For more details about the Improvement Payment Scheme, please see pages 58-59 of the [Integrated Budgets Handbook](#).

^{gg} For more information on gain/loss sharing implementation framework and how to calculate and allocate gains and losses, please see pages 62-68 of the [Integrated Budgets Handbook](#).²¹

^{hh} For the comprehensive list of indicators for each category, please see pages 6-21 of [The Incentives Framework for ACOs](#).²²

- **Care Quality and Experience:** Indicators that are linked to positive patient experience, safety, and effective care, which may include, for example, people with long-term conditions feeling supported to manage their condition(s) and potential years of life lost from causes considered to be amenable to health care.
- **Sustainability:** Indicators that focus on the impact of the ICS on financial and clinical sustainability of services, which may include, for example, population use of hospital beds following emergency admission and delayed transfers of care.
- **Transformation Drivers:** Indicators that help drive long-term improvements in the other outcome areas, which may include, for example, the proportion of staff receiving good communication between senior management and staff and multidisciplinary teams for those with long-term, life-limiting conditions.²²

6.6 Outcomes

The 2018 King's Fund report noted examples of early outcomes achieved in the primary and acute care system in one ICS (North East Hampshire and Farnham, Frimley):

- Year-on-year reductions of 2% for emergency hospital admissions and 10% for avoidable admissions, as well as a 4% reduction in physician referrals;
- A plateau in accident and emergency attendances compared to increases for demographically similar Clinical Commissioning Groups;ⁱⁱ and
- Reductions in mental health-related hospital attendances and admissions.¹

In addition, a 2018 systematic review compared evidence from the UK and international literature from 167 studies to explore the effects of models of integrated care on actual and perceived service delivery, including the efficiency, effectiveness, and quality of care. The systematic review noted that models of integrated care encompass diverse initiatives that aim to improve integration of care across health care and between health and social care services. Diverse and frequently contradictory outcomes were identified for models of integrated care reported in the included literature. The systematic review summarized that three outcomes appeared to offer stronger evidence of effect: 1) integrated care leads to increased patient satisfaction; 2) integration increases perceived quality of care; and 3) integrated care increases patient access to services.²³

7. Canterbury Health System (New Zealand)

7.1 Background

The Canterbury Clinical Network (CCN) is a collective alliance of health care leaders, professionals, and providers from across the Canterbury health system in New Zealand.²⁴ According to the CCN, in response to growing hospital admissions, growing waiting times, and an aging population, in 2007 the Canterbury District Health Board (DHB)ⁱⁱ integrated and coordinated primary, secondary, and tertiary health services through health alliancing and new ways of contracting to form the Canterbury Health System.²⁵

ⁱⁱ Clinical Commissioning Groups are groups of general practices which come together in each area to commission the best services for their patients and population ([NHS.UK/commissioning](https://www.nhs.uk/commissioning), n.d.).

ⁱⁱ In New Zealand, Canterbury DHB covers an area of the East Coast of the South Island from Kaikoura District in the north, to Ashburton District in the south, as well as the Chatham Islands. It is responsible for the health of an estimated 558,830 people ([Canterbury DHB](https://www.canterburydhb.govt.nz/), n.d.).

The Ministry of Health estimated that the Canterbury DHB will serve a population of 567,870 people in 2018/19. In 2016/17, 9.1% of the total population in Canterbury was Māori and 2.5% of the total population was composed of Pacific people.^{26,kk}

7.2 Services

According to a 2017/18 annual report by the Canterbury DHB, services provided by the Canterbury Health System include:

- Prevention services, including for health promotion and education, population-based screening, and immunization;
- Early detection and management services, including for primary care, long-term conditions, oral health, pharmacy, and referred services;
- Intensive assessment and treatment services, including for quality and patient safety measures, maternity, acute/urgent support, elective/arranged support, specialist mental health, and specialist assessment, treatment and rehabilitation; and
- Rehabilitation and support services, including for rehabilitation, home and community care, respite and day support, and aged residential care.²⁷

7.3 Digital Care

No information was identified.

7.4 Funding

According to New Zealand's Ministry of Health Ministry, the health system's funding comes from Vote Health,^{ll} the Accident Compensation Corporation, other government agencies, local government, and private sources (e.g., insurance, out-of-pocket payments). The Ministry of Health allocates more than three-quarters of the public funds it manages through Vote Health to DHBs to purchase and provide health services, including public hospitals and the majority of public health services, within their areas. Most of the remaining public funding provided to the Ministry (approximately 19%) is used to fund important national services, such as disability support services, public health services, specific screening programs, mental health services, elective services, primary maternity services, Māori health services, and postgraduate clinical education and training.²⁸

7.5 Performance Measurement

According to CCN, the [Canterbury Health System Outcomes Framework](#) identifies key outcomes at the population level and tracks performance using an evolving set of indicators, moving the health system away from tracking of inputs and aligning resources of the wider system to patient rather than provider outcomes. CCN noted that in addition to making progress transparent to key players and informing leadership decisions, the framework also assists people working within the Canterbury health system to see where they contribute as part of an integrated health system and feel their efforts are recognized.²⁹

^{kk} Pacific peoples are a diverse population made up of cultures from many different Pacific Islands. Samoan, Cook Islands, Māori, Tongan, Niuean, Fijian, Tokelauan, Tuvaluan, and Kiribati comprise the eight main Pacific ethnic groups in New Zealand (Pasefikaproud.co.nz, 2016).

^{ll} The government receives money for the health system through taxes, Accident Compensation Corporation levies, and premiums. Each year, the government decides how much of these public funds will be spent on health care – this is called “Vote: Health” ([Ministry of Health, n.d.](#)).

According to the 2017/18 annual report by the Canterbury DHB, indicators are organized around the groups of services provided by the Canterbury Health System. Some of the notable indicators for each group of service are described below:^{mm}

- **Prevention Services:** Women aged 50-69 years having a mammography in the last two years, and young women completing a Human Papilloma Virus vaccination program.
- **Early Detection and Management Services:** People receiving subsidized diabetes self-management support from their general practice when starting on insulin and laboratory tests completed for the Canterbury population.
- **Intensive Assessment and Treatment Services:** Young people (0-19 years) accessing specialist mental health services and general practices providing telephone triage after hours.
- **Rehabilitation and Support Services:** People accessing community-based pulmonary rehabilitation courses, and people (aged 65 years or older) accessing the community-based falls prevention service.²⁷

The 2017/18 annual report further identified a set of performance indicators for improving and monitoring health outcomes specifically for the Māori population. Some of the notable indicators include:ⁿⁿ

- Māori smokers, identified in hospital, receiving advice and help to quit;
- Eligible Māori girls completing the Human Papilloma Virus vaccination program;
- Māori women (aged 25-69 years) having a cervical smear in the last three years;
- Māori babies fully immunized at eight months of age;
- Older Māori (aged 65 years or older) having had a seasonal influenza vaccination;
- Rates of avoidable hospital admissions for Māori children (0-4 years);
- Eligible Māori having their cardiovascular disease risk assessed in the past five years; and
- Māori children (aged 0-4 years) enrolled in DHB oral health services.²⁷

7.6 Outcomes

According to the CCN, notable outcomes achieved through this model of care include:

- **Shorter waits for Care:** 1.5 million days of patient's time saved over three years for four service areas;
- **More Elective Services:** 43% increase in people receiving elective surgery;
- **Freed Up Hospital Capacity:** 31% below national average for acute admissions, which is equivalent to 100 hospital beds;
- **Older People at Home Longer:** 400 fewer people are in aged residential care and people have shorter stays;
- **Fewer People Suffering Falls:** Fewer injuries and deaths from falls, which has freed up the equivalent of a hospital ward; and
- **Healthier Māori Populations:** Māori people on average live longer in Canterbury than other parts of New Zealand.^{30,oo}

^{mm} For the comprehensive list of indicators for each group of services, please see pages 27-35 of the [Canterbury DHB Annual Report 2017-2018](#).²⁷

ⁿⁿ For a comprehensive list of indicators for Māori population, please see page 36 of the [Canterbury DHB Annual Report 2017-2018](#).²⁷

^{oo} For a comprehensive list of outcomes achieved, please see pages 14-22 of the [Canterbury DHB Annual Report 2017-2018](#).²⁷

8. Alzira's Model (Valencia, Spain)

8.1 Background

According to a 2016 report by the Global Health Group at the University of California, San Francisco (UCSF) and PricewaterhouseCoopers (PwC) on public-private integrated partnerships (PPIPs) in Spain, the responsibility for health care service delivery is decentralized to 17 autonomous communities, one of which is the Valencia Community. Within this community, the PPIP model was pioneered in 1999 with the establishment of the La Ribera hospital, which came to be known as the Alzira model. PPIPs provided hospital and primary care to a registered population, namely the population who lives in a health care area. The goal of the PPIP was to leverage private sector expertise in hospital management and systems, and use carefully designed payment incentives and performance management clauses in the contract to achieve improvements in efficiency, quality, and access to care.³¹

The experience of Alzira model at the La Ribera hospital inspired adoption of the model at other health departments. In total, there were five health departments in Valencia which provided care using the PPIP model between 2003 and 2018.^{pp} Each department served a population of approximately 200,000-250,000 residents.³¹

8.2 Services

According to the 2016 UCSF-PwC report, the Alzira model includes the following services:

- Primary care, including emergency care and oral and dental health services;
- Curative health care, including specialized hospital and hospital-home care services, diagnostic testing, intravenous therapies and surgical procedures, as well as specialized services, including chemotherapy, infertility treatment, invasive radiology, radiation therapy, and organ, tissue, and cell transplants;
- Health promotion and protection initiatives, as well as preventive programs based on health education, vaccination coverage, and medical check-ups;
- Rehabilitation support, combining a variety of existing specialties, products, and supplies; and
- Socio-health care for disabled patients and the elderly, as well as psychiatric and mental health care.³¹

In terms of care coordination, the 2016 UCSF-PwC report on Valencia's experience with PPIPs noted that one hospital (the Dénia Hospital) coordinated with the La Ribera Hospital to provide highly specialized care services to their combined populations. Two other hospitals in the Vinalopó and Torrevieja health care regions, which are both managed by the same private entity, instituted shared information technology, procurement, and human resource systems to allow them to coordinate care, share staff across specialty units, and jointly procure medical supplies.³¹

8.3 Digital Care

One of the principles governing the Valencia PPIP model since its inception in Alzira related to comprehensive information systems that supported patient-centric resource management, a favourable working environment, and sustainable public health services. Improvements in such information systems

^{pp} In April 2018, Valencia's Health Authority reversed the PPIP and reset direct public provision. No further information was identified about why the Alzira model was terminated.³²

were designed to provide patients with greater access to, and control over, their health records. A specific example of an integrated care record within the PPIP includes:

- The Dénia Health Department's information technology system, Millennium, integrated primary care, outpatient care, home care, and outpatient drug prescription services. A study⁹⁹ noted in the UCSF-PwC report revealed time savings of approximately 30% at the Dénia Hospital, obtained solely by digitalizing the medical inter-consultation process.³¹

8.4 Funding

The 2016 UCSF-PwC report noted that the Valencia PPIP model is based on the principle that “money follows the patient.” The private provider is paid an annual fee (long-term capitated budget) based on the size and anticipated health conditions of the population to be served; patients are then allowed to choose where they seek medical care. Under this principle, should residents of a PPIP health department seek care in another publicly managed health department, the private partner is responsible for the resulting costs. The private partner would be reimbursed only 80% of the cost if its residents sought care in a public facility.³¹

The 2016 UCSF-PwC report suggested that the financing of the PPIP model involved the following two key factors:

- **Covered Population:** This includes all people living in a defined area who held personalized health cards.
- **Per Capita Fee:** This fee is referred to as a uniform per person payment rate for all individuals covered within the geographic scope of the contract. It was paid annually by the government to the private partner for successful delivery of contracted services. The per capita fee was calculated based on budgeted expenditures at a similar hospital. The government's contract with the private sector partners lays out performance expectations, including performance indicators, and penalty and incentive clauses for sub-standard or excellent delivery, respectively.
 - An example of an incentive program included in the contracts is an incentive program to encourage savings in pharmaceutical provision, with bonuses reaching 30% of savings when mean per person pharmaceutical expenses in the PPIP department are lower than those averaged across all health departments.³¹

8.5 Performance Measurement

The 2016 UCSF-PwC report identified that the Valencia Ministry of Health developed a Management Agreements tool which included indicators and goals. Forty-eight indicators were identified and grouped into three categories: quality, service, and management. Indicators were monitored monthly and evaluated annually. The report noted that while all health departments used the same set of indicators, they used the indicators in different ways to drive performance toward a variety of department-specific goals. For example:

- Some notable performance indicators for Valencia Community health departments included: immunization coverage rate; efficiency within hospital pharmacy procurement; rate of adherence to clinical protocols; weeks elapsed before the start of treatment after positive breast cancer screening; average hospital length of stay; readmission rate within 30 days; and primary care attendance rate.³¹

⁹⁹ No further information was identified about the noted study.

8.6 Outcomes

Two reported findings were identified that revealed mixed outcomes associated with the performance of the Alzira Model:

- **Patient Health Outcomes:**
 - A publication by PwC in 2014 reported that the Alzira Model achieved 34% reduction in hospital readmissions within three days, 54% reduction in average Accident and Emergency wait times, reduction of average elective waiting time by 55%, reduction in average length of stay by 20% and 91% patient satisfaction.³³
 - According to a 2018 observational study comparing Alzira's performance with similar public providers in the Spanish National Health System, Alzira has not outperformed other public-tenured providers, although its developments have been outstanding in some areas of care.^{rr} In particular, Alzira's achievements were statistically worse than those in benchmark public-tenured providers in: most of potentially avoidable hospitalizations; risk-adjusted mortality for myocardial infarction, coronary artery bypass graft and ischaemic stroke; most of low value procedures; and, contrary to international evidence, in technical efficiency as well. However, the study noted that Alzira showed a statistically greater improvement than the average in avoidable hospitalization rates for angina, in some low-value procedures (pediatric surgery on adenoidectomy, tonsillectomy and grommets, caesarean-section in low-risk deliveries, cardiac ablation, trigger finger, and carpal tunnel surgeries), in hip replacement, in risk-adjusted mortality after percutaneous coronary intervention, and in the case of severity-adjusted hospital expenditure.³²
- **Provider Experience:** The 2014 PwC publication noted 93% staff satisfaction associated with the Alzira Model. No further information was identified about this finding.³³

^{rr} For a full list of indicators used in the comparative performance analysis, please see page 2 of the study.³²

APPENDIX

EXHIBIT 1

The Five Core Components Of The Geisinger Health System ProvenHealth Navigator (PHN) Patient-Centered Medical Home

PHN component	Description
Patient-centered primary care	<ul style="list-style-type: none"> Provider-led, team-delivered care Patient and family engagement Enhanced access and scope of services Optimized preventive and chronic care via electronic health records and claims data
Population management	<ul style="list-style-type: none"> Use of claims-based predictive modeling tools to identify high-risk patients Case management for complex, comorbid conditions Disease management Preventive care
Medical neighborhood	<ul style="list-style-type: none"> Enhanced care coordination and communication across specialists and care sites outside primary care clinic High-value specialty services Comprehensive care systems including nursing homes, emergency departments, hospitals, home health, and pharmacies
Performance management	<ul style="list-style-type: none"> Routine patient surveys to evaluate care experience and satisfaction Automated evidence-based guidelines for chronic disease care at office visits Guideline compliance statistics are regularly reported Quality and performance metrics (including selected HEDIS and CAHPS measures) are regularly reported
Value-based reimbursement model	<ul style="list-style-type: none"> Fee-for-service Pay-for-performance based on quality outcomes Shared savings model based on performance

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