FINAL REPORT

Alaska Healthcare Transformation Project: Meta-Analysis

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Table of Contents

List of Exhibits

Executive Summary

When the Alaska Health Care Commission assembled its core strategies for health care transformation in the state (2015), the first recommendation was to "ensure the best available evidence is used for making decisions." A systematic literature review or meta-analysis of selected reports and studies about health reform in the state, released between 2008 and 2019, offers a set of lessons learned and points toward next steps for the state to consider as it assembles a roadmap for health reform. The meta-analysis was commissioned by the Alaska Healthcare Transformation Project, as one of four reports to support development of a health reform roadmap. It was prepared collaboratively by NORC at the University of Chicago and ISER at the University of Alaska Anchorage.

While the meta-analysis is selective rather than comprehensive in terms of the number of publications included, it describes the scope and quality of evidence about reform in the state and casts a net broadly to identify reforms across regions, populations, payers, and types of health services delivered as well as outcomes. The analysis is organized around five priority topics: primary care utilization, coordinated care, data analytics (including health information technology), payment reform, and non-medical or social determinants of health (SDOH) such as housing and food security.

Findings: Primary Care/Coordinated Care and Social Determinants of Health

A matrix of thematic findings, supported by analyses of related reports and studies, is presented in Exhibit ES.1 below. Findings and related recommendations are presented separately for the topic areas of data analytics and payment reform, as the literature reviewed for these two topics typically concerned trends at the state level, with analysis more in the form of a narrative synthesis.

Exhibit ES.1: Matrix of Key Findings, Primary Care/Coordinated Care and the Social Determinants of Health

Domain	Sub-Domain	Key Findings
Primary Care & Coordinated Care	**Overall Findings**	▪ Alaska is doing better than many states in keeping health equity-related programs funded. However, there is much competition for resources and not all stakeholders put top priority on reducing health disparities.[1] ▪ Alaska's circumpolar geography leads to higher costs and more challenging access.[2]
	Geography	▪ **Rural.** Community Health Aides and Practitioners serve rural Alaskans who would otherwise go without medical care.[3] ▪ **Gulf Coast.** Cost, lack of specialists, transportation, time, and mistrust/dislike of providers are barriers that have kept residents from accessing local healthcare.[4]
	Population	▪ **Individuals Living with Disability**. Providers may spend significantly more time with patients with disabilities than patients without disabilities. More training is needed for (and requested by) health care providers on caring for people with disabilities. Studies recommend that Alaska develop additional levels of care along the continuum of long-term services and supports and increase coordination at both the individual and systems level.[5] ▪ **American Indian/Alaska Native (AI/AN).** Studies document large disparities in health outcomes between AI/AN and other Alaskan residents. Health IT, telehealth, and related innovations may be important aspects to address these disparities, for example, through the IHS electronic health record system.[2] ▪ **Older Alaskans.** Older Alaskans are 59 percent less likely to have a routine check-up in the past year and 12 percent less likely to report excellent health status than are comparable older adults in the contiguous U.S.[6]
	Payer - Medicaid	A number of reports document recommended changes to the Medicaid program in order to better support Alaskans, specifically in the areas of: ▪ **Fraud and Abuse**. Streamline audit and investigation processes for providers by focusing resources on provider types that pose the greatest risk of over payment; reducing audit cycle time and improving communication on audit status; and seeking a waiver of certain federal audit requirements ▪ **Prescription Drug Oversight.** Create a robust prescription drug control program, including financial support for and upgrade of the Prescription Drug Database to real-time functionality; and remove statutory barriers to state agency access to the database to facilitate fraud identification and drug abuse prevention. ▪ **Program Management/Support.** Support populations not meeting the Nursing Facility Level of Care (NFLOC) eligibility criteria; draw more Medicaid Federal Financial Participation for the Chronic and Acute Medical Assistance Program and Pioneer Homes; improve the Quality Management Process; restructure Care Coordination; and expand Information Technology (IT) efforts[7]

Domain	Sub-Domain	Key Findings
	Service Type	▪ **Preventive Care**. Pilot programs increased colorectal screening rates in rural Alaska areas between 2000 and 2010 (from 29 percent to 55 percent completed) by teaching mid-level providers to (a) conduct flexible sigmoidoscopy and (b) provide endoscopies at rural tribal health facilities, while (c) creating of CRC first-degree relative database and (d) support/implemented screening navigator services.[8] ▪ **Emergency Care**. The reduction in ED utilization experienced by Medicaid enrollees served under Medicaid's Coordinated Care Initiative (CCI) saved the Alaska Medicaid program over 8.5 million dollars in 2017. Overall medical services utilization decreased by 9 percent.[9] ▪ **Behavioral Health**. Relatively high vacancy rates for providers present challenges to access. There is a statewide 22 percent vacancy for psychiatrists, a 17 percent vacancy rate for behavioral health aides, a 13% vacancy rate for Clinical Psychologists in rural Alaska (as compared to only a 6% such rate in urban areas), and a 15% vacancy rate for Clinical Social Workers in rural areas (but only an 8% vacancy rate in urban Alaska). Alaska can consider developing a center of excellence with trained professionals for mental health care, to support behavioral health care in across Alaska.[10] ▪ **Telehealth**. Rural organizations can use telehealth services to connect providers to consultative services, treat difficult cases, reduce professional burnout, and enhance services, all while keeping their patients closer to home with planning, collaboration, and acceptance of telehealth limitations. But a telemedicine system must have robust processes for initial and ongoing training, technical and clinical support, and technology assessment.[11] ▪ **Trauma care.** Rural trauma in Alaska during the winter months requires a coordinated, highly skilled approach for rescue, recovery, resuscitation, and transport to tertiary care centers. Injuries vary by sport and trauma. Pre-hospital care can be initiated by first responder and rescue teams, with advanced medical care by critical care transport teams, in order to improve potential outcomes.[12]
Social Determinants of Health	**Addiction and Drug Use Efforts**	▪ **Addiction and drug use.** The rate of methamphetamine related mortality increased 4-fold during 2008–2016. It's important to strengthen partnerships between all agencies and organizations in Alaska that work to address substance misuse and abuse.[13] ▪ The percentage of high school students who report using heroin at least once dropped in 2011 and 2013 and has not increased since then. The rate of Medicare Part D patients who received opioid prescriptions has also decreased annually since 2015, suggesting that more judicious prescribing may be occurring in Alaska. Furthermore, naloxone use is increasing; this is likely due in part to the increased statewide availability of this life saving overdose reversal medication.[14]

Domain	Sub-Domain	Key Findings
	Behavioral and Mental Health Care/ Suicide Prevention	▪ **Behavioral and Mental Health**. Creating opportunities and environments, such as on social media, where youth can successfully navigate challenges and enhance their resilience can in turn contribute to fostering healthy circumpolar communities. Youth perspectives on mental health programs are crucial to developing appropriate mental health support and meaningful youth engagement.[15] ▪ **Suicide Prevention.** The suicide rate statewide among AI/AN residents is more than two times the rate for non-AI/AN residents but represents a decline from 2015 and 2016. Associations among suicide rates, Alaska Native heritage, community type and latitude should be considered along with other known risk factors, such as access to behavioral health care, presence of law enforcement, access to lethal means and presence of community members with suicide prevention training.[16]
	Food Security, Housing Stability, and Other Community-based Efforts	▪ **Homelessness.** In Anchorage and Fairbanks, provision of housing (through the Housing First demonstration) is associated with significant reductions in alcohol dependence, improvements in physical and mental health, and greater social connectedness.[17] ▪ **Food Security.** "Faster" and "bigger" programs are not better when improving food security issues in Alaska. Rather, small-scale incentives tailored to unique local characteristics are shown to be more capable of responding to changing conditions and consumer needs in a resilient and self-sustaining local food system.[18] ▪ **Teen Pregnancy.** Statewide, Alaska's teen birth rate is declining but there is regional variability. Integrate education about the social determinants of health (SDOH) into teen pregnancy prevention programs, in addition to more communication between caregivers, health care providers, and teens, may further decrease teen pregnancy state-wide.[19] ▪ **Social/Criminal Justice.** Prison discharge planning has been shown to be an effective time to assist justice-involved individuals with attaining new health care opportunities under the Affordable Care Act (ACA). Doing so can promote continuity of health care by linking these individuals to care that supports positive health outcomes as they reintegrate into society.[20]

Data Analytics

CMS provides a rich set of data for Medicare enrollees. Many research questions can be answer with the public use files. The CMS National Health Expenditure Accounts provide state-level data, and those data have been the authoritative source for the conclusion that Alaska's health care costs are higher than the rest of the nation and are growing more rapidly.[21] CMS state-level data on Medicare is readily available and capable of supporting research on a wide range of state-level questions.

The three commercially-available insurance claims datasets also provide data to analyze a range of important questions about Alaska's health care costs and cost drivers. Because different insurers and employers contribute to different systems, the three datasets may achieve rather different levels of coverage of the commercial insurance claims in Alaska. The differences in the level of coverage that each achieves might influence research results. A second question is whether there are advantages among the three datasets for different kinds of research. Where MarketScan was built to serve commercial clients, the FAIR Health and HCCI systems seem to have more focus on access for researchers and government

agency analysts. Thirdly is the issue of the cost for access, perhaps less of an issue than in the past. Both FAIR Health and HCCI now have ten years of data, so effective competition among the three data companies may be emerging. The FAIR Health and HCCI datasets, which now have about 10 years of data, present an alternative to the MarketScan data. A question for all three of these national commercial datasets is the level of coverage for Alaska, because different insurers now provide their data to different datasets. In general, these national commercial insurance databases appear to offer wide opportunity to investigate commercial health cost data at the state level. The three-digit postal code identification used by MarketScan and FAIR Health may severely limit the usefulness of these datasets for regional analysis in Alaska. HCCI may have similar questions because five-digit postal code data is only available for postal codes with 1350 individuals. It will be necessary to explore with each company whether opportunities exist to map any underlying five-digit postal code data to relevant regions for Alaska.

Health benefit data for state and local employee and retirees seem to present a large convenience sample already under public control that could be used to address a variety of research questions on health care costs in Alaska. The two recent Milliman *Annual Medicaid Data Books* for 2015-16 and 2016-17 demonstrate that an exceptionally high level of detail can be achieved with state Medicaid data.

Finally, the question of whether Alaska should build an all-payer claims database is a central issue for Alaska's capacity to analyze health care costs in the future.

Payment Reform

Cost-shifting to the federal government is one key theme of reform in the state, for example, through the section 1332 waiver and the creation of care coordination arrangements by tribal health organizations. In the past decade, the most significant payment reforms have been through the Medicaid program and in particular, under Senate Bill 74 (SB74). SB74 mandates several pilot and demonstration projects that may help better assess the applicability of new delivery models in Alaska, such as a managed care model in Anchorage and the Mat-Su region and a PCMH model in Anchorage. Two options for value-based purchasing (accountable care organizations and patient-centered medical homes) include features similar to those in earlier cost-containment models such as HMOs and gatekeeper models. In the Alaska context, strong Choice of Health Care Provider statutes may make value-based care more difficult to implement.

Alaska's small markets for many services constrain some options for greater competition, such as greater use of joint purchasing strategies. Two large insurers cover a very large share of commercial insurance. In rural Alaska and for some specialties anywhere in Alaska, there is no opportunity for competition. Current arguments over the 80th percentile rule involve a similar market question of whether Alaska wants to modify its rules to give insurers more leverage in negotiations with providers. Medical tourism has become more common, but this approach to competition seems inconsistent with the broader objectives of expanding the economy by providing more consumer services in-state.

The underlying question for payment reform is state-wide: will Alaska remain under fee-for-service payment structures for Medicaid and private commercial insurance, or will it move sharply towards some alternative VBP model or models? Medicaid and commercial insurance might adopt different VBP models in urban versus rural areas. An ACO may require large enrollment that can only be achieved in Anchorage, for example. The configuration of a PCMH might be very different in small rural villages as compared to the urban areas. And, there are almost certainly questions of how VBP would work for tribal

health organizations that have compacts with and revenues from the IHS. Medicaid reform under SB74 may foreshadow the directions that the broader health care system in Alaska will travel as it tackles the drivers of its high health costs. Detailed analysis and pilot experiments will be required to understand how Alaska's unique health care delivery system will respond to changes like value-based payment structures. There is almost certainly not a single approach that alone will bend the health care cost curve in Alaska. Rather, reform is likely to require sustained efforts to identify issues and then to find creative solutions that address the underlying incentives.

Chapter 1: Introduction

NORC at the University of Chicago in partnership with the Institute of Social and Economic Research (ISER) and Institute for Circumpolar Health Studies (ICHS) at the University of Alaska Anchorage is pleased to present the *Meta-Analysis Report* to the Project Management Committee (PMC) for the Alaska Healthcare Transformation Project. This report presents an overview and analysis of a selected group of reports and studies on health reform in Alaska, published in the last 10 years (2008 to 2018). The purpose of this report is to highlight lessons from reform efforts in the recent past, identifying themes and recommendations that offer context for the PMC's work to forge a new roadmap for state health reform. Our analysis is set in the context of prior work conducted by the Alaska Health Care Commission.

The Alaska Health Care Commission. In 2009, the Alaska Health Care Commission (AKHCC) began its work as an advisor to the state legislature, commissioning analyses to better understand the causes and implications of the state's high costs for health care and developing a comprehensive set of recommendations for reform, issued in 2014.[22] Medicaid coverage in Alaska was expanded under the Patient Protection and Affordable Care Act (ACA) in 2015. Since that time, stakeholders have focused increasingly on how to realize health care's triple aim of improved population health through higher health care quality while achieving cost savings for Alaska residents.

The Alaska Healthcare Transformation Project. In the Spring of 2017 a Steering Committee met to develop a comprehensive health care plan for Alaska, with the objectives of aligning all payers toward value-based alternatives, increasing the percentage of Alaska residents that have a usual source of primary care by 15 percent, and lowering the per-capita health care growth rate to the greater of 2.25 percent or the Consumer Price Index (CPI) within five years. The formation and mission of the Steering Committee convey the state's commitment to providing high-value care to its residents. In the Spring of 2018, a group of strategy development teams, comprised of policymakers, providers, payers, and patient advocates, were convened by a Project Management Committee (PMC) to translate the Steering Committee's objectives into four statements of work (SOW), with priority for recommendations addressing five key topics: primary care utilization, coordinated care, payment reform, data analytics, and the social determinants of health.

NORC and its partners at UAA are preparing a set of four reports–one for each SOW–to provide analytical and research support that inform future decision-making around delivery system reform in the state. These reports are as follows:

- **Alaska Historical Project Scan.** Identify and assess selected delivery system reform experiments in Alaska over the past decade (2008 to the present), with priority to characterizing regional innovation within the state.
- **Alaska Studies—Meta-Analysis.** Identify and assess a group of Alaska-focused reports and studies issued over the past decade (2008 to the present) that concern health reform.
- **National Scan.** Develop case studies for selected states where delivery system reform relevant to Alaska's five key topics of interest offers lessons for prospective innovation.
- **Drivers of Health Care Costs and Spend in Alaska.** Review health care spending in the state and the prospects and limitations of available data sources that would support a fine-grained analysis of

cost drivers relevant to these reforms. Based on this review, prepare a set of estimates of potential reform-related savings and a draft roadmap with proposed short-term (within one year) and long-term steps that comprise one or more pathways to reform.

Exhibit 1.1 below depicts the relationships among the four reports. Findings from the meta-analysis and historical project scan will inform development of the national scan and cost drivers reports.

Exhibit 1.1: Four Reports Being Prepared by the NORC Team

Terms and definitions. The four reports being produced by the NORC team hare a common set of working definitions for the five key topics of interest. Exhibit 1.2 details the PMC's guidance on defining each topic and how the NORC has operationalized the guidance.

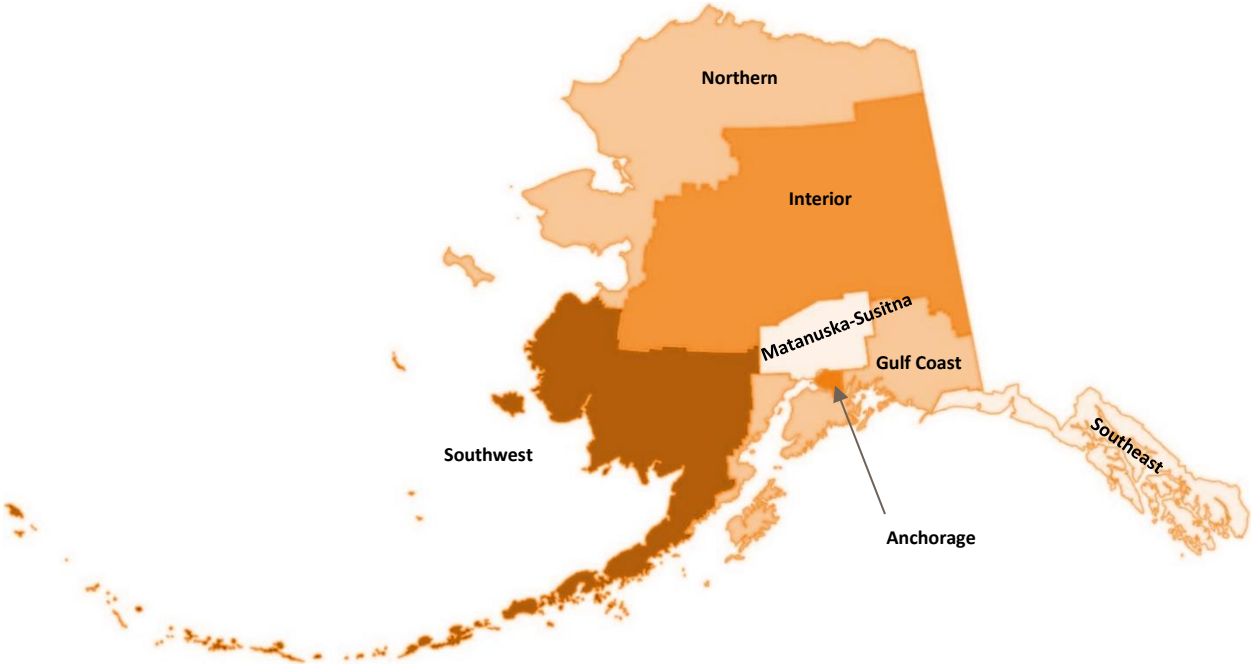
Exhibit 1.2: Key Topics of Interest

Term	Vision [from SOW]	Working Definition
Coordinated Care	A "system wide approach to patient centered whole person care" ▪ Primary care providers serve as care navigators across specialists, facilities, and provider groups ▪ Incentives support care coordination ▪ Coordination includes emergency care and emergency behavioral health	"…the deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient's care to facilitate the appropriate delivery of health care services." For a given patient at a given point in time, care coordination bridges gaps between or among care settings and typically involves sharing of information.[23]
Data Analytics	"system will support and be accessible to providers, hospitals, insurers, government payers, policymakers, and consumers" to support health reform [SOW]; ▪ All-payer claims database ▪ Professional staff with appropriate quantitative and qualitative skill to analyze data ▪ Data inform coverage decisions ▪ Quality and cost data are transparent to the public	"The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of health care information, data, and knowledge for communication and decision making."[24]
Payment Reform	"diverse provider network that includes physical, behavioral and supportive services, contracting with multiple payers for a shared savings/risk model to serve a large group of members" ▪ Value-based payments ▪ Priority list for health care services ▪ Integrate evidence-based medicine into benefit design	'…payment methods that reflect or support provider performance, especially the quality and safety of care that providers deliver, and are designed to spur provider efficiency and reduce unnecessary spending."[25]

Term	Vision [from SOW]	Working Definition
	▪ Standards for specific categories of service ▪ Leverage points in payment structures create incentives for change ▪ Reduce differences in payments across providers	
Primary Care	"team of health care professionals that together offer comprehensive whole patient care" ▪ Patients have usual source of care ▪ Patient engagement in management of their health ▪ Behavioral health integrated into primary care ▪ Increased supply of primary care providers ▪ Workforce practices at top of licenses	"the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community."[26]
Social Determinants of Health	"Social factors and physical conditions that shape whether individuals stay healthy or become ill."[27,28]	For Alaska, non-medical determinants operating at the level of the individual (age, gender, racial/ethnic identity), individual behavior (addiction; diet, nutrition, and exercise; sexual and reproductive health); social relations (connectedness/social cohesion and trauma); neighborhood, community, and region (access to clean water; incarceration; food and water, security, and housing), and at the state and national level. [28,29]

In addition, the PMC has defined the geographic regions of Alaska in terms of seven areas. See Exhibit 1.3 below for a visual depiction of these regions.

Exhibit 1.3: Seven Regions of Alaska



This Report. In the meta-analysis, we present findings from our analysis of selected reports and studies published in the last decade on health reform in Alaska. The NORC team conducted a systematic review of peer-reviewed and grey literature focused on the five topics of interest in this project—primary care utilization, coordinated care, data analytics, payment reform, and social determinants of health (SDOH). Analysis of a subset of this literature considers themes across the identified reports and studies, describes gaps in the evidence base about reform highlighted by the findings, and informs a summary of payment and delivery system reform recommendations rooted in findings about past reform initiatives. To begin this work, the NORC team submitted an initial list of reports and studies for PMC review on November 5, 2018 (see Appendix B); a revised list was created to serve as the basis for analysis.

In addition to setting out definitions for the five subject areas that comprise the topical scope of this report and the geographic regions to be compared, our analytic work is organized around a set of working definitions for several key terms, as summarized in Exhibit 1.4 below.

Exhibit 1.4: Defining Health, Health Care, and Health Reform

Term	Definition
Health	"…a dynamic balance of physical, emotional, social, spiritual, and intellectual health."[30]
Health Care	"…any care, treatment, service, or procedure to prevent disease, injury and other physical and mental impairment; and to maintain, diagnose, or otherwise affect an individual's physical or mental condition."[30]
Health Care System	"…a collection of organizations, practitioners and allied workers, facilities and technologies, financing mechanisms, policies, and information that provide and support the provision of health care for a population."[30]
Health Reform	Efforts to improve "Alaskans' health, enhancing patient and/or professional's experience of care, and lowering the per capita healthcare growth rate," either singly or in combination.[31] (Statement of Work from the PMC, 2018)
Health Outcomes	WHO definition, "change in the health of an individual, group of people, or population that is attributable to an intervention or series of interventions"; these changes may relate to morbidity, mortality, functioning, well-being, and patient satisfaction.
Health Services	Clinical care and services that support clinical care, that may include pharmacy, behavioral health, dental care, vision care, durable medical equipment, and medical transportation, as practiced by trained and licensed providers or those working under the supervision of a licensed provider.[32] Categories of health services include preventive or population-oriented (for example, vaccinations and screenings), primary care, secondary care (typically delivered by a specialist, including care received in a hospital emergency department), and tertiary care (specialty care received upon referral).

To describe payment reforms in standard ways that align with developments in other states and nationally, we use the four-part alternative payment model (APM) framework created by the Health Care Payment Learning and Action Network.[33] The framework distinguishes delivery system reforms (such as patient-centered medical homes and accountable care organizations) from one or more payment reforms that may be used to effect delivery system change. The framework arrays four categories of payment reforms along a trajectory from (1) fee-for-service (FFS) purchasing without linkages to quality or value measures and (2) FFS with quality and/or value requirements (e.g., pay for reporting, pay for performance), to (3) shared risk models that employ FFS reimbursement (e.g., bundled payments for episodes of care) and (4) population-based payment models that reimburse for value rather than volume of care (e.g., global budgets).

This report is organized into six chapters. The first four chapters describe previous research on the key topic areas for health reform in Alaska: primary care utilization and coordinated care (considered together due to the overlap of studies on these two topics), data analytics, payment reform, and social determinants of health. Each chapter includes an overview of meta-analysis methods tailored to the topic and questions to be addressed, a review of the evidence and findings relevant to each area. This is followed by an analysis of findings and themes within and across topic areas. Finally, this report describes a short list of recommendations for next steps in developing evidence to inform a health reform roadmap. The historical project scan that accompanies this report includes recommendations for short- and long-term policy-level changes, programmatic changes, and system redesign that can be gleaned from reports and studies analyzed to date. The scope of this meta-analysis complements and overlaps considerably with the scope of the historical project scan prepared separately by the NORC team. For this reason, where feasible, the analyses in this report are coordinated with those presented in the historical scan report.

Finally, a set of appendices accompany this report. They include a glossary of acronyms and terms and a copy of the initial list of reports and studies submitted to the PMC. In addition, we are submitting a free-standing matrix of findings comprised of data abstracted from the reports and studies reviewed for the primary care/coordinated care, payment reform, and social determinants of health topic areas; the analysis conducted of the data analytics literature was not amenable to this type of data display. The matrix is formatted in Excel, to facilitate additional analytic work by the NORC team, the PMC, and others. It includes the following domains: title, author(s), purpose/objective(s), design/methodology, population(s) served and payer(s), data source(s), conclusions/recommendations, and funding entity.

Chapter Summary

The meta-analysis presented in this report offers a selective perspective on the evidence base on health reforms in the state. It is not comprehensive, given the short timeframe for data collection and analysis. Rather, similar to the historical project scan that accompanies this report, the meta-analysis highlights recent focal points for health reform. It is intended as a foundation for subsequent project work to develop case studies of reform in other states, as well as a final report that details a draft roadmap for health reform in Alaska.

Chapter 2: Primary Care Utilization and Coordinated Care

This chapter reviews a set of reports and studies published in the past decade, related to primary care and coordinated care initiatives in Alaska. Primary care utilization and coordinated care together include issues of access, quality, cost, and health outcomes. This chapter describes statewide, regional, and population-specific reforms that are intended to increase access to primary care, long term services and supports (LTSS), and behavioral health; coordinate care across providers; leverage telehealth and health information technology (HIT) to support health reform; and address health workforce shortages.

Methodology

Peer-reviewed articles for this meta-analysis were identified using the Google Scholar, PubMed, and Science Direct search engines. Grey-literature sources, including reports and policy briefs, were identified by searching the websites of health care policy and administration organizations, listed in Exhibit 2.1. In addition, NORC team partners at UAA—The Institute for Social and Economic Research at the University of Alaska Anchorage (ISER) and the Institute for Circumpolar Health Studies ICHS)—shared relevant publications from their files.

Exhibit 2.1: Grey Literature Sources for Search, Reports on Primary Care and Coordinated Care

- The Robert Wood Johnson Foundation
- The Association for State and Territorial Health Officers
- The Center for Evidence-Based Policy
- The Center for Health Care Strategies
- The Commonwealth Fund
- The Southcentral Foundation (SCF)
- The Alaska Department of Health and Social Services (AKDHSS)
- The State of Alaska Department of Administration (AKDOA)
- The Alaska Association for Developmental Disabilities (AKADD)
- The Milbank Memorial Fund
- The National Association for State Health Policy
- The National Association of Medicaid Directors

Search Terms. Keywords used for these searches included "Alaska" and any combination of the following: "care coordination," "primary care," "utilization," "health care," "access," "disparities," "barriers," "transitional care," "comprehensive care," "health homes," "person-centered," "community-based care," "family medicine," "medical homes," "preventive care," "ambulatory care," "chronic care," "health equity," "quality improvement," and "clinical." Mesh terms used for these searches include "Alaska" and any combination of the following: "transitional care," "case management," "care coordination," "primary health care," "medical homes," "patient-centered care," "health care disparities," and "health services accessibility."

Inclusion Criteria. Reports and studies were included in the meta-analysis if they were published in the last 10 years (between 2008 and 2018), written in the English language, Alaska-specific, and focused on

either primary care utilization or coordinated care. A total of 39 articles and reports were used for this analysis, including 16 peer-reviewed journal articles and 23 grey-literature reports and briefs. Of these 39 articles and reports, 8 focused specifically on rural areas of Alaska. Nine reports were specific to the American Indian/Alaska Native (AI/AN) population. See Exhibit 2.2 below.

Exhibit 2.2: Reports/Studies Related to Primary Care Utilization and Coordinated Care

Date	Title	Author(s)
2008	Recommendations for the Alaska Long Term Care Plan	HCBS Strategies, Inc.
2009	Alaskans at-Risk of Out-of-State Placement due to Complex Behavior Management Needs	The Western Interstate Commission for Higher Education (WICHE)
2009	KANA Elder Care Long Term Care Needs Assessment Report	Agnew::Beck Consulting, LLC
2009	Needs Assessment and Service Delivery Options for Bristol Bay	Agnew::Beck Consulting, LLC
2010	A review of healthcare reform in the United States and Alaska	Anderson, KJ
2010	Phase 1 Report: Community Health Needs Assessment	Agnew::Beck Consulting
2011	The Alaska Experience Using Store-and-Forward Telemedicine for ENT Care in Alaska	Kokesh, John; Ferguson, A. Stewart; Patricoski, Chris
2011	Innovation in Indian Healthcare: Using Health Information Technology to Achieve Health Equity for American Indian and Alaska Native Populations	Carroll, Mark; Cullen, Theresa; Ferguson, Stewart; Hogge, Nathan; Horton, Mark; Kokesh, John
2011	Meeting the Needs of Breast Cancer Survivors in Alaska: Survivors' and Healthcare Providers' Perspectives	Parret, Virginia Cress
2012	Alaska: Closing the Resource Gap	Association of State and Territorial Health Officials
2012	Dial In: Fostering the Use of Telebehavioral Health Services in Frontier Alaska	Avey, Jaedon; Hobbs, Robin
2012	Innovative primary care delivery in rural Alaska: a review of patient encounters seen by community health aides	Golnick, Christine; Asay, Elvin; Provost, Ellen; Van Liere, Dabney; Bosshart, Cora; Rounds-Riley, Jean; Cueva, Katie; Hennessy, Thomas W.
2012	The last frontier: innovative efforts to reduce colorectal cancer disparities among the remote Alaska Native population	Redwood; Provost; Perdue; Haverkamp; Espey
2012	Medical Home Access Among AI and AK Native Children	Barradas; Kroelinger; Kogan
2012	Rural Trauma Challenges in Alaska	Artuso, Christie E.
2012	Southcentral Foundation: 30 Year Report	Southcentral Foundation
2013	Alaska's Long-Term Services + Supports: Recommendations for a Strategic Plan	Agnew::Beck Consulting
2013	The Nuka System of Care: Improving Health Through Ownership and Relationships	Gottlieb, Katherine
2013	Process and Outcomes of Patient-Centered Medical Care with Alaska Native People at Southcentral Foundation	Driscoll; Hiratsuka; Johnson; Norman; Reilly; Shaw; Smith; Szafran; Dillard
2013	Successful Implementation of a Telemedicine-Based Counseling Program for High-Risk Patients With Breast Cancer	Pruthi, S; Stange, KJ; Malagrino, GD; Chawla, KS; LaRusso, NF; Kaur, JS
2013	Tribal Implementation of a Patient-Centered Medical Home Model in Alaska Accompanied by Decreased Hospital Use	Johnston; Smith; Hiratsuka; Dillard; Szafran; Driscoll
2014	Promotion, Prevention, and Preparedness for Alaskans with Disabilities: Alaska's Disability & Health Program	Atikinson, Smith; Tew, Heath; Reed, Miller
2014	Use of Electronic Clinical Reminders to Increase Preventive Screenings in a Primary Care Setting: Blueprint From a Successful Process in Kodiak, Alaska	Onders, Robert; Spillane, James; Reilley, Brigg; Leston, Jessica
2015	Conflict-Free Case Management System Design	Agnew::Beck Consulting; HCBS Strategies

Date	Title	Author(s)
2015	The Healthy Alaska Plan: A Catalyst for Reform	Alaska Department of Health and Social Services
2015	Medical home implementation and trends in diabetes quality measures for AN/AI primary care patients	Smith, JJ; Johnston, JM; Hiratsuka, VY; Dillard, DA; Tierney, S; Driscoll, DL
2015	Transforming Health Care in Alaska- 2014	Alaska Health Care Commission
2016	2016-2019 Community Health Needs Assessment and Implementation Plan	PeaceHealth Ketchikan Medical Center
2016	Alaska Behavioral Health Systems Assessment Final Report	Agnew::Beck Consulting; Hornby Zeller Associates, Inc.
2016	Alaska ECCS Impact Project	HRSA
2016	Challenges and barriers to healthcare and overall health in older residents of Alaska: evidence from a national survey	Foutz, JD; Cohen, SA; Cook, SK
2016	Describing Barriers to Healthcare Access in the Homer Area, Alaska	Zatz, Lisa M.
2016	Improving Patient Care Delivery in a Small Alaska Native Health Care Organization	Siemens, Annette Cecile
2016	Recommended Medicaid Redesign + Expansion Strategies for Alaska	Agnew::Beck Consulting, LLC; Health Management Associates; Milliman, Inc.
2017	AK DHSS Annual Medicaid Reform Report- FY2017	Nurr'araaluk Davidson, Valerie
2017	Alaska Medicaid Redesign Quality and Cost Effectiveness Targets Report	Alaska Medicaid Redesign Quality and Cost Effectiveness Targets Stakeholder Workgroup
2017	Describing the Patient Care Experience: Quality Improvement in Federally Qualified Health Centers in Alaska	Cooke, Shawna
2017	Medicaid Redesign Telehealth Stakeholder Workgroup	Agnew::Beck Consulting, Inc.
2017	Telehealth Resource Guide	Association of State and Territorial Health Officials

Findings

Several studies and reports have documented efforts to increase access to primary care and enhance the coordination of care in Alaska. Many of these solutions are tailored to specific regions or populations within Alaska. While gaps remain among certain regions and populations, there are bright spots across the state that can be leveraged and expanded as appropriate.

Access to Primary Care

Access to primary care services continues to be an issue for Alaskans, particularly residents in rural and frontier areas and those belonging to vulnerable populations. Barriers to care often cited include cost, transportation, time, and provider availability. Improved primary care access is essential to the health and wellbeing of Alaskans. Individuals with good access to primary care have better health outcomes than those with poor access to primary care, most likely due to increased access to preventive and therapeutic care and an increased opportunity for diagnosis in early stage of disease.[2] The top five most common causes of death in Alaska are cardiovascular disease, chronic respiratory disease, unintentional injuries, stroke, and cancer. Four of these five causes of death are preventable, curable, or treatable if identified early.[34]

Geography affects the ability of Alaskans to access health care services, notably, for rural residents of the state. Almost three-quarters of Alaskan communities (73 percent) are not connected via road to communities with hospitals.[6] Residents in these communities must travel 200 to 500 miles to access healthcare services, often traveling by air, boat, or snow mobile.[35] Approximately half of the AI/AN population lives in these remote communities.[8]

The evidence is clear that substantial travel times and distance adversely affect utilization of health care services. In some states, policy has been implemented to limit rural residents' travel time to primary care providers at 30 minutes.[6] Alaska's geography and population density renders a similar standard unfeasible.

Rurality poses significant challenges to receiving appropriate and timely healthcare for Alaskans. For example, a needs assessment for residents of Kodiak Island found that 25 percent of residents did not receive needed health care in the prior year, over 25 percent were not able to access needed mental health supports, and that 9 percent were using the emergency department (ED) as their primary source of health care.[36]

In Alaska's rural towns and remote villages, community-based health workers such as para-professionals and behavioral health aids (BHAs) are the most accessible primary-care providers.[2] Since the 1950s, the Community Health Aide/Practitioner Program (CHA/P) has grown to provide health workers to deliver frontline healthcare services. These aides and practitioners are employees of local tribal health organizations and provide services from over 170 small, remote village clinics across the state.

Prior to the implementation of the CHA/P Program, rural Alaskans received only episodic care, which required traveling long distances. As a result, many rural Alaskans went without trained medical care. Studies have found that health outcomes for populations served by CHA/Ps have drastically improved since the commencement of the program. CHA/Ps provide care for acute illness in addition to preventive and chronic care. A 2012 study found that over 30 percent of all CHA/P practice involves medication management.[3]

In many cases, Alaska's unique population distribution imposes additional costs and infrastructure needs on providing primary care and other services for rural residents that are not experienced in other states. For example, the city of Nome, in western Alaska, maintains a dormitory-style facility in which pregnant women from rural villages can reside for the last four weeks of gestation, while waiting for delivery.[36]

Vulnerable populations may also face additional challenges accessing services. A 2015 study found that Alaskan seniors (over the age of 65) were 59 percent less likely than U.S. seniors living outside Alaska to have had a regular medical check-up in the last year and 12 percent less likely to report excellent health status than their counterparts in the contiguous United States.[6]

Alaskans with disabilities also suffer from greater difficulty accessing health care for a multitude of reasons. They often experience structural, financial, and personal barriers to accessing primary care. The most common specific barriers are limited access to specialists, a limited number of providers, and navigating the health care system. Notably, a 2014 needs assessment stated that urban Alaskans with disabilities were more likely than their rural counterparts with disabilities to report experiencing provider-

based barriers to receiving care, including difficulty finding providers, having a limited number of providers, and experiencing reluctance from health care providers to provide care to people with disabilities. Urban Alaskans experience these difficulties particularly acutely, partially due to the struggle to locate providers that accept Medicare and Medicaid.[5] Many individuals with disabilities have had to travel long distances to larger communities in Alaska or even to locations outside of the state to receive care.[5]

Several studies examined why Alaskans do not access primary care services. In a survey conducted in the Homer area, 40 percent of respondents said they had experienced barriers to accessing healthcare in the previous year. Of those respondents, 74 percent cited cost of care as a barrier, 26 percent identified time, 22 percent indicated transportation, and 6 percent mentioned mistrust or dislike of local providers.[4] Alaskans with low primary care access are much less likely to receive professional counseling or nutrition services, or to have access to support groups than Alaskans with high primary care access.[35]

Several provider factors affect access to primary care services. Healthcare providers identify health insurance as a substantial influence on their ability to meet the needs of Alaskans. There are significant challenges to working within the restraints of Medicare and Medicaid, and providers cite these regulations as a reason for opting out of accepting Medicare and Medicaid.[35] Medicaid and Medicare reimbursement rates are much lower than those for private insurers. Non-native (not IHS eligible) Alaskans, particularly in urban areas, have difficulty finding providers who will accept Medicaid and Medicare for this reason as well.[2]

Primary care access for Alaskans in rural areas is acutely affected by provider business hours. In areas with limited provider options, lack of night and weekend availability can constitute a serious barrier to care. Patients reported seeking ED care or delaying seeking care in situations where primary care providers were not available after-hours or on the weekend.[37] Timely access to care is also essential. Only 10 percent of same-day appointments are no-shows, while almost a quarter of next-day appointments are missed.[10]

Patient knowledge and perception also affects use of primary care services. Multiple sources reported a lack of knowledge in the Alaskan populace regarding the types and extent of available services in their community.[37,38] This lack of awareness contributes to underutilization of less-intensive services such as home and community based supports and the overutilization of high-cost, more intensive services.[39]

The Improving Patient Care (IPC) Collaborative was developed in 2006 with goals such as improving access to primary care, improving quality of primary care, and providing improved care coordination. Results from a small, rural tribal clinic in Alaska found that enrolling in this IPC was associated with significantly increased rates of preventive screenings.[40]

The spoke-and-hub tribal health system in Alaska consists of small village clinics, subregional clinics, and regional hospitals. The highest concentration of hospitals lies in the Anchorage/Mat-Su regions. Remote village clinics are primarily staffed by CHA/Ps. Subregional clinics employ physician assistants and nurse practitioners in addition to CHA/Ps. Patients must access physician care through regional hospitals that provide inpatient, outpatient, and emergency services. In order to access tertiary care, Alaskans must travel to Anchorage.[8] Alaskans living near urban centers such as Anchorage, Juneau, or

Fairbanks are likely to receive most, if not all, services in their home region. A great percentage of individuals living in rural regions *only* receive services in a region other than their home region.[10]

Care Coordination

Among the reports and studies reviewed for this report, there is considerable overlap among those that address reform in primary care and those on coordinated care. The PMC definition underscores the centrality of primary care, describing coordinated care as a "system wide approach to patient-centered, whole person care." In addition, a common definition notes that care coordination reflects "the deliberate organization of patient care activities" that for a given patient, bridge gaps between or among care settings and typically involves sharing information.[41] Care coordinators and case managers ensure that patients receive high-quality, necessary care and assist these individuals with accessing needed resources. Coordinated care is particularly important for individuals with disabilities and those with complex health care needs or multiple chronic conditions that involve a team of providers.[5]

Cancer is a leading cause of death in Alaska, reflecting the high cancer burden on the Alaskan population. The annual incidence rate of cancer in Alaska is 413.4 individuals per 100,000.[42] The incidence of and mortality rate from most cancers is much higher for Alaskan Natives in the state than for other Americans.[43] For residents managing cancer treatment, fragmentation of services within Alaska can pose a challenge, although strides towards more coordinated care have been made in the last decade.

One study of residents who have completed treatment for breast cancer found much interest in a proposed role for one person to coordinate care across a multitude of providers. Patients undergoing treatment for cancer often have difficulty keeping track of and attending multiple appointments. Patients who could benefit from supplementary services, such as nutrition and therapy, underutilize them because they have no coordinator to help them access the appropriate resources.[35]

In the field of preventive care, care coordination reforms may aim to increase utilization. The Alaska Native Tribal Health Consortium's (ANTHC) Colorectal Cancer Screening Patient Navigator Demonstration Project implementation of a "patient navigator" position successfully increased the number of colorectal cancer screenings performed at ANMC in Anchorage. These patient navigators performed patient outreach, coordinated care, facilitated transportation to appointments, and generally helped patients navigate the screening process, including helping them follow bowel preparation instructions. The success of these patient navigators led ANTHC to permanently establish the position of patient care coordinator.[8] In addition, the success of a telemedicine-based counseling program for high-risk patients with breast cancer at the Alaska Native Medical Center (ANMC) relied on the use of patient navigators to coordinate appointment travel and logistics, as well as provide technical assistance for the telehealth consultations.[44] Further, Providence Health System has also established the position of breast cancer navigator to assist with care coordination for their breast cancer patients.[35]

Access Alaska has implemented a care coordination model for persons living with disability in the Anchorage and Mat-Su Valley regions, and Fairbanks. The "circuit rider" service delivery model improves access for their rural consumers, dispatching a professional familiar with the region on periodic rounds to provide residents with advocacy and case management services as well as training and technical assistance.[45]

Improving care coordination can be difficult as it may require enhanced inter-provider communication, the creation of new skilled positions, and, often, delivery system and payment reform. The PCMH model is an example of coordinated care, and organizations that have not yet implemented a PCMH approach may have limited capacity for care coordination.[36] Currently, Alaska's fee-for-service (FFS) Medicaid model does not reimburse providers for some essential case management activities such as coordinating patient care between providers, in-home remote monitoring, or outreach to high-risk patients.[46]

Efforts to constrain health care costs have shaped care coordination at the state level. The Alaska Medicaid Coordinated Care Initiative (AMCCI) was launched in late 2014 to coordinate care for selected Medicaid recipients identified as high-utilizers of hospital emergency department services. This initiative provides Medicaid patients with individualized case management, assistance with overcoming barriers to care, and referrals to specialists and other necessary supports.[47] The reduction in ED utilization experienced by AMCCI participants saved the Alaska Medicaid program over $8.5 million in 2017. Overall health services utilization for these participants decreased by 9 percent.[38]

Patient-Centered Medical Homes

The Patient-Centered Medical Home (PCMH) model is important historically in the state, principally through Southcentral Foundation's Nuka System of Care (described below). However, adoption has proceeded slowly, compared with national spread and scaling of the model. In general, a PCMH provides comprehensive, accessible, coordinated care. The model was originally promoted nationally for pediatric care, particularly for children with special needs. Children accessing care through medical homes have increased screening rates and decreased numbers of unmet medical needs.[48] Alaskan children are somewhat less likely to receive care within a medical home, compared with children nationally (51.9 percent, versus 54.4 percent).[36] Within Alaska, non-Hispanic white children are significantly more likely to receive care within a medical home than are American Indian/Alaska Native children.[48]

The Southcentral Foundation (SCF) is a tribally owned and operated non-profit health care organization in the southcentral region of Alaska. The SCF serves as the primary healthcare provider for over 60,000 AI/AN people in the southcentral region, Anchorage, and the Mat-Su Valley.[49] SCF's Nuka System of Care focuses on the principles of customer ownership, person-centered comprehensive care, and building long-term, trusting relationships between patients and providers. Since the implementation of the Nuka model, the Native community served by SCF has experienced increased access to care and a higher quality of care.[50]

Beginning in 1999, SCF began to implement key elements of PCMH as part of their Nuka System of Care. These elements included integrated and comprehensive care teams (ICT) for each patient, increased access to services, and a coordinated team-based approach to care.[51] A 2009 evaluation found that all emergency care usage decreased by 40 percent per person after implementation of PCMH. This decline was seen primarily due to increased access to primary care services.[51] In addition to a decline in the utilization of emergency services by 40 percent per person, the evaluation identified a decline of inpatient hospitalizations among all patients for any reason.[49,51] In addition, specialist utilization decreased by 50 percent while customer satisfaction increased by 91 percent.[2]

Before implementation of the Nuka model, only 35 percent of the AI/AN population in the Southcentral region had a designated primary care provider, and 43 percent of those with a designated primary care provider did not know who that provider was. Currently, within the Nuka model, over 95 percent of these consumers have an assigned integrated primary care team. Implementation of the Nuka system of care also allowed SCF to increase child vaccination rates by 25 percent and nearly completely eliminate their behavioral health waitlist (which formerly contained over 1200 individuals).[50]

As noted above, chronic conditions, such as diabetes, can be well served by a PCMH model, to support increased care coordination and more frequent access to care. After SCF implemented the Nuka system, diagnosis of type-2 diabetes rose significantly for their empaneled patients, indicating increased access to screening for their customer-owners. SCF also experienced a drastic decline in hospital ED and urgent care center visits for those with diabetes, together with an increase in primary care access for these individuals.[52]

Expanding the Health Care Workforce for Care Coordination

Medicaid care coordinators in Alaska are employed in three contexts: independent, agency-employed, and state-employed. Agency-employed care coordinators have an implicit conflict of interest, because they must balance the agendas of their employers with the needs of their clients. Care coordinators are paid a fixed monthly rate for each individual on their caseload. This flat rate payment model is problematic because it incentivizes very large caseloads, is not tied to actual care coordination services, and may incentivize providing services to individuals with less complex care coordination needs.[53]

Part of SCF's Nuka System included a transition in the role of registered nurses toward care coordination, with creation of a new "nurse care manager" role as part of family medicine clinics. These nurses are employed to coordinate care and partner directly with the patients and families in order to meet their needs.[54]

Care coordinators could be effectively tapped to help maximize travel for care. When a patient travels to Anchorage or another urban location, whether for a medical purpose or otherwise, care coordinators can help schedule *all* necessary appointments during this trip. This care coordination can help reduce their patients' health care-related travel costs and increase access to and utilization of health care services.[40]

Access to Behavioral Health

The integration of behavioral health into primary care and related care coordination may be an important part of reform in Alaska, where alcoholism and drug addiction are at epidemic rates. In 2016, the state-wide alcohol-induced mortality rate was over twice the national rate (23.0 deaths per 100,000 people, versus 9.5 deaths per 100,000 people).[55] As with most of the United States, the overdose rate in Alaska is increasing. From 2013 to 2016, Alaska's overdose rate increased from 14.2 deaths per 100,000 people to 17.2 deaths per 100,000 people.[56]

Alaska's geography and infrastructure pose unique challenges to providing access to behavioral health services. There is only one state-run psychiatric hospital in Alaska—the Alaska Psychiatric Institute—and the state is experiencing high vacancy rates for skilled behavioral health practitioners such as

psychiatrists. Access to child psychiatrists for children residing outside the Anchorage region is practically non-existent.[36]

The Community Behavioral Health System (CBHS) requires that each Alaskan have prompt access to behavioral health services such as screening, diagnosis, and treatment and that these services are provided as close to a recipient's home as possible.[10] However, many behavioral health providers in Alaska describe a lack of needed coordination between primary care providers and behavioral health workers. There is increasing demand for integrating behavioral health services into community health clinics and other primary care settings.[10] Providers cite funding issues, lack of communication, structural inadequacies, and confidentiality concerns as barriers to increasing behavioral health integration in primary care settings.[36] In addition, providers and beneficiaries alike have identified a lack of supportive and transitional housing as a major barrier to receiving needed behavioral health care in Alaska.[10]

Behavioral Health Aides (BHAs) serve as front-line providers of behavioral health services in rural areas of Alaska. In addition, telebehavioral health has become more commonly used to reach rural high-risk Alaskans for whom travel time and costs to access behavioral health services would be prohibitive.[11] Thirty-five percent of behavioral health providers in Alaska use telebehavioral health regularly, and another 20 percent provide telebehavioral health services irregularly. The most common services provided through telebehavioral health are medication management, psychotherapy, and assessment.[10]

Access to Long-term Services and Supports (LTSS)

While the median age for Alaskans is younger than that for the U.S. overall, the state's population is aging. The number of Alaskans age 65 years or older is expected to increase by 60 percent by 2045.[57] In addition, the state is also experiencing rising rates of chronic conditions such as diabetes and heart disease.[58] A growing aging population requires access to long term supports and services (LTSS). As the number of people utilizing LTSS has increased, costs of these services has increased as well.[58] Notably, neither IHS nor Medicare pays for most LTSS, restricting access to some of these desperately needed services.

Access to LTSS is particularly challenging for Alaska's rural residents. Rural areas are unlikely to have sufficient long-term care facilities, resulting in some elderly Alaskans being forced to move to more urban areas in order to receive care. Considering the high rural population of Native Elders, the lack of assisted living facilities in these areas disproportionately forces Native Elders to move to Anchorage to receive adequate LTSS, limiting their access to culturally appropriate care and isolating them from their support systems and community.[58]

A needs assessment conducted for Alaska Native Elders in the Kodiak Island area of the southcentral region found chronic underutilization of less-resource-intensive LTSS, such as home and community based services. The needs assessment found that the region's older residents are typically placed directly into the highest, most resource-intensive, level of care, indicating a lack of accessibility for lower levels of care.[39]

For individuals with developmental disabilities, LTSS are limited. Alaska is one of the only states in the country that does not maintain Intermediate Care Facilities for Persons with Mental Retardation (ICFs-

MR) or large state facilities for individuals with developmental disabilities. Alaska has the third highest spending per individuals receiving services for developmental disability nationally. However, Alaska spends four times more on home- and community-based services than it does on nursing facilities.[53]

The lack of ICFs-MR and other intensive care facilities makes it difficult to place some Alaskans with complex long-term support needs. Since ICFs-MR facilities were closed in the late 1990s, there has been an increasing need to send individuals with complex needs out-of-state. State and Medicaid funding pays for these out-of-state placements, and this care is generally more expensive than similar in-state care would be. There is an increasing need for residential care in the state as a whole. One study estimates that Alaska's residential service capacity will need to grow by 109 percent to adequately match the needs of its population.[59]

Telehealth and Health Information Technology (HIT)

Data-sharing is a foundation for primary care and coordinated care reforms, whether scheduling follow-up appointments related to a referral, facilitating communication among providers, or enabling research that informs better quality care. While developments in health information technology (HIT) have supported these types of reforms nationally, for example, through electronic health records (EHR) and health information exchanges (HIE), telehealth has played an especially important role in Alaska, with its predominantly rural health services infrastructure.

Telehealth

Telehealth involves the use of telecommunications technology to support care for patients from a distance. Telehealth is used in Alaska to ensure access to care and care coordination for rural residents. Reports note that telemedicine has been particularly effective in improving rural Alaskans' access to behavioral health services.[46]

While telehealth is often perceived as live video consultation, store-and-forward technology is especially useful in areas with limited or unreliable telecommunication connectivity (i.e., much of rural Alaska).[60] This technology involves the transmission of electronic medical information that is assessed at a later time, rather than real-time videoconferencing.

In the state of Alaska, store-and-forward technology has reduced costs and increased access to care while improving provider efficiency.[61] Seventy-five percent of specialty consultations utilizing store-and-forward technology are completed within one business day; 20 percent completed before the patient leaves the clinic. In a study focused on the utilization of store-and-forward technology for specialist consultations in Anchorage, 50 percent of these consultations took less than six minutes, less time than needed for in-person consultations.[61]

Store-and-forward technology has proved particularly effective in the specialty of otolaryngology in Alaska. AI/AN populations have a particularly high prevalence of otitis media. Trained CHA/Ps can perform imaging of the tympanic membrane, make a diagnosis and begin treatment, and then forward these images on to trained otolaryngologists for confirmation of the findings. A study found that concordance between the CHA/P's findings and the physician's findings are high.[62]

Services provided through telehealth have been shown to benefit patients by reducing barriers related to transportation, and are associated with improved patient satisfaction. Over 70 percent of all medical teleconsultation in Alaska is performed in lieu of patients traveling for specialist care. This saves an estimated $3-$4 million in patient travel costs annually.[62] Programs piloting the provision of medical services via telehealth in Alaska have found that telemedicine can spur improvement in patient outcomes and satisfaction.[62]

In 2011, ANMC established a telemedicine-based counseling program for high-risk patients with breast cancer. Live audio/visual consultations were performed for ANMC patients by breast-cancer specialist physicians within the Mayo Clinic Breast Clinic. These consultations intended to simulate a face-to-face visit in which the physician provided education and individualized plan management. Patient and provider satisfaction for these consultations was found to be 98 percent.[44]

Avey and Hobbs (2013) find that while telehealth programs in Alaska can improve access to care for rural residents, rural telehealth sites can rapidly fall into disuse if not carefully structured for success from the developmental stages, and then adequately supported throughout the duration of the program.[11] In this study, early adopters found that one key to success is clinician involvement in all facets of the development of a telemedicine program, including device selection, protocol creation, and software development. They also found that successful telemedicine programs also must include protocols for onboarding and regular training, as well as robust technical and clinical support systems.[11]

The Extension for Community Health Outcomes (ECHO) project, currently piloted by the University of New Mexico in rural Alaska, uses video and phone technology to connect rural and remote primary care providers with specialists in academic centers to assist with the co-management of patients receiving chronic care for conditions such as diabetes. Early findings from an evaluation of Project ECHO found significant improvement in the health outcomes experienced by rural chronic care patients.[46]

Some significant barriers to a broader adoption of telehealth programs in Alaska include: finding sources of sustainable funding for partnerships and initiatives, a lack of interoperability between systems, and policy barriers such as payer disparity in telehealth reimbursement.[63] Telehealth services work best with a stable, reliable internet connection, which can be difficult with extreme weather conditions and rural infrastructure.[10]

Telehealth has great potential for creating health care savings while simultaneously increasing access and improving outcomes. Savings would primarily be found through decreased emergency medical service utilization as a result of increased access to primary and specialty care for Medicaid beneficiaries.

Health Information Technology (HIT)

Innovation in HIT in Alaska has also shown to be successful in improving utilization of primary care services, particularly for preventive care. The Kodiak Area Native Association (KANA), in Alaska's southcentral region, implemented electronic clinical reminders (ECR) in their electronic health records (EHR) system to successfully increase the number of preventive care screenings. With ECRs, KANA was able to significantly increase screenings above the nation-wide Indian Health Service (IHS) average for

common causes of morbidity in Alaska: cardiovascular disease, tobacco use, alcohol consumption, intimate partner violence, and depression.[64]

HIT also plays a key role in care coordination. As discussed in the data analytics chapter that follows, a health information exchange (HIE) is intended to allow health care providers to appropriately access and securely share a patient's medical information electronically, with the goal of improving the safety, cost effectiveness, and quality of care.[65] Alaska's HIE was established in 2009.[66] In 2010, the Office of the National Coordinator for Health Information Technology (ONC) awarded $4.96 million to the state of Alaska to support the development of a state-based HIE.[67]

Alaska's HIE, called "healtheConnect Alaska" (formerly Alaska eHealth Network), currently offers a la carte services to the health care community, including direct secure messaging, secure text messaging, image share and exchange, select patient information, medication fill history, prescription data monitoring program (PDMP) lookup, eHealthExchange Access, Proactive Management of Patient Transitions (PROMPT), ENS (Event Notification System), and lab results.[68]

Healthcare Workforce

In Alaska, improved access to care is closely linked with increasing the number of trained providers. A number of studies point to the high vacancy rates for medical professionals in Alaska and the corresponding negative impact this rate has upon Alaskans' ability to access and promptly receive care. In addition, staffing new care coordination models is likely to require retraining of providers, as well as hiring to fill new roles.

Like other rural parts of the United States, Alaska has experienced consistent shortages in the primary care workforce. The ratio of physicians to population in Alaska is 2.05 physicians per 1,000 Alaskans overall, but falls to .77 physicians per 1,000 population in some rural parts of the state.[36] This is significantly less than the nationwide ratio, which is 2.38 physicians per 1,000 U.S. residents. Studies estimate a 20 percent vacancy rate for primary care physicians and a vacancy rate over 15 percent vacancy rate for nurses in rural Alaska.[2] Challenges persist even at rural hospitals fully staffed with general medicine physicians. Many of these hospitals have limited specialists on staff, so that there are no radiologists on staff, for example, to quickly review mammograms.[35]

Vacancy rates are particularly high for behavioral health services. There is a statewide 22 percent vacancy for psychiatrists, and a 17 percent vacancy rate for behavioral health aides.[10] Urban areas of Alaska suffer less than the rural regions from workforce shortages. There is a 13 percent vacancy rate for clinical psychologists in rural Alaska, as compared to only 6 percent in urban areas. Similarly, there is a 15 percent vacancy rate for clinical social workers in rural areas but only an 8 percent vacancy rate in urban Alaska.[10]

Alaska's geography creates unique demands for workforce training. The vast wilderness, often extreme weather, mountain ranges, and volcanoes encountered in remote Alaska mean that rural emergency responders must be highly trained not only in emergency response and trauma care, but also in handling challenging environmental conditions and terrain. Medical crews often travel with survival packs and

mountaineering equipment, and helicopter or airplane pilots are necessary members of any emergency response team.[12]

As the population of older residents increases in Alaska, the number of healthcare workers will need to increase as well. In a state already experiencing shortages of physicians and other medical professionals, the number of physicians needed in Alaska is expected to double between 2006 and 2026.[1] With increased adoption of telemedicine in Alaska, there is a corresponding increase in the need for highly-trained technology professionals to provide support and coordination.[44] The Alaska Health Workforce Coalition was founded in 2010, with the goal of increasing the number of medical professionals, including primary care providers, behavioral health clinicians, direct support providers, physical therapists, nurses, and pharmacists.[1]

Gaps in the Literature and Limitations of Analysis

The 39 studies reviewed in this chapter include 16 peer-reviewed journal articles; the remaining publications would best be described as gray literature, either state reports, work conducted by consultants, or annual reports of entities that have sponsored health reform. There are few evaluations of ongoing or new initiatives, other than the Nuka system of care. Many reforms have followed in the wake of national developments such as the Patient Protection and Affordable Care Act (ACA), funding initiatives out of the Office of the National Coordinator for HIT and HIE, and renewed attention to Medicaid reforms. Many primary care and coordinated care reforms in Alaska date are relatively recent, meaning that there are few data or evaluations regarding the outcomes or efficacy of these programs. Further, many elderly and disabled Alaskans receive long term care through informal sources such as family or community members. This limits the ability to evaluate need for and utilization of long-term services and supports through Medicaid data.[39]

Our review is constrained by many significant limitations. Many Alaska-specific studies and reports, including those used for this meta-analysis chapter, have small sample sizes examining very specific populations (i.e. Alaskan rural breast cancer survivors.) It is difficult to draw inference for the wider Alaskan population from this literature. In addition, expansion of Medicaid in Alaska in 2015 drastically altered the provision of primary care and care coordination in the state. Although the time frame for this analysis began in 2008, Medicaid expansion rendered obsolete many findings and recommendations from the identified reports and studies regarding access to care and insurance coverage.

Discussion

Many recommendations for programs can be implemented to improve access to primary care and care coordination in Alaska. However, there is relatively little peer-reviewed evaluation or evidence for the success or failure of these programs and their effects on health outcomes.

Alaska residents, and especially those living in rural areas, experience multiple barriers to timely and appropriate health care. Some of these barriers are unavoidable and difficult to mitigate, however, telehealth and community health aide/practitioner programs have shown much promise for delivering quality health care to hard-to-reach Alaskans.

Telehealth has received much attention for its potential to reduce spending and increase access. Actuarial estimates indicate that expanded telemedicine in Alaska's Medicaid program could potentially save up to $2.6 million in the first year, increasing to $13 million in savings by year four.[46] Reports for this meta-analysis noted that there is a lack of Medicaid data identifying telehealth services, limiting the opportunities for telehealth utilization analysis.[46]

For older residents and those living with disability, expanded community- and home-based services, and more prevalent case management services are priorities for improving care. For these Alaskans, it is essential to develop additional levels of care and creative incentives for use of the least intensive care possible through increased care coordination.

Studies pointed towards a need for improved education and increased outreach to high-risk Alaskans regarding Medicaid benefits and eligibility. Chronic underutilization of some home and community based supports indicates of a lack of awareness of these services and lack of a qualified workforce.

Chapter summary

Among the studies and reports reviewed in this meta-analysis, there is considerable overlap among those that address reform in primary care and those on coordinated care. The PMC definition underscores the centrality of primary care, describing coordinated care as a "system wide approach to patient-centered, whole person care." We find that access to primary care continues to be an issue for Alaskans, particularly residents in rural and frontier areas and those belonging to vulnerable populations. Barriers to care often cited include cost, transportation, time, and provider availability. Individuals with good access to primary care have better health outcomes than those with poor access to primary care, most likely due to increased access to preventive and therapeutic care and an increased opportunity for diagnosis in early stage of disease. Coordination that extends the reach of primary care to encompass behavioral health and long-term services and supports is emphasized in a number of the studies reviewed. In addition, a number of studies document the importance of addressing longstanding workforce shortages and the ways in which telemedicine and efforts to improve interoperability of electronic health records both support the delivery of primary care.

Chapter 3: Data Analytics

This chapter reviews a group of studies conducted since 2008 that examine the prospects for reforming Alaska's health care system, specifically concerning data sources useful for analyzing health care cost drivers. One important limitation to note is that data analytics on quality or on provider and patient experience, while part of the PMC's vision for reform, are not a main focus of this discussion. As with the other chapters in this meta-analysis, our review describes previous studies rather than presenting new calculations or inferences from available data. Several significant sources of data about Alaska's health care system have not been used in the studies reviewed here. This chapter will touch briefly on some of those sources but will leave the task of detailed description and assessment to a subsequent report being prepared by the NORC team, the *Alaska Spend and Cost of Health Care Report*. A variety of health care data for Alaska can be accessed in a recent ISER publication, *Trends in Alaska's Health-Care Spending.*[69] Data in the report are also available in an EXCEL file.

Since 2008, two initiatives have generated most analyses of health care costs in Alaska. First is the Alaska Health Care Commission, which operated from 2009 through 2015. It commissioned a series of reports by Milliman, Inc., that focused on the relative costs of hospital services, physician services, and pharmaceuticals in Alaska, as compared to several states in the northwestern United States. Second has been Medicaid reform under Senate Bill (SB 74), which directed the Alaska Department of Health and Social Services (AKDHSS), in coordination with other state agencies, to work in sixteen areas with the goal of making program changes to reduce Medicaid costs. SB 74 mandates some administrative actions and directed study of some of the options. That work started in 2016 and is ongoing.

The chapter opens with short overview of methods, then turns to considerations around identifying, gathering, using, and sharing health care data. Descriptions are presented for data sets—both national and state—used to analyze health care costs in Alaska, for data sets useful in analyzing provider behavior, and for approaches to analyze regional differences in cost. Next is an assessment of all-payer claims databases (APCD) as a recommended approach to data analytics that support reform. The chapter closes with a summary of findings and observations about the implications of findings for a more broad-based set of recommendations.

Methods

The primary goal of this chapter was to identify and summarize previous evidence-based work on the overall performance of the Alaska health system, with an emphasis on studies related to drivers of health care costs in Alaska. A derivative goal of this chapter was to identify broad-scale data sets that have been used in this analysis and also to identify opportunities to apply other data sets to these questions. The chapter made a specific effort to assess application of these evidence-based analyses to regions within Alaska. The chapter does not include work that focuses on specific case studies or experiments (which are the topic of the *Historical Project Scan* Report and the preceding chapter on primary care and coordinated care) or social determinants of health (addressed in a subsequent chapter of this report).

ISER staff led the preparation of this section. ISER has been active in the analysis of issues around health care costs in Alaska for over thirty years.[70–72] Based upon previous work on health care costs in Alaska, we expected that most, if not all, of the state-level data analytics would have been completed as various technical reports for public agencies. We initially developed a list of technical reports from three sources: (1) analyses of which we were already aware; (b) analyses prepared for or cited by the Health Care Commission, and (c) reports completed under SB 74, the Medicaid reform bill. Staff also contacted the consultants who have conducted health care studies in Alaska to ask for identification of additional reports. We also conducted a broad Google Scholar search using "Alaska health care" or "Alaska healthcare" in combination with keywords "costs" or "economics." That search did not identify any post-2007 peer-reviewed publications that were Alaska-specific studies that were relevant to this chapter.

Background: Considerations around Data on Health Care Costs

The process of using data to better understand the functioning of social systems can be divided into two broad tasks. First, datasets that capture key features of underlying social and economic activity must be created. Second, data must be turned into useful information. The quality of analytical answers depends on how well both steps are executed. Before turning to health care datasets and policy questions around health care data specific to Alaska, this chapter will examine broad issues in data analytics that are specific to health care data.

Health Care Cost Data

Health care is a large and complicated social and economic system. To understand the various forces driving this complex system, data analytics creates various types of data compilations and then applies analytical techniques to the compiled data. Datasets created from health care systems are abstractions, in at least two ways. First, the process of reducing a particular use of health care services (*e.g.*, a visit to a physician's office) to a digital record is an abstract representation of the actual interaction. Second, most datasets used for analysis are abstracted datasets from the initially gathered data.

The health care system generates medical records as part of the process of providing care. To deliver appropriate treatment, providers record various kinds of information about the patient's health, symptoms, test results, care already provided, patient response to that care, and so on. These data are the foundation on which most health databases are constructed. From the patient care information, the provider generates bills for services rendered. In our third-party payment system, most of these bills are submitted as "claims" to third-party payers (insurers, claims administrators for self-insured employers, and government payers.) The information in a claims record is essentially the information that the insurer or government agency requires to determine what payment it will make to the provider. As claims are the basis of payments, the economic self-interests of payers and providers create incentives for accurate data. Consequently, the process of turning medical records into claims records forces the information through a filtering process that tends to retain a relatively standardized set of information for any given type of provider. These claims data become the foundation for much of the information that is used for analysis of the overall economic performance of the health care systems. This is an exceptionally rich dataset because claims data are maintained at a very detailed level (essentially, at the level of a single use or a set of closely related uses of the health care system for each patient).

Alaska, like many states, is developing a health information exchange (HIE) to coordinate sharing of health care information. In Alaska, this is now called "healtheConnect Alaska."[68] This HIE is not a unified database. Rather, it is a set of tools for providers to share access to patient medical records on an as-needed basis. The goal of healtheConnect is to improve care and reduce inappropriate care by giving more complete real-time information to providers. As currently envisioned, healtheConnect is not a replacement for the current claims processes. It is therefore unlikely to become an alternative source for the kinds of data that are typically used in the analysis of the economic performance of Alaska's health care system.

Extracting Information from Health Care Data

All of us have probably all heard some decision-maker say, "I want to see the data." That policymaker would probably be offended if she or he was offered a flash drive with 500,000 data records and a codebook. What the decision-maker almost inevitably wants is not the actual data, but rather some high-level tabulation or summary or interpretation of the underlying data.

The process of gleaning information from data is far from trivial. Health care data files, even for a small state like Alaska, can run to millions of individual records. The data analysis process tries to develop informative tabulations or to apply statistical techniques to extract relationships that exist within the data. In an ideal world, the design of data collection would be guided by how the data will be used and what questions it will be expected to help answer. This is rarely the case. Analysis almost inevitably must manage with imperfect data. While there are standard tools from statistics, computational science, and data science to guide this process, there remains considerable "art" in the process. For complicated health care datasets, a significant up-front investment is required to answer research questions with a particular data set. Analysis often relies on serendipitous discovery of seemingly unrelated data that can in fact help answer a question. A researcher who uses a dataset repeatedly learns to make more accurate and insightful use of the data.

These aspects of research explain why researchers of health care data often focus on a relatively narrow range of questions and use the same datasets repeatedly. This specialization is a challenge for a small state like Alaska, where each agency or research institution has limited resources to cover a wide range of issues. But as we think about "what data do we want to collect" and "what questions do we want to answer", we also need to address the "who is going to do the analysis" question.

Finally, it is worth noting that many health care sets are "convenience samples" rather than random samples. Random samples have desirable statistical properties that simplify inference from the data. But the health care system typically creates datasets for some non-random subset of the population. For example, there may be data on Medicaid patients or on patients who have commercial insurance. These convenience samples may include a large part of the population of interest, may have detailed data, and may have been collected for an extended time. An important part of the analysis of health care data is finding ways to get reliable answers from convenience samples. This might involve, for instance, using other sources to identify the extent to which the convenience sample does or does not reflect the population. But inevitably, the use of convenience samples adds uncertainty to the process of extracting information from data.

Confidentiality/sensitivity in Health Care Data Analytics

Health information is uniquely sensitive, so people who analyze health care information are required to take specific steps to preserve the confidentiality. Specific federal legislation, the Health Insurance Portability and Accountability Act of 1996 (*HIPAA*) requires protection of the privacy of health information. But the concern for patient privacy is more than a federal mandate; it is a value built into our health care system. The design of an IT system that manages health care data must meet high operational and security standards, and the cost of meeting those standards is part of the cost of creating and maintaining the systems. Anyone using data that is derivative of patient health care information is expected to commit to procedures that will ensure that individual patient data are not disclosed. Those processes inevitably require substantial compliance efforts by the data user, and those processes may also restrict the ability of the user to access certain kinds of information. Those compliance efforts require time and resources, which are an inherent cost of conducting this analysis.

A routine process in protecting health care information is "de-identification," the removal of identifying information. While the concept is simple, details of the process are more complicated and can determine what analysis a dataset can support. It is not enough to remove traditional identifiers, such as name, address, date of birth, and Social Security number. While a postal code is not unique, a zip code might easily be combined with an age (or even an age range) and a diagnosis or date of treatment to identify an individual. This is especially true in small rural Alaska communities. De-identifying data limits certain kinds of research. For example, research on re-admission patterns or on so-called "high users" could not use data that has been de-identified at the individual claim level.

Under federal regulations, an Institutional Review Board (IRB) must review research on human subjects before the research can proceed. The purpose of this review is to ensure that the research meets professional and institutional standards for the treatment of human subjects. Those standards vary according to the sensitivity of the data being used and the vulnerability of the population in question. For example, there are higher standards for research on children and vulnerable adults. Signed commitments to maintain confidentiality are routine in these processes, but typically are not enough on their own.

Research conducted in areas under tribal jurisdiction, including the Alaska Native Tribal Health System, are subject to a separate IRB process, the Alaska Area IRB. That research must have formal written approval of the appropriate tribal government or governments. The approval process for the Alaska Area IRB typically requires six months to a year. Many tribal authorities in Alaska, as a condition of approving of research, require that ownership of any data generated by the research remains with the tribal authority. Subsequent use of the same data, whether by the same researcher for a different project or by a different researcher, must be approved by the tribal authority. This is not the standard in most research settings. In most research, data collected for one project may be used in other projects, subject to any confidentiality provisions that were built into the initial project.

Health care data is not only subject to patient confidentiality; it can also be commercially or politically sensitive information. Health cost data has economic value to businesses in the health care industry, especially to insurers and employers. For example, information on the pattern of health care use for a group of employees allows insurers to bid more accurately on rates for that group. One manifestation of the value of this information is seen in conflicts between employers and union health care trusts over

access to employee health care usage information. When insurers or plan administrators receive requests to use their data for research purposes, they will consider whether the provided data could be used, however indirectly, by competitors.

And those involved in health care understand that research results can shape public policy. If, for example, a researcher requests use of data from an insurance company, that company will undoubtedly assess the possible impact of the research results on public policy. Similarly, government agencies that are concerned about how a research project might affect policy may be very cautious in negotiations over access to data under their control. The ability of holders of data to determine which types of questions can be addressed, and which cannot, creates a hidden bias in how information is generated about the health care system.

Data Sources to Support Analysis of Health Care Costs in Alaska

A number of national, state, and commercial data sources have been in use since 2008 to analyze health care costs in Alaska. In this section, we review selected national databases from the Centers for Medicare and Medicaid Services (CMS), those commercially available, and datasets from the state of Alaska.

CMS Medicare Research Files

CMS generates a broad array of Medicare-related data specifically intended for research use. Public Use Files (PUFs) are available to any user. In general, PUFs have data that has been aggregated or are public information. There are also research files that contain de-identified individual data, called Limited Data Sets (LDS) and Research Identifiable Files (RIF). LDS and RIF may also contain information that identifies the provider. Because individual level data that have been de-identified carry some chance that individuals can be identified by some combination of their characteristics, access to the LDS and RIF requires researchers to enter into agreements with CMS about restrictions on their use.[73] Much of this CMS data has been processed into research data files in SAS, Stata, and CSV formats by the National Bureau of Economic Research (NBER).[74]

CMS has created a PUF that is based upon 100 percent of Medicare claims to provide detailed county and state level information on the use of Medicare services.[75] In Alaska, "county" is operationalized as 29 regions: 19 boroughs and 10 Census areas. When more detailed data is being presented (*e.g.*, county data for a particular diagnosis), it is very common for the county level data to be withheld to meet confidentiality restrictions. These data allow a researcher to make detailed comparisons of the how Medicare services are used in any given county as compared to other counties, a state, or the country. These data are often combined with other sources (Medicaid, private insurance) to compile aggregate information on the use of health services in a county or state. The Medicare Provider Analysis and Review (MEDPAR) file provides claims level data for short-stay inpatient Medicare usage that is identified at the level of the state of residence of the beneficiary and the calendar quarter of service.[76] MEDPAR files identify the facility where service is provided, but not the provider-person.

All Medicare-certified institutions are required to file detailed annual cost reports.[75] From these data, the National Bureau of Economic Research (NBER) has created files for seven facility types: hospitals, renal

dialysis facilities, hospice facilities, home health agencies, health clinics, community mental health clinics, and free-standing federally qualified health centers.[74] These files are available in multiple formats, including SAS, Stata, and CSV. RAND also has a hospital dataset that is derived from these data.[77] The pre-processing of the Rand data includes some error checking. CMS also collects detailed information on individual providers that is available through its Provider of Services files.[78]

CMS also conducts the Medicare Current Beneficiary Survey (MCBS), a national survey that includes information on health status and patient satisfaction.[79] Unfortunately, the sample size is not designed to be statistically representative at the state level. It includes less than 10,000 beneficiaries nationally. Alaska is not included in this sample, due to high costs of obtaining a few observations. A similar issue arises for a non-Medicare survey conducted by the Agency for Healthcare Research and Quality (AHRQ), the Medical Expenditure Panel Survey (MEPS).[80] MEPS includes a sample of about 12,000 households, covering about 35,000 individuals, to obtain detailed information about the use of the health care system. AHRQ only reports the data for the 21 states with population in excess of three million, because data for smaller states (including Alaska) has too few observations to meet its criteria for statistical reliability.

CMS State-Level Health Care Cost Datasets

CMS maintains the National Health Expenditure Accounts (NHE), which provide consistent measures of health care expenditures across states.[21] CMS data are widely cited and republished, for example, as the source for state comparisons on the Kaiser Family Foundation website. That NHE is the basis for many comparisons that conclude that health care spending in Alaska is both highest of the 50 states and also the most rapidly growing.

For example, Guettabi (2018) used the CMS data to apply a synthetic control methodology to the analysis of the effect of the 80th percentile rule on health care costs. In the synthetic control methodology, a "synthetic" Alaska is created to estimate how Alaska's health care costs would have grown absent the changes that occurred in 2004. That synthetic Alaska is the statistical combination of the experiences of some other states that most closely fit the past health care costs in Alaska. Guettabi estimated that eight percent to 25 percent of the growth of Alaska health care expenses are explained by the changes implemented in 2004, with most of this increase being attributable to increases in physician costs.[81]

The current debate over the 80th percentile rule illustrates the opportunities for research to clarify the trade-offs in health policy. The argument has been made that the physician compensation increases under the 80th percentile rule have increased both the number and range of providers in Alaska, with benefits to patient care. This leads to an obvious research agenda. First, to what extent has the number of physicians and the representation of underserved specialties increased since 2004? If we combine the estimates of additional costs under the 80th percentile rule with estimates of increased physicians, what would be the cost per additional physician? Is the cost incurred under the 80th percentile rule to achieve this result higher or lower than other strategies, such as paying medical school debt for new physicians?

National Commercial Insurance Claims Databases

There are three datasets that include large national samples of commercial insurance claims data: IBM Watson MarketScan, FAIR Health, and Health Care Cost Institute (HCCI). These are convenience

samples in the sense that some insurers and employers choose to contribute data to one or more of these. Here are some details on each of the three:

- ***IBM Watson MarketScan.*** The dataset was known as Truven MarketScan for 2012-2016, and as Thomson Reuters MarketScan prior to 2012. MarketScan comprises several datasets that have evolved over time. Some date back to 1995. MarketScan is a dataset of commercial payers only. Premera contributes its data to MarketScan.[82]
- ***HCCI.*** Aetna is one of four large firms that fund HCCI and contribute data. (The other three are Humana, Kaiser Permanente, and United Healthcare.) HCCI has approximately 50 million commercial lives covered and includes Medicare FFS data. HCCI goes back to 2008.[83]
- ***FAIR Health.*** This company does not disclose who does or does not contribute data. Premera does not contribute data to FAIR Health. FAIR Health covers 150 million individuals and includes 100 percent coverage of Medicare Part A, B, and D claims. FAIR Health data goes back to 2008.[84]

Examples of Data Analytics Using Commercial Data

MarketScan Data, Studies for Alaska Health Care Commission. Milliman, Inc., combined MarketScan data with other data to generate three reports for the Alaska Health Care Commission (AKHCC). Those reports compare the costs of pharmacy, physician care and hospital costs in Alaska in 2009 to costs in five other states (Washington, Oregon, Idaho, Wyoming, and North Dakota); Hawaii was included as a sixth comparator in the hospital comparison.

- The Milliman *pharmacy study* combined two claims datasets (MarketScan and its proprietary Medicare Part D dataset) with information on allowed charges for providers with fixed fee schedules (Medicaid, Workers' Compensation, VA, and Tricare). The study found that for all payers combined for 2009, Alaska's pharmacy reimbursement rate was one percent higher than the average for the five comparison states. Workers' Compensation payment rates were 17 percent higher in Alaska as compared to the five states. Alaska pharmacy reimbursement rates for all other payers were within two percent of the rates in the five comparison states. The Milliman conclusion that drug pricing is not a major contributor to Alaska's high overall health care costs is consistent with CMS data that find Alaska spends slightly less per capita on drugs than the United States as a whole.[85]

- The Milliman *hospital study* used a combination of MarketScan data and Medicare data. The six comparisons states were the five used in the pharmacy and physician studies, plus Hawaii. The hospital study, unlike the pharmacy and physician studies, provided separate comparisons for two regions, Anchorage/Fairbanks/Mat-Su and the rest of the state. The results indicate that in 2009 commercial insurance paid 35 percent to 40 percent more for hospital reimbursement in Alaska, as compared to the six states; see Exhibit 3.1 below. Interestingly, this margin is only slightly higher for the rest of Alaska than for Anchorage/Fairbanks/Mat-Su for commercial payers. For Medicare, the situation is different. Anchorage/Fairbanks/Mat-Su has reimbursements that are 126 percent of the Medicare reimbursement levels in the six comparison states. This reflects in large part that Medicare reimbursement rates are about 25 percent higher in Alaska than in the lower 48. But the hospitals in the rest of the state had Medicare reimbursement rates that were 175 percent of Medicare reimbursement rates in the comparison six states. This probably reflects the special payment arrangements under Medicare for rural hospitals.[86]

Exhibit 3.1: Milliman 2009 Hospital Costs as Ratio to Six States

Region	Commercial ratio to 6 state average	Medicare ratio to 6 state average
Anchorage/Fairbanks/Mat-Su	1.35	1.26
Rest of state	1.41	1.75
Alaska, total	**1.37**	**1.36**

- The Milliman *physician study* used basically the same methodology as the pharmacy study: combining two claims datasets (MarketScan and a Medicare dataset) with the allowed charges for providers with fixed fee schedules (Medicaid, Workers' Compensation, VA, and Tricare.) Milliman was also contracted by Premera to conduct an analysis limited to physician and hospital reimbursement by commercial insurers based on the 2014 MarketScan data (Milliman, 2016.) The two reports use different comparisons bases (five or six Western states for the 2009 data and the entire United States for the 2014 data), but the qualitative flavor of the results is very similar. Some results from those two studies are presented in Exhibit 3.2 below. The ratio of payments in Alaska to payments outside the state are higher than the comparable ratio for hospitals.[87]

Exhibit 3.2: Milliman Comparisons of Alaska Cost, 2009 and 2014

	2009 Comparison to 5 States	2014 Comparison to U.S.
Primary Care	n/a	2.3
Family Practice	1.47	n/a
Pediatrics	1.39	n/a
Internal Medicine	1.49	n/a
Cardiology	2.01	3.1
Neurology	1.86	3.0
Orthopedics	2.02	3.5
Gastroenterology	1.91	2.6
All Specialties	1.69	2.5

A Milliman report for Premera (2016) does include a limited number of "apples-to-apples" comparisons based upon the comparison states used in the earlier Health Care Commission studies. The ratio of Alaska to comparison states' reimbursement for hospital reimbursement increased from 1.38 in 2009 to 1.47 in 2014. The ratio of Alaska to comparison states' reimbursement for physicians increased from 1.69 in 2009 to 1.94 in 2014.[88]

Taken together, the Milliman reports supported the theme that hospital reimbursements and physician reimbursement are both higher in Alaska, and both continue to increase relative to comparison states. The physician reimbursement differential is larger and is growing more quickly. The studies also support the conclusion that, while all specialties have higher reimbursement rates in Alaska, the differences are especially pronounced for specialties such as cardiology and orthopedics. That result is consistent with anecdotal reports that surgeries like hip and knee replacements may be 300 percent to 400 percent above Seattle rates, which has led to medical tourism to Seattle for such procedures.

CMS Data, Study for AKHCC. In 2011 Milliman completed a fourth report for AKHCC that examined various factors that might explain the high health care costs in Alaska.[89] (The 2016 Milliman analysis of

commercial insurance reimbursements updated some of these data and reached similar conclusions). Exhibit 3.3 below highlights key findings:

- Based upon Medicare data for 2006-2008 from the Medicare Payment Advisory Commission (MedPAC), "Adjusted Resource Use" for Medicare patients is lower in Alaska than the national average.
- Based upon CMS Medicare Cost Reports for hospitals, overall operating costs are higher in Alaska, with a significant disparity between Anchorage/Fairbanks/Mat-Su and the rest of the state.
- Based upon CMS Medicare Cost Reports, operating margins were higher for Alaska hospitals, again with a significant disparity between urban and rural Alaska.
- Based upon CMS Provider of Services data, the ratio of FTE registered nurses per bed is higher in Alaska, with higher rates in the urban area.

The analysis of 2010 Council for Community and Economic Research Cost of Living Index (COLI) reports the cost of living in Alaska cities as 28 percent to 37 percent above the national average. In addition, the study analyzes U.S. Bureau of Labor Statistics (BLS) covered employment data to find that salaried health care professionals typically earn 10 percent to 25 percent more in Alaska than in the six comparison states. The higher hospital reimbursement by commercial payers (39 percent in 2009; 47 percent in 2014) exceeds Alaska's cost of living differentials only by about 10 percent. For physician reimbursement, the Alaska differentials (69 percent in 2009 and 94 percent in 2014) are sharply higher than the cost of living differences.[89]

Exhibit 3.3: Milliman Health Care Cost Factor Results (Percentage)

Region	Medicare Utilization Relative to 6 States	2009 Hospital Operating Costs Relative To 6 states	2010 Hospital Operating Margins	2010 Hospital Occupancy Rates	2011 Nursing Staffing Ratios, relative to 6 Comparison States
Anchorage/Fairbanks/Mat-Su	n/a	129%	16.5%	53.6%	**136%**
Rest of State	n/a	186%	6.8%	38.8%	**116%**
Alaska	87%	138%	13.8%	49.9%	**129%**
6 States	100%	100%	6.9%	58.1%	**100%**

MarketScan Data, Study for AK Division of Insurance. Oliver Wyman (2018) also used MarketScan data to compare the commercial insurance reimbursement rates for physicians in Alaska to three states (Montana, North Dakota, and Idaho) and Seattle and to compare the reimbursement rates for commercial insurance to Medicare reimbursement in all five areas. The study found that, overall, Alaska commercial insurance reimbursement rates were about 45 percent to 85 percent above the four comparison regions. Key results are summarized in Exhibit 3.4 below. The results were similar to the results that Milliman reported in its two physician studies described above.[90]

Exhibit 3.4: Oliver Wyman Ratios of Commercial Insurance Payments for Physicians

State/City	2014	2015	2016
Idaho	1.73	1.71	1.73

State/City	2014	2015	2016
Montana	1.67	1.72	1.73
North Dakota	1.49	1.44	1.43
Seattle	1.88	1.87	1.86

Alaska State Datasets

The state of Alaska generates a wide array of data about the health care system in its roles as both payer and regulator. Through Medicaid, employee benefits, and retiree benefits, the state is involved as a payer in as many as 350,000 covered lives; some of those covered lives, notably the retirees, have coverage by other payers as well. The various data are routinely used for administrative functions, but that data can also be used for research into the broader functioning of the health care system.

Medicaid Data

Administration of the state Medicaid program generates great detail on the use of the health care system by Medicaid enrollees. Those data are obviously important to administration of the Medicaid system. In 2016, the legislature passed a broad Medicaid reform bill (SB 74) that directed AKDHSS to use its administrative information to better understand the drivers of Medicaid costs and to take appropriate steps to manage the growth in Medicaid costs. To help address the mandates under SB 74, AKDHSS hired Milliman to compile *Alaska Medicaid Data Books* for SFY 2015-16 and SFY 2016-17.[91] At least one purpose of those *Data Books* was to provide detailed information on enrollment and on use of services so that AKDHSS could better identify areas and programs on which to focus efforts to manage costs. Those data books provide detailed data on:

- Enrollment and costs in specific Medicaid programs, by tribal status and by nine regions. For larger programs, enrollment is broken down by age and sex.
- Total services provided by region and tribal status.
- Per-enrollee rates of use of specific services by region and tribal status.
- Statewide risk rates for a large number of health conditions

While the *Data Books* do not attempt to extract any policy directions from the compiled data, they make clear that state Medicaid data can be analyzed at a very fine scale.

There are noteworthy limitations to the use of Medicaid data. Use of the health care system by Medicaid enrollees is often different from use by the state's population more generally. The demographics of Medicaid enrollees are significantly different from the demographics of the entire state. By design, Medicaid provides a different mix of services than commercial insurance. For example, Medicaid has become the *de facto* payer of last resort for nursing home care in the United States. Medicaid also provides a disproportionately large share of behavioral health services. In Alaska, Medicaid also bears very significant travel costs. Finally, Medicaid services are reimbursed by state-determined fees that are well below the payments by commercial insurance.

AKDHSS Indicator-Based Information System for Public Health (AK-IBIS)

AK-IBIS provides a portal to a wide range of Alaska-specific datasets.[92] For analysis of factors driving health care costs in Alaska, the Alaska Health Facilities Data Reporting Program (HFDR) is perhaps the most significant of the AK-IBIS files. HFDR collects inpatient and outpatient discharge data from Alaska health care facilities. These facilities include private, municipal, state, and federal hospitals; hospitals operated by Alaska Native organizations; psychiatric hospitals; independent diagnostic testing facilities; residential psychiatric treatment centers; skilled nursing facilities; intermediate care facilities; and ambulatory surgical facilities. Reporting to the HFDR was voluntary until 2014; reporting became mandatory in 2015. A "limited dataset" is available for approved uses; there are restrictions on publication of data based on small numbers. The dataset includes provider charges for the discharge record, but these charges do not reflect any contracted discounts or the actual amount paid.[92]

AK-IBIS also includes several datasets related to health behaviors that might be used to explain changing patterns of use of health care services. The most comprehensive of these is the Behavioral Risk Factor Surveillance System (BRFSS), a state-based CDC public health surveillance system for adults that has been conducted since 1991. The Alaska BRFSS uses a random sample procedure for landlines and cellphones. Regional stratification and re-weighting are used.[93]

Data on Health Care for Government Employees and Retirees

State and local governments in Alaska provides health coverage for about 45,000 employees (this includes employees of the University of Alaska, state corporations, and local governments and school districts) and 41,000 Teachers' Retirement System (TRS) and Public Employees' Retirement System (PERS) retirees.[94] Using an estimate (probably low) of one dependent per employee, the total covered lives would be approximately 170,000. The state and local governments have access to some, but not all, of this data through their health benefit administrators. At least 15,000 of these employees receive health care through union health trusts. Union health trusts typically consider these data proprietary, so they are less readily available.[94]

State and local governments have access to a very large convenience sample of their own employees and retirees. Even using one sub-population, such as University of Alaska employees, results in a sizable sample. Information extracted from these employee data about change in patterns of use and in billing patterns by providers would almost certainly provide some insight into underlying changes in the health care system.

Alaska State Datasets on Providers

A significant part of analyzing health care costs involves questions about providers and how they make decisions. A significant amount of data are collected on providers as part of routine government data collection and in regulation and licensure processes. As noted above, Milliman used some of these data in its fourth report to the Health Care Commission to examine the factors that might explain Alaska's high health care costs. The provider data of interest can be divided into four categories:

- Institutions like hospitals and clinics that provide health care services

- Employees of those institutions
- Physicians and other health care professionals who are self-employed.
- Pharmacies and pharmaceuticals

There is little difficulty in identifying hospitals. As discussed above, a relatively large amount of CMS data are available for hospitals, clinics, and other health care facilities.

Aggregated data on employees of health care providers are also readily available. The Alaska Department of Labor (DOL) collects and reports data to BLS on employment and earning for those who are covered by unemployment insurance ("covered employment"). These data capture hours worked and compensation for most employees and are directly comparable to data in other states. These data include codes for the type of position, which in health care fields would identify nurses, lab technicians, and physicians. Yet, because most physicians are self-employed or in some kind of physician-owned practice, the covered employment data provides limited coverage of physicians. Similar issues arise for other types of clinicians (*e.g.*, physical therapists) who are self-employed or are principals in privately-owned practices.

The data available for self-employed physicians and other self-employed health care professionals are more problematic. As noted above, BLS employment and earnings data are not available and comparable data are not available elsewhere. There are Alaska licensing data for most health professionals. For most non-physician health professions (*e.g.*, chiropractors and physical therapists), licensing data provides readily available information on the number of practitioners. For physicians, the licensing information does not define the specialty, so a direct count by specialty is not available. The Association of American Medical Colleges maintains a state-level count of physicians by specialty of practice.[95]

Pharmacists are increasingly are employees of retail establishments, which may be national pharmacy chains, supermarkets, or department stores. Therefore, BLS employment and earnings data would cover all but a small number of owners of still-independent pharmacies. Pharmacies are not required by Medicare to provide the detailed cost reporting required of hospitals. But because drugs pricing is increasingly determined by fixed pricing schedules for some payers (VA, Medicaid, Workers' Compensation, Tricare) or by national negotiation by pharmacy benefit managers, the local cost of dispensing is increasingly a secondary issue in the cost of pharmaceuticals. The dominant issue is the pricing of drugs by pharmaceutical manufacturers, which is not a local Alaska issue.

Analyzing Healthcare Cost Data by Region

Alaska's health care costs are affected in part by its unique geography, which explains at least some differences in health care costs. The question of regional differences was highlighted in the request for proposals by the Alaska Healthcare Transformation Project that resulted in the present work. This section examines the specific question of the extent to which the datasets above have been or could be used to generate information on regional differences in the costs of health care delivery and the patterns of use in the system.

Because postal codes are the most frequent regional coding in data files, the question usually boils down to whether five-digit zip codes are available for customized aggregation or if aggregation is limited to three-digit zip codes. Exhibit 3.5 below summarizes how three-digit postal codes divide the state of Alaska. The conclusion is that three-digit postal codes can separate Alaska into three regions: Fairbanks and the north, Southeast, and everything else. That three-region breakdown would generally not meet expectations for defining health care regions in Alaska.

Exhibit 3.5: Alaska Three-digit Postal Codes

Zip Codes	Post Office and Areas served
995, 996	Served by Anchorage PO. Covers area west and south of a line that runs approximately from Yakutat to Canadian border near McCarthy to Paxson to Talkeetna to Unalakleet. This includes Mat-Su, Kenai, Prince William, the Aleutians, and much of western Alaska. 995 includes almost all of Anchorage plus most communities whose names start with A to G. 996 includes most communities that begin with H-Z.
997	Served by Fairbanks PO. Everything north of 995/996 line (above), starting at about Cantwell, and including Nome and Utqiagvik.
998	Served by Juneau PO. Includes Skagway, Haines, Sitka, Petersburg.
999	Served by Ketchikan PO. Includes Wrangell, Prince of Wales.

Medicaid Regional Data

Medicaid data are managed by the state of Alaska. The underlying files contain five-digit postal codes, enabling the use of postal codes within the data to organize data into meaningful regions. Milliman, in *Alaska Medicaid Data Books* for 2015-16 and 2016-17, defined nine regions; see Appendix B of the 2016-17 *Alaska Medicaid Data Book* for a detailed zip code crosswalk.[91] The areas are as follows (material in parentheses are explanatory notes and are not part of the Milliman area labels):

- Anchorage Municipality
- Fairbanks North Star Borough
- Northern Southeast (Juneau, Sika, Haines region)
- Southern Southeast (Ketchikan)
- Kenai Peninsula Borough
- Mat-Su Borough
- Western Region (Bethel, Nome, Kotzebue)
- Northern and Interior Region
- Gulf Coast and Aleutian (includes Dillingham, Prince William Sound)

Given that five-digit postal codes exist in the data, it would be possible to use alternative definitions of regions for analysis.

CMS Medicare Data

As indicated above, the CMS Medicare PUFs provide a relatively large amount of data at the borough/Census region level. The major issue is that finer scale data for many small regions may be withheld due to confidentiality. The Milliman reports on hospital costs for the Alaska Health Care

Commission (AKHCC), described earlier, illustrate use of that data. Milliman divided Alaska into two regions, Anchorage/Fairbanks/Mat-Su and the rest of the state. Not surprisingly, Milliman found that there were significant differences between urban and rural Alaska.

CMS does provide considerable detail on ACA insurance marketplace enrollment at the borough/city level. The source for these data is the Multi-Dimensional Insurance Data Analytics System (MIDAS).[96]

Alaska Health Facilities Data Reporting (HFDR)

The HFDR discharge data that are collected by AKDHSS contain five-digit zip code data. Subject to confidentiality requirements, it should be possible to conduct regional analyses of discharge data for both inpatient and outpatient visits to hospitals.[97]

National Commercial Insurance Databases

MarketScan and FAIR Health use three-digit postal codes to provide a geographic location for a patient. HCCI uses a five-digit postal code, but those data are available only if the postal code covers more than 1350 individuals. HCCI also uses the Dartmouth Atlas Hospital Referral Region (HRR), but all of Alaska lies in a single HHR. Meaningful regional analysis for Alaska with these commercial datasets would seem to require specialized data processing from five-digit information that is not publicly available. As part of the preparation for the *Alaska Spend and Health Care Cost* Report, we will engage representatives of these three companies to understand whether such specialized processing is possible and under what conditions.

All-Payer Claims Database

AKHCC recommended that Alaska create a mandatory all-payer claims database (APCD) to provide comprehensive claims data for analysis of Alaska's health care utilization and costs. The APCD Council contains a wide set of resources and information about implementation of APCDs. The APCD website reports that 16 states currently have a mandatory APCD, another 6 have voluntary APCD systems, and five states are in an implementation process.[98] AKHCC made its recommendation after commissioning an analysis of APCDs by Freedman Healthcare. Freedman Healthcare conducted an extensive document review, including a scan of experiences in other states, a set of focus groups, and key stakeholder interviews in Alaska. It reached the recommendation that Alaska should mandate an all-payer claims database.[99]

> "An All-Payer Claims Database is a database containing information from the claims received or paid by all or most of the third party payers who pay for claims for services rendered to patients living in a geographic area, such as a state or metropolitan area. A number of state governments have established All Payer Claims Databases and require health insurance plans to submit information from the claims they pay for residents of the state." *Payment Reform Glossary* (Center for Healthcare Quality and Payment Reform, at http://www.chqpr.org/downloads/PaymentReformGlossary.pdf)

The basic idea behind an APCD is that there are a relatively small number of payers from which to collect claims data. This contrasts with attempts to collect the same information from a large and diverse set of providers. APCD's have typically tried to include three categories of in-state payers: private insurance, self-insured employers and Medicaid. CMS routinely

provides Medicare claims data to states with APCDs. Medicare claims are generally one year to 18 months older than the commercial and Medicaid data.[100] APCDs do not capture payments for care by uninsured patients, which includes both patient-paid and unreimbursed care. A scan of APCDs in other states indicates that they do not collect data for federal payments through Tricare, the Veterans Administration, IHS, and the Federal Employees Health Benefit program (FEHB.) Alaska has higher enrollment in these federal programs than most other states. For example, there are 82,000 Tricare beneficiaries in Alaska.[101] Tribal entities are eligible to make FEHB available to its employees, and at least one tribal corporation (NANA) does.

The tribal health system in Alaska will be partially covered in an APCD database. Hospitals, clinics, and other providers in the tribal health system receive payments from third-party payers, including Medicaid, Medicare, and private insurance. Therefore, claims records from those payers to tribal health providers would be captured by an APCD. But the tribal health system also uses federal IHS contracted payments to provide services, and those would probably not be captured by an APCD.

A recent Supreme Court decision, *Gobeille v. Liberty Mutual* (2016) has limited the scope of APCD coverage by prohibiting state-mandated reporting from self-insured employer plans. Larger employers tend to have self-insured plans, so this is potentially a serious set-back for APCDs. It is not uncommon, however, for self-insured employers to voluntarily provide data to APCDs, because they have a general interest in public policies that might reduce growth in the cost of health care.

Claims databases are subject to relatively long lags. If the database is based upon final, settled claims, settlement of complex claims may be delayed as much as a year. As noted above, there is an especially long delay for Medicare data. Once claims have been submitted, some processes for data quality verification must be implemented. It is not unusual for an APCD to have a lag approaching three years after the service is rendered. A three-year lag is not unusual in published health care; that is the approximate lag in much CMS data. But for some anticipated uses of an APCD, the three-year lag may be problematic. Note also that an APCD is an inherently long-term investment. The first data may not be available for three or more years. And it will be several additional years before the database grows into a time-series of information, which is often required for analysis. In that period, any time-series of Alaska's health care costs must continue to rely on existing resources.

It might seem obvious that an APCD is desirable. However, such a database involves costs for both the state and for third-party payers. To be useful, this investment must be sustained. Making the initial investment to build an APCD and then dropping the database (or underfunding its maintenance) in three or four years would result in little or no benefit. And the benefit from an APCD comes from the information and insights that analysts can extract from the data. Consequently, investments in the capacity to analyze the data are an inherent, and often overlooked, requirement for a successful APCD. In all likelihood, the state would use some combination of in-house, state capacity and support from academic researchers and private consultants. In designing the APCD, the state must work backwards from what it wants to achieve with the system to determine whether an APCD is a good investment.

The discussion above makes clear that the "all" in APDC significantly overstates the actual scope of coverage of such systems. APCDs usually contain data from: private insurance; state employees covered under state self-insured benefit plans; any voluntary submissions from private sector, self-insured

employers; Medicaid; and Medicare. States already have (or can get) Medicaid and state employees' data. Medicare data is accessible from CMS without an APCD. The primary effect of an APCD is to add data from private commercial insurance and from any voluntary provision by self-insured private sector employers. It has been suggested that an alternative to an APCD might be to require all commercial insurers to submit claims data to a specified national commercial claims database and to encourage interested private self-insured employers to contribute to the same database. Such an approach might be called a "distributed" alternative to an APCD.

An APCD will have at least three potential advantages over a distributed model that contributes commercial insurance data to a national database. First, a unified APCD can create a unique patient identifier that crosses different payers. This allows for analysis of a patient's history even if the patient uses multiple payers at the same time or if the patient switches payers over time. Second, the national commercial payer databases may allow identification of regions only to the three-digit postal code level. This level of regional disaggregation is very limiting in Alaska. Third, analysis of a unified APCD will be easier, and therefore less expensive for analysts, than going to three or four separate databases to capture the information available in an APCD.

Chapter summary

In general, there are relatively few studies of health care costs in Alaska that take full advantage of available large datasets. The Centers for Medicare and Medicaid Services (CMS) offers a range of Medicare-related data for research purposes, including claims and cost reports, as well as the Medicare Current Beneficiary Survey. In the area of costs, CMS's National Health Expenditure Accounts enable comparisons across states. Analysis conducted for the Alaska Health Care Commission tapped three large commercial insurance claims databases (IBM Watson MarketScan, Health Care Cost Institute, and FAIR Health). In addition, Alaska has Medicaid data, a portal to a range of state-specific datasets, and data on state and local employees and retirees. Existing data may be used to analyze costs by region, using Medicare, Medicaid, and commercial data sets.

Finally, whether Alaska should create and maintain an APCD is an important first question for health care data analytics in Alaska. The essential question is whether the incremental benefits of consolidating the various third-party claims information that currently exists into a single, publicly managed database exceed the one-time and on-going costs of achieving that consolidation. The *Alaska Spend and Cost of Health Care Report* will include a thorough discussion of the costs and benefits of an Alaska APCD.

Chapter 4: Payment Reform

Chapter Overview

This chapter summarizes analysis and policy actions since 2008 in Alaska related to managing health care costs through payment reform. Payment reform is broadly interpreted to include public policy actions that are intended to reduce health care costs by changing how health care is delivered (e.g., delivery system reform) and how patients use health care. Our assessment is based on review of approximately 50 reports issued in the past decade, most by Alaska state agencies and including a small number of consultants' reports commissioned by state agencies. All would be considered gray literature rather than peer-reviewed; a complete list of reports used in this chapter (20 out of the original 50) is given in the Freestanding Appendix, Summary of Studies.

This chapter begins with an overview of the context for state health reform, related to the Alaskan context for recent efforts and the federal context, where both the Patient Protection and Affordable Care Act (ACA) and the move toward value-based purchasing (VBP) have given fundamental shape to developments in the state. Following is a detailed analysis of the two most comprehensive initiatives in payment reform in Alaska since 2008: the Health Care Commission and Medicaid reform under Senate Bill 74 (SB 74), and health care payment reform issues that were prominent in the last legislature. The chapter closes with a brief consideration of lessons learned from the past decade and a set of recommendations related to payment reform.

Context for Payment Reform

Alaska-Specific Considerations

In the case of health care policy, Alaska shares most aspects of the U.S. health care system and also has some distinct features. Most of the underlying drivers of Alaska's high health care costs are shared with the other 49 states. Yet, unique features have contributed to Alaska's high health care costs. This section highlights some of these important differences as a state.

Payers. The Alaska health care payment system is based on the same two pillars of third-party payments as the U.S. health care system: employer-based coverage and government provision through Medicare and Medicaid. Other important third-party payers include Tricare, the Veterans Administration, and the Indian Health Service (IHS). Most of these payer systems have aspects that are unique to Alaska.

Alaska's tribal health system serves about 20 percent of the population. Unlike the federally-run IHS facilities in the lower 48, tribal health authorities operate health care facilities under compacts with IHS. The Alaska Native Tribal Health Consortium (ANTHC) is a consortium of all the tribal health authorities in Alaska. ANTHC and Southcentral Foundation (SCF), the Anchorage area tribal health authority, jointly own and manage the Alaska Native Medical Center (ANMC), a tertiary care facility. Tribal health clinics are the only providers in some rural areas, and they serve non-Native population in those areas.

Medicare reimbursement levels in Alaska exceed the rates for the lower 48. One of the factors used to determine reimbursement, the Physicians Work Geographic Practice Cost Index (PW GPCI) for Alaska was set by statute (the Medicare Improvements for Patients and Providers Act of 2008) at 1.5, which is approximately 50 percent higher than elsewhere. The PW GPCI is combined with several other factors to determine compensation for a particular service provided by physicians. The 2019 Geographic Adjustment Factor (GAF), which CMS calls an approximate tool for comparing physician payments across localities, was equal to 1.294. Despite the higher physician reimbursement rate, reports persist that Medicare patients have difficulty finding primary care physicians in Anchorage, in particular.[102]

Alaska is also unique in that Medicaid rates are higher than Medicare rates. Based on data collected in an Urban Institute survey, the Kaiser Family Foundation estimated that Medicaid physician rates in Alaska were 126 percent of Medicare levels in 2016.[103] Only one other state, Montana at 109 percent of Medicare, exceeded 100 percent. For the United States, Medicaid rates averaged only 72 percent of Medicare's. In October 2017, Alaska implemented a 10.3 percent rate cut for Medicaid, so the current ratio of Medicaid-to-Medicare would be about 113 percent.[104]

Statutes. Alaska has several uncommon constitutional and statutory provisions that shape and constrain health care policy development. Government employees in Alaska have protection of retirement benefits in Article 12, Section 7 of the Alaska Constitution:

> "Membership in employee retirement systems of the State or its political subdivisions shall constitute a contractual relationship. Accrued benefits of these systems shall not be diminished or impaired."

In 2003, the Supreme Court of Alaska decided in *Duncan v. Retired Employees of Alaska (S-10377)* that this constitutional provision does cover the health benefit components of retiree benefits. The court found that details of the health care package could change, but that the disadvantages of the changes had to be offset by at least equal advantages. The test of benefits versus losses is applied at the level of the covered group, rather than at an individual retiree level. This constitutional protection limits the ability of the state to change the plan structure for retirees, although the bounds of those limits have not been fully tested.

Alaska has a Choice of Health Care Provider statute (AS 21.07.030).[105] Implementation of that statute is accomplished in part by the 80th percentile rule (3 AAC 26.110). That rule is discussed in detail below, in the "Recent legislation and pending issues" section.

In the state, antitrust statutes (AS 45.50.562 - 45.50.596) are fairly standard and patterned on sections of the federal Sherman and Clayton Acts. Alaska's antitrust statutes include sections that mirror section 7 of the federal Clayton Act, which prevents mergers that may have the effect "substantially to lessen competition or to tend to create a monopoly in any line of commerce in the state or in a section of the state" (AS 45.50.568.) While a few other states have used their antitrust statutes to challenge mergers in the health sector, Alaska does not seem to have challenged any health care mergers as anticompetitive. The Alaska statutes have unique sections (AS 45.50.572 [l] and AS 23.50.010) that allow physicians to join together to bargain with health benefit plans. McDavid and Leibenluft (2003) report that the Federal Trade Commission (FTC) strongly opposed the legislation that created this section in 2002.[106,107]

Health Workforce and Facilities. Alaska must attract most of its physicians from outside of the state. About 14 percent of currently active physicians graduated from the University of Washington's WWAMI curriculum at the University of Alaska Anchorage.[108] The rest need to be attracted from medical programs in the lower 48 and internationally. Alaska's remote location, high cost of living, and limited cultural amenities, perhaps combined with exaggerated perceptions of a harsh climate, present challenges to recruiting physicians. One result has been high rates of compensation for physicians.

Alaska has a process that requires providers to obtain a "certificate of need" (CON) for creating new facilities, adding to existing facilities, or relocating existing facilities.[109] Alaska's CON process dates back to 1976; the current CON regulations were adopted in 2005. The regulations cover 15 different types of facilities, including hospital beds, long-term care beds, surgical facilities, diagnostic facilities, and certain therapeutic care facilities.

Because of a federal mandate, all states but Louisiana had a CON process by 1978.[110] After repeal of the federal mandate in 1987, the number of states with CON regulations fell to 35, including Alaska. There has been controversy around CON regulation throughout its history. It is worth understanding that CON processes date to the 1970s, before the widespread growth of health maintenance organizations (HMOs), preferred provider networks, or the Medicare prospective payment system. The argument in the 1970s was that very little price competition existed among health care facilities, because the patient was largely insulated from price by third-party reimbursement. In this environment, it was argued, hospitals and other health care facilities compete by expanding the range of services to attract more patients. But if this results in redundant facilities, all with high fixed costs, the result is simply higher health care rates to third-party payers to cover the costs of the redundant facilities.

Critics of the CON process argue that it protects existing facilities from competition. And, as most CON applications are approved, it is largely an added expense and source of delay for health care facilities. Moreover, the financial environment for health care has changed since the 1970s. Medicare and Medicaid reimbursements are set by governments and have lagged well behind reimbursement from commercial insurance. Commercial insurance has used the creation of HMOs and networks of preferred providers to negotiate prices with providers. There is undoubtedly some validity for arguments on both sides. When SB 62, a bill to repeal the CON process, was heard before the Alaska Senate Labor and Commerce Committee in April 2017, the FTC and the Antitrust Division of the U.S. Department of Justice submitted a joint statement in support of repeal of the CON process on the grounds that it reduced competition.[111]

Economy. Finally, Alaska's economic situation, with an economy that is driven by oil prices, is very different from the rest of the United States. When the U.S. economy experienced the extended and painful slowdown that began with the Great Recession in 2007, Alaska experienced only about 18 months of moderate job losses in 2009-10. Yet, plunging oil prices put Alaska into a recession, albeit a relatively mild recession, beginning in 2015 and continuing through 2018.

On the price side, everything is more expensive in Alaska. The Council for Community and Economic Research estimates that the cost of living in Alaska's cities is 28 percent to 37 percent above the national average (unpublished data, received from ISER). Despite the highest per capita health care costs in the U.S., the 14 percent of gross state product (GSP) that Alaska spent on health care in 2014 was slightly below the national average of almost 15 percent. This reflects the large contribution of oil production to

state GSP. Alaska also has higher per-capita personal income than the United States, but the difference is less pronounced than the oil-influenced GSP. A more meaningful comparison might be the share of personal income that is consumed by health care spending. In 2014 (the most recent data on health care spending), per-capita personal health care spending equaled almost 20 percent of Alaska's per-capita personal income of $55,940. For the U.S., about 17 percent of the national average per-capita income of $47,669 went to per-capita personal health care spending.

Alaska is one of only two states (New Hampshire is the other) that has neither a general sales tax nor a personal income tax. Only about 20 percent of state general fund revenues in Alaska come from any non-oil tax source. Income from royalties and oil taxes plus funds from the Constitutional Budget Reserve and/or the Earnings Reserve have paid for about 80 percent of General Fund expenses in recent years. These differing economic and government finance conditions have perhaps caused Alaska to feel higher health costs differently than the rest of the United States. The current recession and state budget challenges, both driven by low oil prices, may be changing that.

Implications of the Patient Protection and Affordable Care Act

The federal Patient Protection and Affordable Care Act (ACA) was enacted in 2010, and several of its major provisions came into effect in 2014. The ACA substantially reduced the uninsured population by: extending coverage for children until they reach age 26; requiring that coverage not be denied because of pre-existing conditions; an employer mandate for employers with at least 50 employees; incentives for states to expand Medicaid coverage; and subsidies for health insurance for moderate-income individuals and families.[112] Governor Walker implemented Medicaid expansion by executive order in September 2015, after a previous governor and legislature had declined the expansion.[113]

Increased Medicaid Enrollment. The ACA caused states to experience increases in traditional Medicaid enrollment. Several factors probably contributed to this so-called "woodwork effect." The most usual explanation is that some applicants for expanded Medicaid were actually eligible for traditional Medicaid. But the woodwork effect occurred in all states, not just those that expanded Medicaid. The national publicity over Medicaid expansion, over the ACA marketplace, and about health coverage in general probably all contributed. And, the mandate to purchase health care insurance may have caused some to explore options, including Medicaid; the ACA exempted American Indians (AI) and Alaska Natives (AN) from the penalty for failing to have health insurance. Alaska's woodwork effect was not atypical. By December 2018, Alaska had enrolled about 47,000 individuals in Medicaid expansion and saw its traditional Medicaid enrollment grow by 41,000, after having been at 122,000 in 2013, before ACA expansion.[114] Fean, *et al.* estimate that, nationwide, increases in Medicaid coverage due to the woodwork effect have been about equal to the increases due to Medicaid expansion.[115] Alaska, unlike the rest of the country, was experiencing a recession in this period, which probably made some contribution to increased Medicaid eligibility.

Commercial Insurance Marketplace. The ACA marketplace in Alaska initially had five insurers: Premera, Moda, Aetna, State Farm and Assurant. That number fell to two, Premera and Moda, in 2016. Starting in 2017, only Premera offers ACA plans in Alaska. The ACA marketplace seemed poised to collapse as rates rose rapidly and enrollment fell. Alaska implemented the Alaska Reinsurance Program to stabilize this market by funding $55 million to reimburse insurers for 33 of the most expensive treatments

for individuals insured through the Alaska ACA marketplace. That reimbursement had the desired effect; premiums in the ACA market rose only 7 percent in 2017 and fell 22 percent in 2018. This resulted in a substantial reduction of federal subsidies paid to enrollees in the Alaska ACA marketplace. Alaska applied in 2016 under the ACA Section 1332 State Innovation Waiver process to request that the federal government reimburse the state of Alaska for those federal savings. The 1332 waiver was granted in July 2017, with a January 1, 2018 effective date. CMS estimated that the reimbursement to the state would be $58 million in 2018 and $69 million in 2019.

National Developments in Value-Based Purchasing

The concept of "value-based" payment structures is very much a part of payment reform nationally. In a general sense, value-based payment structures should create incentives for higher-quality care and more efficient use of resources while providing better patient satisfaction. As everyone favors the simultaneous achievement of higher-quality care, lower costs, and greater patient satisfaction, we are perhaps all in favor of value-based payment structures as a concept. But there is great disagreement on how various payment structures will actually impact these three outcomes.

The various proposals for value-based payment systems could be roughly divided into three categories: accountable care organization (ACOs); bundled payments for "episodes of care"; and patient-centered medical homes (PCMHs). None of these are entirely new concepts; each has precursors in the current health care system.

To understand how VBP structures are different than their forebears, it is useful to review HMOs, the diagnosis related group-based prospective payment systems (DRG-PPS), and various gatekeeper models. HMOs are groups of providers who are paid a capitated amount per enrollee to provide care. In many cases, these providers comprise some combination of employees of and contractors for an insurer or other payer. Because the provider group (or the insurance company that hires the providers) keeps the difference between the capitated payment and the cost, HMOs have incentives to minimize the use of services.

Under the DRG-PPS, a provider is paid a fixed amount per diagnosis. Again, the provider has an incentive to provide the necessary care at minimum costs. In one gatekeeper model, a patient would be assigned to a primary care physician who must pre-approve all uses of the health care system. The gatekeeper is given some kind of incentive payment that rewards lower use of medical services. In another, more common, gatekeeper model, the insurer acts as gatekeeper through pre-approval processes. These systems provided incentives to medical decision-makers to lower the use of medical services, and they probably did slow the rate of increase in health care costs. But these systems have been unpopular with many patients precisely because the incentive is to lower costs rather than to provide quality care.

The new VBP models seek to add incentives for quality care as well as efficient use of services. Underlying value-based care is the argument that integrated patient care emphasizing prevention and whole-patient strategies can simultaneously improve the quality of care and lower the cost of care. This is achieved by prevention strategies and better management of chronic conditions, which can reduce the frequency of high-cost medical interventions like emergency room visits and inpatient treatment. The foundation for VBP lies in the use of health information technology to both coordinate care better and to

gather metrics that can be used to measure quality. Those measures may be patient-specific, such as conformance with established evidence-based treatment protocols, or they might be practice-level metrics, such as readmission rates. Patient satisfaction surveys typically generate some of the metrics.

- ACOs are groups of physicians, hospitals and other providers who enter into an agreement to provide care to some set of patients. ACOs have some similarity to HMOs, but they typically differ in two ways. First, patients are not locked into the ACO until the next enrollment period; they can leave an ACO at any time. This allows dissatisfied patients to leave the ACO, a strong incentive for patient satisfaction. Second, the payment structure is more complicated for ACOs. An HMO is paid on a capitated per-enrollee basis. A variety of payment structures are proposed for ACOs. There is some kind of base-payment, which could be a variant on FFS or a partially capitated model. The payment structure for an ACO usually provides incentives to perform well against some predetermined set of quality metrics.
- Bundled payments for "episodes of care" function much like the DRG-PPS payments, except the payments are made not per-diagnosis but rather per-episode of interacting with the health care system. Under the DRG-PPS, an obstetrician might be paid for a delivery, a pediatrician paid for post-natal child care, and the hospital paid separately for the mother's and the child's services. But if child-birth were an episode of care, then a single bundled payment would encompass all of these. Moreover, that payment might be fixed even if the physicians and hospitals had to deal with unexpected complications. In keeping with the general theme of value-based care, bundled payment for the episode of care might include both a fixed base payment and an incentive based on metrics of quality of care.
- The PCMH model is sometimes called "advanced primary care." PCMH models have some similarities to HMOs and to gatekeeper models. Instead of a single primary care physician, a patient has a "medical home" with a practice that includes a group of physicians, behavioral health providers, medical para-professionals, and non-medical personnel (such as social workers.) That medical home may include or have immediate access to the most commonly used specialists and would have established relationships with specialists in areas that are needed less frequently. The medical home is expected to engage the patient, family, and care-givers in medical decision-making. PCMH care should address all the factors that influence health status, such as social isolation or inadequate housing. The payment for a patient in a PCMH might include a capitated payment to cover some range of services, an incentive payment based on how the patient uses services outside the PCMH, and an incentive based on metrics of quality of care.

A key issue for value-based payment structures is how to measure quality of care. There are some generally-accepted measures for inpatient care, such as readmission rates and rates of hospital-acquired inflections. But measuring outcomes is much harder at the level of individual primary care physician, because there are fewer obvious "bad" outcomes and also because of the inherent statistical variability when each physician sees a relatively small number of patients within each diagnosis each year. For that reason, the metrics for value-based care are often measures of inputs that the payer has decided characterize high-quality care. Even survey-based measures of patient satisfaction are not without problems. For example, experiences with other types of customer satisfaction surveys often show biases related to the gender of the service provider.

The national movement to value-based care is being highlighted by Medicare's Merit-based Incentive Payment System (MIPS). MIPS came out of the 2015 Medicare Access and CHIP Reauthorization Act (MACRA). MIPS is very much still in development. MIPS illustrates the challenges that a value-based payment system faces. Critics of MIPS have argued that the system is administratively cumbersome, that its implementation of quality metrics is not especially well related to the quality of care, and that the financial incentives are small. It does seem likely that the experience with MIPS will greatly influence the direction of value-based payment structures across the health care system.

No HMOs have operated in Alaska, so the state has no experience with this earlier form of incentive-based management. Alaska's Choice of Health Provider statute resulted in weak preferred-provider networks and no opportunity for implementation of gatekeeper models.[47]

This lack of experience with earlier incentive-based models may limit the ability of Alaskans, including those in policy roles, to fully appreciate some of the issues in value-based payment structures.

Alaska has a highly-regarded PCMH, SCF's Nuka System of Care, launched in 1999; for more detail, see the *Alaska Historical Project Scan Report*. When comparing the Nuka model to other PCMH models as a VBP structure, two differences can be noted. First, SCF is customer-owned by its tribal members.[50] Second, SCF has a two-part funding stream that includes third-party FFS payments from Medicaid, Medicare, and private insurance, and also funding under a compact with IHS.[116]

Alaska Health Care Commission

The most comprehensive assessment of Alaska's health care system since 2008 was the Alaska Health Care Commission (AKHCC), which operated from 2009 to 2015. AKHCC was defunded somewhat abruptly in 2015, and its final products reflect that abrupt closure. AKHCC consolidated its various findings from 2014 into a "*Core Strategies and Policy Recommendations*" document (see Appendix X).[117] This section references the recommendation numbering in this 2015 document.

AKHCC funded Milliman, Inc. to conduct four studies on the drivers of health care costs in Alaska. Those reports were discussed earlier, in the "Data Analytics" chapter of this report. The Milliman reports provided an empirical foundation for the widely-held view that high provider compensation, and particularly physician compensation, was a major driver of Alaska's health care costs. Despite that finding, AKHCC did not recommend any steps that would specifically address provider compensation levels.

AKHCC recommendations included a specific section on payment reform, under the label "Pay for Value" (Recommendation II). Despite the "Pay for Value" title, the payment reform did not specifically recommend steps toward value-based reimbursement. AKHCC was modest in its expectations about the impact, at least in the short run, of payment reforms. AKHCC noted, "Payment reform is not the magic bullet for health care reform, but it is one essential element in transforming Alaska's health care system…" (Recommendation II.1.c). The specific recommendations within the payment reform section were:

- Address payment reform to improve primary care first (Recommendation III.2). Other sections recommended that the state of Alaska support patient-centered primary care with "appropriate

reimbursement" (Recommendation V.2). The recommendation for primary care payment reform is linked to the broader theme that reforms to the delivery of primary care are central to achieving the goals of higher quality care (Recommendation V). PCMHs were singled out for special mention (Recommendations V.5). The recommendations did not include specific reimbursement changes but did endorse pilot projects in this area.

- Develop the data and analytic capacity to support quality improvement and payment reform (Recommendation III.3). In two other sections, it recommended, "the Alaska Legislature should proceed immediately with caution to establish an All-Payer Claims Database…" (Recommendations II.3 and IV.1.a). AKHCC recommended in two places that the commissioner of the Alaska Department of Health and Social Services (AKDHSS) mandate participation in the Hospital Discharge Database (Recommendations II.2 and VII.4.b).
- Develop common purchasing strategies for health care services by different agencies (Recommendation III.4).
- Implement specific legislative and administrative steps to address waste, fraud, and abuse in the Medicaid program (Recommendation III.5).

Recommendations for payment reform were also embedded in the analysis of other issues. A recurring theme is that changes to the health care delivery system must be coordinated with reimbursement reform. Recommendations that touch on aspects of payment reform elsewhere in the document include:

- Support for expanded use of evidence-based practice (Recommendation I). As suggested above, evidence-based practice is part of at least some concepts of value-based reimbursement.
- Passage of price transparency legislation (Recommendations II.1 and IV.1).
- An oblique reference to the 80th percentile rule (see further discussion below). Recommendation IV. 2 advised that "the Division of Insurance consider modifying the current usual and customary charge payment regulation to eliminate the unintended adverse pricing consequence (referencing 3 ACC 26.110)." Rule 3 ACC 26.110 is the regulation that includes the 80th percentile rule.
- Recommendation VI.6.b, in the end-of-life treatment section, recommends "design of new reimbursement methodologies that improve the value equation in financing end-of-life services."
- Recommendation VII.5, in the prevention strategies section, recommends development of "new payment methodologies for state-supported behavioral health services to facilitate integration of primary physical health services with behavioral health care services."
- New reimbursement techniques for telemedicine for Medicaid (Recommendation VIII.3.b.) This recommendation is embedded in a strong endorsement for continued investments in health information technology, including a state-organized HIE (Recommendation VIII).

AKHCC recommendations with respect to payment reform are, on the whole, at a very general level. They note that payment reform is an ingredient in health care reform and that payment structures must incentivize the desired changes. Mostly, the recommendations suggest exploration of options and pilot experiments. The notable exception to this generality is the very specific agenda for addressing waste, fraud, and abuse in Medicaid.

That payment reform was less prominent in AKHCC recommendations perhaps reflected the economic conditions during its operation. For much of the period that the AKHCC operated, the state budget was

flush with oil revenues and individual Alaskans were enjoying economic prosperity. When oil prices collapsed, a first step in budget cuts was to defund AKHCC.

It is difficult to assess how AKHCC affected the evolution of payment reform policy in Alaska. AKHCC identified issues that continue to be part of the Alaska health care policy agenda: payment reform to support advanced primary care, price transparency, the 80th percentile rule, and coordinated health care purchasing strategies. AKHCC's detailed work on addressing waste and abuse in the Medicaid program perhaps reflected public and political perceptions of Medicaid's short-comings. The highly specific approach that the legislature took in SB 74 seemed to reflect this same focus. When AKHCC was abruptly defunded, it quickly wrapped up its work by issuing the *Core Strategies and Policy Recommendations* document, which simply collected its previous recommendations into a single document. That stands in contrast to the work plan that it had established for 2015, which emphasized development of detailed implementation plans and indicated that payment reform would be revisited.

Medicaid Reform Initiatives (Senate Bill 74)

In 2016, the legislature passed SB 74, a comprehensive effort to address a wide set of issues in Medicaid design and delivery. The mandate under SB 74 was to study and implement changes specified by the statute. This was very different from the general mandate assigned to AKHCC to study health care costs and make recommendation. AKDHSS is responsible for most of the work under SB 74 which directed the agency to implement a number of administrative steps to better monitor Medicaid spending, to manage fraud and abuse, to improve management of specific categories of expenses, and to provide detailed accounting to the legislature on the savings achieved.[94,118]

The 2018 *Annual Medicaid Reform Report to the Legislature* estimated that $140 million of general fund savings and cost avoidance were achieved due to administrative changes in FY 2018. AKDHSS reports that spending per enrollee has been nearly flat since 2010, attributed in part to SB74 reforms. Total Medicaid spending increased during 2014-2018 due to increased enrollment. While the state continues to work on many aspects of SB 74, its 2018 *Annual Report* did provide final accounts on a number of initiatives. SB 74 also directed the Alaska Department of Administration (AKDOA) to assess the feasibility of a Health Care Authority (HCA) to encompass health care coverage of state and local employees, state and local government retirees, and Medicaid.[119]

This section examines initiatives under SB 74 that relate to payment reform. In several cases, those Medicaid payment reforms examine or pilot payment reform options that would have applicability to the broader health care system. The analysis of a possible HCA would reach beyond Medicaid to encompass state and local government employees and retirees. And, the creation of single HCA payer with about 410,000 covered lives might have consequences that reshape the entire payment system.

This section summarizes the four reports on the HCA that were prepared for AKDOA, and then reviews the AKDHSS work relevant to payment reform in four subsections, related to (1) section 1115 behavioral health waiver; (2) privatization of public services; (3) telemedicine and health information exchange (HIE); and (4) VBP. Finally, we consider savings to Medicaid gained through cost-shifting, related to a recent change in federal Medicaid payments to tribal health organizations.

Health Care Authority Studies

SB 74 directed AKDOA to assess the feasibility of providing health care coverage to state employees, local employees, state and local government retirees and Medicaid enrollees through a single Health Care Authority (HCA). The department moved quickly to commission four reports from three consultants. Two reports by PRM Consulting Group and a third report by Mark A. Foster and Associates focus on an HCA that might cover state and local employees and retirees, but not Medicaid recipients. The fourth report, by Pacific Health Policy Group, looks specifically at considerations around incorporating Medicaid into an HCA.

Consolidated Purchasing. PRM Consulting Group's 2017 *Health Care Authority Feasibility Study Phase I – Consolidated Purchasing Strategies* (PRM-I) analyzed the possible impact of consolidated purchasing strategies for public insurers. PRM-I concluded that potential gains from a joint purchasing strategy were generally small. They believed that a competitive insurer and provider environment is necessary if a joint purchasing strategy is to have a large impact. Alaska has two large insurers, Premera and Aetna, which cover more than 85 percent of the commercially-insured public employees in Alaska. And, insurers in Alaska have been unable to build competitive preferred provider networks, because out-of-network providers deliver 30 percent or more of care. (This is due in part to the 80th percentile rule, which is discussed in more detail below). Without multiple insurers with competitive provider networks, PRM-I was doubtful of the opportunities to leverage purchasing power by an HCA.

PRM-I did identify three strategies that could generate modest savings. First, the retirement system could save an estimated $30 million per year by switching the Medicare Part D pharmacy coordination from the Retiree Drug Subsidy (RDS) program to the Employer Group Waiver Plan (EGWP). The state made this change effective January 1, 2019. Second, PRM-I estimated savings of up to $3.5 million for a Centers of Excellence/Travel Benefit option to encourage travel to outside providers for a set of surgery procedures. Third, PRM-I estimated savings of up to $8 million per year for creating a single, unified pharmacy benefit plan that is administered by a national pharmacy benefit manager.[94]

Administrative Savings. PRM Consulting Group's 2017 *Health Care Authority Feasibility Study Phase II – Analysis of Coordinated Health Plan Administration* (PRM-II) examined various administrative savings from a consolidated HCA. PRM-II anticipates that an HCA could achieve annual savings of 1.3 percent ($17.4 million) by year 5. Most of those savings would accrue to smaller plans that are merged into a larger pool. The single biggest savings would be on reinsurance costs that small, self-insured employers incur to manage risk. To achieve these administrative savings, participation in the HCA by local governments and school districts (which account for most of the small plans) would have to be mandatory. While PRM does not assess the question, it seems likely that forcing local governments and school districts into a single HCA will face some political resistance.

PRM-II did identify two areas for potentially larger gains. First, if the ACA "Cadillac tax" on high premium plans is implemented in 2022 (as currently scheduled), Alaska's high health costs may drive insurance rates high enough to trigger the Cadillac tax. Multiemployer plans have a favorable formula for calculating what constitutes a Cadillac plan, and they may reduce or avoid the Cadillac tax entirely. Second, many public employee plans in Alaska do not have "tiers" where the employee pays a different premium for coverage for self-only, self-and-partner, self-and-family, or self-and-partner-and family.

Without tiered premiums, there is no reason not to enroll every eligible family member, even if that family member already has coverage elsewhere. Especially for families with two workers, each eligible for employer health insurance, tiered plans create incentives to enroll family members in only one plan. For example, when both workers are eligible for health insurance, there is often an incentive for one worker to enroll in a self-and-family (but not partner) plan and for the second to enroll in a self-only plan. The incentives of tiered premiums result in fewer covered lives by public employers and also fewer individuals with dual coverage.[118]

Health Plans for State and Local Employees, Retirees. The report *Estimate of the Potential Value of Consolidating Alaska State, Local, and School District Public Employee Health Plans* by Mark A. Foster and Associates (MAFA) was generally more optimistic about the potential for administrative and joint purchasing savings under an HCA. MAFA placed much more emphasis on the market power of providers and insurers in Alaska, and projected that a single large purchaser would be able to leverage its purchasing power into larger provider discounts. MAFA projected annual savings of 8.8 percent by 2025, which included:

- 2.4 percent from joint purchasing and administration savings, from PRM-I and PRM-II,
- 1 percent from tiered pricing (PRM-II identified the same opportunity but did not have a savings estimate from this change),
- 2.7 percent from negotiating benchmark pricing at 150 to 300 percent of Medicare rates, and
- 2.6 percent from switching to value-based insurance.[120]

Incorporating Medicaid. The *Health Care Authority Feasibility Study* by the Pacific Health Policy Group (PHPG) assessed what would be necessary to incorporate Medicaid into an HCA. PHPG concluded that it would be preferable to launch an HCA without Medicaid and then add Medicaid after the HCA was well-established. Two types of factors drove this cautionary advice. First, because Alaska Natives are 40 percent of Medicaid enrollees, there are unique issues with any change in how Medicaid services are delivered and financed. Medicaid administration within an HCA would need to take care not to move Alaska Native services that are federally reimbursed at 100 percent into categories that get only 50 percent reimbursement. Also, the addition of Medicaid to an HCA would require a Medicaid waiver. The Medicaid waiver application would require prior consultation with tribal entities, which must be built into a launch timeline. Second, Medicaid administration involves rather different administrative processes than traditional insurance administration. Medicaid is not a single program, but rather a collection of programs with different reporting requirements. The Medicaid eligibility-determination process would almost certainly need to remain a DHSS function. The mix of services used by Medicaid patients is quite different from services used by insured employees and retirees. Almost half the Medicaid budget is spent on nursing home care, travel expenses, and behavioral health, which account for roughly 5 percent of costs for employee/retiree insurance. And, an HCA does not alter how Medicaid rates are set: the state already sets Medicaid provider payments that are much lower than the rates paid by commercial insurance.[121]

Medicaid 1115 Waiver

SB 74 directed DHSS to submit a Medicaid Section 1115 waiver with respect to behavioral health and substance abuse services.[122] Section 1115 Demonstration waivers are a broad tool that allows states to

request waivers from many federal Medicaid rules. For example, Section 1115 has been used by states to request exemptions that allow work requirements for Medicaid eligibility. CMS frequently identifies areas where it seeks proposals from states for innovative approaches under Section 1115. In November 2017, CMS issued a letter expressing interest in proposals to combat the opioid crisis.[123] The Kaiser Family Foundation tracks Section 1115 waivers and reports that 21 states have approved substance use disorder waivers and another 7 are pending.[124] Alaska was not alone in requesting a Section 1115 waiver to develop new substance use disorder treatments.

The Section 1115 waiver was submitted in January 2018 and received CMS approval in November 2018. The overall objectives of the waiver are to:

- Shift emphasis from acute, institutional care to community or regional care,
- Place greater emphasis on early intervention, and
- Improve behavioral health system accountability; notably, the waiver proposes to hire an Administrative Services Organization (ASO) to manage existing behavioral health programs and a request for proposal for the ASO has been issued.[125]

The Section 1115 Waiver does not involve payment reform. However, two aspects of the proposed implementation relate to payment reform. First, the waiver seeks permission to use Medicaid funds for social support services that would not be available under traditional Medicaid reimbursement. The goal is to promote greater integration of medical services, behavioral health services, and social support services to achieve both improved health outcomes and lower costs. This is a goal shared with value-based payment structures. Second, the waiver is to be implemented by a contracted ASO. The kinds of incentives that might be used in an ASO contract may apply to the design of incentive structures in the various value-based payment structures. Experiences with the ASO may inform future state efforts in the direction of value-based payment.[126]

Privatization of Publicly Provided Services

SB 74 directed AKDHSS to study the privatization of three services: the Alaska Psychiatric Institute (API), certain juvenile detention facilities, and pharmacy services at Alaska Pioneers' Homes. AKDHSS delivered reports on all three topics to the legislature in January 2017. None of the reports supported full privatization of services. The API study reported opportunities to privatize some services.[127]

AKDHSS, in cooperation with the Alaska Mental Health Trust Authority, contracted with Public Consulting Group, Inc., to study privatization of the Alaska Psychiatric Institute. The study found that private providers would face substantial increases in compensation for psychiatric services. These higher costs make either full privatization or privatization of psychiatric services unattractive. The study did find that services for communication and facilities management could be outsourced and would likely reduce costs. The study concluded that savings from outsourcing nursing services were unclear, because opportunities for modest reductions in staffing levels might be offset by higher compensation.[128]

AKDHSS was unsuccessful in finding a consultant to assess privatization of pharmacy services at Alaska Pioneers' Homes. The commissioner did send the legislature a letter pointing out that the net cost of the

in-house pharmacy program was small and that those costs seemed to be offset by some cost advantages that would be unavailable with a privatized pharmacy.[129]

The feasibility study for privatization of some juvenile detention facilities was conducted by CGL, a large firm that works nationally and internationally to design justice facilities. That study concluded that privatization was not feasible. In particular, the consultant was unable to identify any community organization that would be willing to administer the facilities. The study did recommend expansion of facilities at the Nome Youth Facility and better integration of mental health services at juvenile detention facilities.[130]

Telemedicine and Health Information Technology (HIT)

AKDHSS contracted with Agnew Beck to convene the Medicaid Redesign Telehealth Stakeholder Workgroup. That group made several recommendations to support the continued growth of telehealth as a medium for delivery of health care services. Several recommendations supported continued assessment of demonstration projects that incorporate telehealth to keep abreast of the rapidly changing technology and processes. The group also identified barriers, such as limitations of installed telecommunications infrastructure, to expansion of telehealth services.[46]

In two specific areas, the Workgroup identified payment reforms that should be considered to support wider adoption of telehealth treatment strategies. The first area is to create payment equity between telehealth and in-person services. The argument is obvious: if reimbursement is the same for two methods that deliver the same service, then providers have incentives to use telehealth services when there are cost efficiencies. In addition, the Workgroup identified the use of in-home electronic monitoring as a tool that might be incorporated into health services to achieve better outcomes. For example, those services might monitor aspects of patient health or monitor aspects of patient compliance with treatment. To incorporate such monitoring, the costs of installing and maintaining the equipment, training patients and care-givers to use the technology, and any required centralized monitoring must be covered. The Workgroup recommended that the state evaluate creating a bundled rate to reimburse providers for time to travel to the home, set up equipment, and instruct the patient and family on how to use the equipment.[46] The consultant who completed the *Health Information Infrastructure Plan* made a similar recommendation.[131]

Care Coordination. An important issue across several SB 74 initiatives is the use of health information technology (HIT) to reduce unnecessary use of health care services. State initiatives in this area did not start with SB 74. For example, in 2014, AKDHSS contracted with MedExpert to implement the Alaska Medicaid Coordinated Care Initiative. SB 74 specifically directed the state to collaborate with hospitals to establish a hospital-based project to reduce use of emergency department (ED) services by Medicaid enrollees. That directive was implemented as the Emergency Department Coordination Project, a collaboration between the state, the Alaska State Hospital and Nursing Home Association, and the Alaska Chapter of the American College of Emergency Physicians. In addition, another Alaska project that seeks to use health IT to better coordinate care is the state's health information exchange (HIE)—healtheConnect—discussed earlier in the chapter.[132]

As discussed above, greater use of HIT is central to achieving both higher-quality care and lower costs under VBP. Health information systems are expensive, both to create the central IT infrastructure and to

purchase and install equipment and software at the provider level. This gives rise to a chicken-and-egg question: Does government first subsidize installation of all technology and then develop value-based payment structures that will incentivize use of this system and (hopefully) generate savings? Or do we first develop the value-based payment structures and let the private sector figure out how to finance some or all of this IT infrastructure? We might note that Medicare, using funding from the American Recovery and Reinvestment Act of 2009, provided payment incentives to promote installation of EHR systems by clinicians.

Medicaid Payment Redesign

SB 74 directed AKDHSS to consider and to contract for one or more of the following alternative payment models (APMs):

- Premium payments for centers of excellence
- Penalties for hospital-acquired infections, readmissions, and outcome failures
- Bundled payments for specific episodes of care
- Global payments for contracted payers, primary care managers or case managers for a recipient or for care related to a specific diagnosis.

In June 2018, AKDHSS announced its intention to award contracts for two demonstration projects under the "global payments" option:

- United Healthcare Insurance Company will demonstrate a Medicaid managed care model in the Anchorage and Mat-Su Valley regions.
- Providence Family Medicine Center will demonstrate a PCMH model in the Anchorage area.

In addition to these contracts for demonstration projects, AKDHSS also contracted with Milliman, Inc., to develop specifics in the areas of bundled payments and health homes.[119]

Bundled Care. Milliman was asked to identify parameters to define a small number of "episodes of care" that could be used to implement a test of bundled payments in Juneau or Fairbanks. The Milliman report is an excellent illustration of the analysis of medical claims records that will be required to create robust definitions of episodes of care for bundled payment. Milliman identifies three potential bundles for Juneau and Fairbanks demonstration projects: maternity and newborn; behavioral health; and septicemia and infections.[119]

Health Homes. This is an option under the ACA for providing care coordination to Medicaid enrollees with chronic conditions. A care coordinator in a health home can reduce the use of expensive acute services, like ER care and inpatient care. In a health home, additional expenses are incurred to provide care coordination, with the expectation that the reduction in use of acute services and improvements in the patient's quality of life will more than offset those coordination costs. The Milliman "Health Home" report discusses the experiences in other states and assembles data on which patient diagnoses generate the high level of system usage that would warrant investing in coordinated care. Milliman identifies nine chronic conditions that are associated with 92 percent of Medicaid costs. The 28 percent of patients who have two or more of these chronic conditions account for 75 percent of Medicaid costs. Investments in coordinated care for this population offer the greatest opportunity for success in a health home model.[119]

Increasing Federal Medicaid Payments to Alaska

Medicaid-funded services that are provided to AN/AI through tribal health organizations receive 100 percent federal reimbursement, rather than the 50 percent reimbursement for traditional (non-expansion) Medicaid. In 2016, CMS announced a change in that policy (State Health Official Letter 16-002), which now allows 100 percent federal funding for care delivered by non-tribal providers under care coordination arrangements (CCAs). This presented an opportunity for AKDHSS and tribal health organizations to work together to shift more Medicaid costs for ANs onto the federal government. Since 2016, 18 tribal health organizations have developed 1,450 CCAs with 137 non-tribal providers. Under those CCAs, in FY 2018 Medicaid saved $44 million, $28 million of which was for transportation costs. Shifting more of state Medicaid costs to the federal government is perhaps not payment reform, but it is valuable to the state. The $44 million saved by this cost-shifting in FY 2018 represents about one-third of the $140 million in total savings from Medicaid reforms, according to the *FY 2018 Annual Medicaid Reform Report*.

Recent Legislation and Pending Issues

In 2018, the legislature enacted two health care measures, one on price transparency and one related to pharmacy benefits managers. Two issues related to insurance reimbursement for out-of-network services were prominent, although legislative action was limited to introducing bills.

Health Care Pricing Transparency

SB 105, which dealt with licensure for family and marital therapists, was amended to add health care price transparency provisions. Those provisions required each provider to post their 10 most frequently performed procedures and the undiscounted price for each. That list must be provided to AKDHSS, which is directed to compile and post the information on its website. The legislation also required providers to provide good faith estimates of the expected full cost of any treatment within 10 days, if requested by the patient. The estimate must also provide information to the patient about the insurer networks, if any, to which the provider belongs.

SB 105 was preceded by the Anchorage Health Care Transparency Ordinance (AO 2017-26), enacted in 2017. The ordinance requires that, on request by a patient, health providers must deliver a written or electronic estimate of "reasonably anticipated health care charges" to treat a condition. The estimate must provide information to the patient about the insurer networks, if any, to which that the provider belongs. Providers must also post a sign notifying patients of this right. Interestingly, SB 105 included language that prevented municipalities from enacting ordinances that were more restrictive than SB 105.[133]

Price transparency has been a relatively common legislative initiative. Although a bit dated, the 2012 survey of price information websites by Kullgren *et al.* (2013) found 62 such price websites in 39 states.[134] There had also been rapid growth in the number of such websites in the years before 2012, so the number may be even larger today. It is difficult to generate evidence about how such public price information might change patient behavior. A small case analysis by Desai *et al.* (2016) raises doubts that price transparency has much effect on patients.[135] They compared two employer-based groups, one with access to a price transparency tool and one without. They found that most patients do not use the tool and

that there was a small but statistically significant *increase* in the total cost to the employer for the group with access to the tool.

A very recent working paper by Christensen, *et al* (2018) used a national sample from the MarketScan data for hospital charges for five common procedures to examine the effect of price transparency.[136] They find that price transparency does not affect payments or consumer search, but it does cause hospitals to reduce average posted charges by 5 percent. That is, price transparency seems to lower posted charges but also to lower discounts to those charges. They attribute the reduction in posted prices to "reputation effects." They conjecture that price transparency may be politically acceptable to all sides in part because it has little impact on total health care costs.

Pharmacy Benefit Manager Regulation

The 2018 legislature also passed HB 240, which regulated certain actions by pharmacy benefit managers (PBMs). The bill had four significant effects. First, it invalidated any contract that prevented a pharmacist from disclosing that the patient could save money by paying personally for the prescription, instead of using an insurance benefit. Second, it required PBMs to be licensed by the state. Third, the bill placed restrictions on the ability of PBMs to conduct audits of pharmacies. Fourth, the audit language included criteria for pricing by the PBM.[137]

To understand why a drug purchased with an insurance card might be more expensive than the retail price for uninsured patients, you must recall that many insurance plans have flat co-pays of $10 to $20 per prescription. The co-pay can therefore exceed the normal retail price of the drug. This is especially true for common, generic drugs. If an insured patient presents an insurance card and pays the co-pay instead of the lower retail price, that difference goes to the insurer or PBM. Contracts that restrict the ability of a pharmacist to explain that a co-pay may exceed the retail price are frequently called "pharmacy gag clauses." National legislation to prohibit pharmacy gag clauses (S. 2554) was enacted and signed by President Trump in October 2018. The state legislation, while now duplicative, is not entirely moot. Pharmacies can seek state enforcement by the Director of Insurance (through challenges to licensure) and through state courts.

Provisions of HB 240 beyond the prohibition on gag-contracts seem less appreciated. By requiring licensure, the bill brings PBMs within the regulatory jurisdiction of the state. The audit provisions place limits on PBMs' ability to audit compliance with contracts, unless fraud is alleged. And, within the audit language is a section that requires PBMs to affirmatively demonstrate that a particular pharmacy can purchase drugs from an available wholesaler at prices below the PBM-set reimbursement to the pharmacy. Pharmacies can take disagreements over this requirement to the Director of Insurance. That language could be interpreted to draw the Director of Insurance into setting minimum PBM reimbursements, and that minimum would be based on the wholesale price facing the pharmacy with the highest wholesale cost. The outcome of these sections may depend on the willingness of the Director of Insurance to be drawn into the role of *de facto* PBM regulator.

Independent pharmacies have long been critical of the low PBM dispensing margins, and have supported regulations that would restrict PBM pricing power. In part, this reflects the concern by independent pharmacies that chain pharmacies, large discount retailers, and grocery store chains can negotiate lower

wholesale prices for drugs than they can. There is little question that the emergence of price-conscious PBMs has driven down the retail dispensing margins of pharmacies. This, in turn, has driven business to large national chains and contributed to continuing decline in the number of independent pharmacies. The PBM market has become more concentrated, with three large PBMs (Express Scripts, CVS Health, and UnitedHealth's OptumRx) accounting for about 75 percent of the market. Pharmacies argue that, even if PBMs have reduced prescription prices in the past, the current market power of PBMs is being used to the disadvantage of both pharmacies and consumers. So it is perhaps not surprising that a bill combining a provision that benefits consumers with provisions that benefit local pharmacies, to the detriment of large outside PBMs, found unanimous support in the legislature.

Regulation of Insurance Reimbursement

Two issues on insurance reimbursement generated significant discussion in the last legislature: reimbursement of out-of-network providers under the 80th percentile rule and balance billing of consumers. Both issues center on the often-confusing interface of what providers want to bill, what insurers want to pay, and what out-of-pocket costs consumers face at the end of this process. Legislation was not enacted on either issue, but both issues continue to attract attention. The 80th percentile rule, a unique issue for Alaska, has faced growing criticism from payers. The balance billing issue has national prominence and is being addressed in other states.

Eightieth Percentile Rule. The 80th percentile rule (3 AAC 26.110) requires that:

> "A person that provides coverage in this state for health care services or supplies on an expense-incurred basis…shall…determine the final payment for a covered service or supply based on an amount that …is equal to or greater than the 80th percentile of charges under (1) of this subsection."

The section (1) referenced in the regulation requires a "statistically credible profile" of charges that is updated every six months and that reflects geographic differences. It perhaps bears repeating that the standard is <u>not</u> 80 percent of some measure of average charges. Rather, the 80th percentile is determined by rank ordering charges and then finding the charge below which the cheapest 80 percent of procedures fall. If there are 200 procedures in a sample, then the charge for the 160th cheapest procedure sets the 80th percentile. As is often noted, if a practice performs at least 21 percent of the procedures in some area, then its charges are by definition at or below the 80th percentile in the survey. Thus, for specialties with few practices in a geographic area, the 80th percentile could be the maximum rate charged.

From an insurer's point of view, the 80th percentile rule covers two situations. First, if an insurance company bases all its payments on an expense-incurred basis (*i.e.*, charges from providers), then the insurer cannot create its own definition of reasonable charges. The 80th percentile therefore covers the situation where an insurer promises to pay "usual, customary and reasonable" (UCR) fees and then defines UCR in a way that results in low reimbursements. This was at one time a nationwide complaint from patients and providers. Second, if an insurer bases some of its payments on negotiated fees (with in-network providers) and other payments on billed charges (from out-of-network providers), the 80th percentile rule covers the out-of-network providers. This prevents an insurer from creating a payment structure that seriously penalizes patients for using out-of-network providers. If insurers can create very

large payment differences for enrollees who go out-of-network, then enrollees would be strongly incentivized to remain in-network. If patients are incentivized to remain in-network, insurers have increased bargaining power to encourage providers to join their networks. In fact, that is part of the economic incentive structure of preferred provider organizations (PPOs) outside Alaska.

Closed panels have been unpopular with patients, who very much value the historic ability of patients to see any provider. They are also unpopular with providers, because they arguably give insurers the upper hand in negotiating terms for joining a network. In response, Alaska enacted a Choice of Health Care Provider statute (AS 21.07.30) which requires insurers who use networks of preferred providers must offer patients the option of going to any out-of-network provider. Higher insurance rates, co-pays, and deductibles for out-of-network coverage are allowed, but those additional charges must be based on additional costs incurred by the insurer. Yet, the Choice of Health Care Provider statute did not clearly address the possibility that in-network charges, which are based on negotiated fees, and out-of-network charges, which are based on provider charges, might be treated very differently in the insurance contract. The 80th percentile regulation, by establishing a minimum insurer payment for all reimbursements based on provider charges, sets a minimum payment that insurers must pay to out-of-network providers. In effect, the 80th percentile regulation gives meaning to the Choice of Health Care Provider statute by setting minimum payment criteria for out-of-network providers.

In recent years, insurers and other payers in Alaska have complained that the 80th percentile rule, far from constraining high cost practices, has led to escalating payments. Analysis by Guettabi (2018) does find that health care reimbursements, and particularly physician reimbursements, have grown much more rapidly in Alaska since 2004 (when the rule was implemented) than in the rest of the United States.[81] Legislation to amend the 80th percentile rule was introduced in 2018 but did not get a legislative hearing.

Balance billing. The second reimbursement issue involves the situation where a patient goes to an out-of-network provider whose charges substantially exceed the insurer's reimbursement. That patient is "balance billed" for the difference.[138] Very large balance bills can occur. These potentially large balance bills have an obvious incentive: patients should avoid the balance bill by going to in-network providers. But patients argue that there are situations where the patient has no control over who provides services. The most obvious is in the ER, where a seriously ill patient is not going to refuse treatment in order to be transported across town to an in-network facility. A second situation is "hidden" out-of-network providers within an in-network facility. The patient may not even know that separate charges will be incurred to read X-rays, and might expect that an in-network hospital would use in-network radiologists. A third situation arises when an in-network physician refers the patient to an out-of-network specialist. Patients go to the referring physician because they were in-network; they might reasonably expect the in-network physician should make in-network referrals only.

These "surprise" balance bills have generated wide political support for regulatory laws. It is not uncommon for insurance policies to recognize the emergency situation and to have provisions to pay out-of-network providers in those cases. Several states require this by statute. The issue is, however, not trivial. Not every visit to the ER is an emergency. To avoid creating yet more incentives to overuse ERs, these protections are typically restricted to some definition of an emergency.) Two states, Florida and New York, have moved beyond the ER to regulate other types of surprise balance bills. The Florida statute shields the patient from balance bills by out-of-network providers that are incurred at in-network

facilities.[139] New York goes one step further and protects the patient who receives a balance bill when the patient was referred to an out-of-network provider and not informed that higher fees may result.[140]

But if the patient is shielded from the out-of-network balance bill, what happens to this bill? If the bill is simply voided, then the provider is forced to accept the insurer's in-network rates. If the insurer pays the bill in full, then providers would have little incentive to enter into provider networks and thereby constrain prices. Either result is very disruptive to the current system, where insurers and providers negotiate networks and pricing. To avoid this "either/or" choice, balance bill statutes usually require the insurer and the provider to negotiate an agreement. If negotiation fails, then mandatory arbitration is required. Mark Scherzer, legislative counsel at New Yorkers for Accessible Health Coverage, an advocacy group for people with chronic illnesses and disabilities, suggests this interpretation of balance billing protections:

> "Consumers basically say to the doctor or the hospital, 'I'm giving you my rights to reimbursement, you can duke it out with the insurance company."[141]

Critics have suggested that mandatory arbitration is a step towards government-set rates. But the reported experience so far does not seem to have generated a large number of arbitrations.

The 2018 Alaska legislature introduced two versions of balance billing protection: HB 193A and SB 129, which were limited to emergency treatment. HB 193B covered all three situations: emergency services, out-of-network services at an in-network facility, and surprise referrals to out-of-network providers by in-network providers. HB 193B set the charges at the 80th percentile or 350 percent of Medicare, whichever is higher. No legislative action occurred on balance billing, in part because budget challenges precluded finding legislative time and energy to process this complicated topic.[142] The issue seems likely to arise again in Alaska, as it is across the United States.

Chapter summary

In some ways, Alaska is just beginning to confront some of the trade-offs that public policy has been tackling outside for 20 or more years. Alaskans, like most Americans 20 years ago, are comfortable with the freedom granted to patients and to providers under the FFS, third-party payer model. The kinds of pilots that are being examined under SB 74 may provide some clearer understanding of the choices facing Alaska in the future of health care delivery and funding.

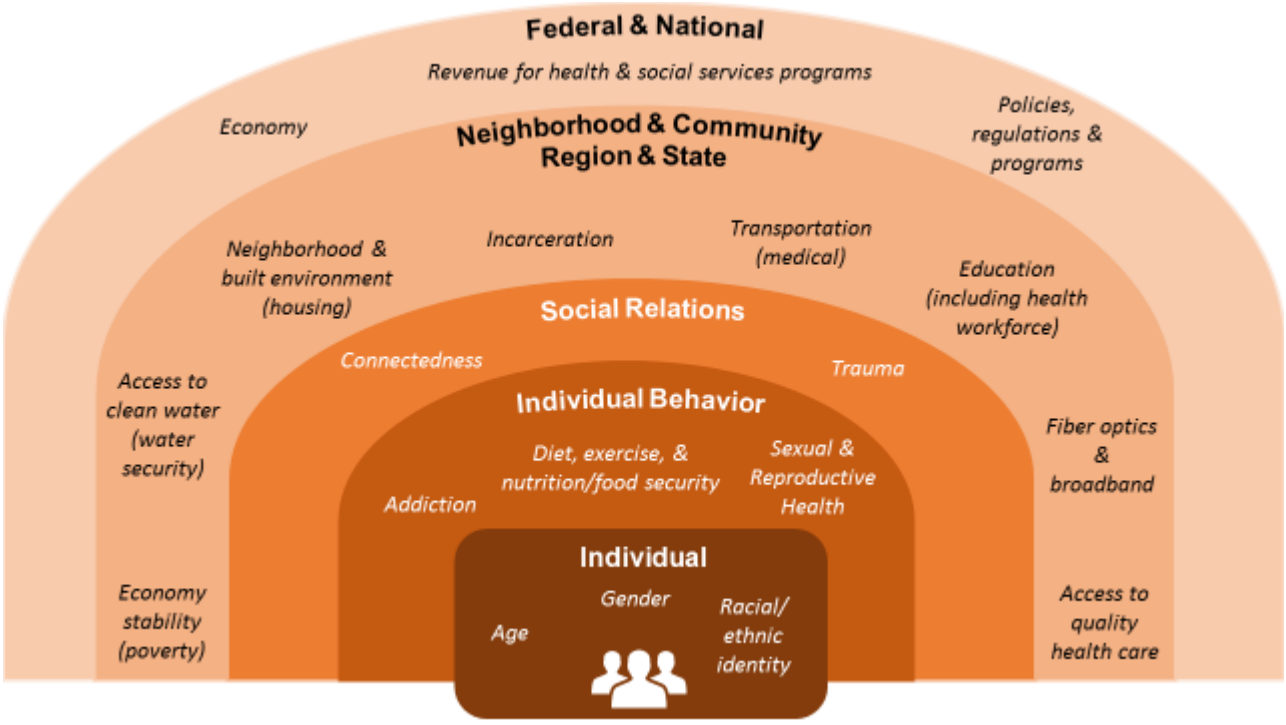
Medicaid reform under SB 74 may foreshadow the directions that the broader health care system in Alaska will travel as it tackles the drivers of its high health costs. Detailed analysis and pilot experiments will be required to understand how Alaska's unique health care delivery system will respond to changes like value-based payment structures. There is almost certainly not a single approach that alone will bend the health care cost curve in Alaska. Rather, reform is likely to require sustained efforts to identify issues and then to find creative solutions that address the underlying incentives. Experiences with SB 74 also suggest that the easier route to achieve large gains for any payer is still by cost-shifting strategies, as was achieved under the CCAs.

Chapter 5: Social Determinants of Health

According to the World Health Organization (WHO), "Social determinants of health are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life."[143] These non-medical influences on the health of Alaska's populations can have significant implications for needs for health services, the extent to which these needs are fully and appropriately addressed, and the ways in which health reform can minimize or eliminate health inequities that have their roots in demographic, socio-economic, geographic, and historic differences among state residents.

For the purposes of this report, a starting point for defining SDOH is to consider social and physical influences associated with the leading causes of mortality and morbidity in Alaska. These include: addiction; diet, nutrition, and exercise; social connectedness; environmental exposures; access to clean water; and sexual and reproductive health.[144] In addition, deliberations by a PMC strategic group (spring 2018) generated an additional list of SDOH. Exhibit 5.1 depicts a tailored version of a commonly used visual for SDOH that integrates the PMC's list with the work done earlier by Driscoll at ICHS. This diagram illustrates the myriad of factors that influence the health of Alaskans. Social determinants range from an individual's physical characteristics (e.g., heredity, epigenetics) and behaviors to immediate social relations (e.g., family, tribal) and then extend to trends that affect communities and regions within Alaska (e.g., education, markets, the physical environment), and determinants linked to the federal policies and funds that support much of Alaska's infrastructure and programs.

Exhibit 5.1: SDOH in Alaska



Source: Based on Dahlgren and Whitehead.[145]

While reducing morbidity and mortality in Alaska is foundational to health reform, approaches to improving population health have varied over time particularly with regard to specific populations and different parts of the health services delivery system (i.e., services, patient outcomes). The multisector Healthy People 2020 planning process in Alaska, led by AKDHSS and ANTHC, promoted 25 health goals for the state.[146]

Alaska's Healthy People 2020 initiative highlights SDOH in one of three key recommendations in a 2014 assessment of public health, calling for Alaska "to expand its current work to better address the social determinants of health to impact the root causes of Alaska's health issues (alcohol and substance abuse, lack of affordable housing, poverty and education)."[147] Exhibit 5.2 below provides a summary list of health services and outcomes identified as top priorities for Alaska, each linked to one or more SDOH.

Exhibit 5.2: Alaska's 25 Health Improvement Goals and Relationship to SDOH

Topic of Goal/Indicator, by 2020	Related SDOH
1. Cancer mortality rate	Access to Health Care Diet, Nutrition, Exercise Addiction
2. Tobacco use, youth	Addiction
3. Tobacco use, adults	Addiction
4. Overweight or Obesity – Adults	Diet, Nutrition, Exercise Food Security Neighborhood and Built Environment
5. Overweight or Obesity – Youth and Children	Diet, Nutrition, Exercise Food Security Neighborhood and Built Environment
6. Physical Activity – Adults and Youth	Diet, Nutrition, Exercise Neighborhood and Built Environment
7. Suicide Deaths	Access to Health Care Addiction Connectedness
8. Mental Health – Youth	Access to Health Care Addiction
9. Mental Health – Adults	Access to Health Care Addiction
10. Social Support – Youth	Connectedness
11. Child Abuse and Neglect	Trauma Addiction
12. Rape	Trauma Sexual & Reproductive Health
13. Dating Violence – Youth	Trauma
14. Alcohol-induced Deaths	Addiction
15. Binge Drinking – Adults and Youth	Addiction
16. Unintentional Injury Deaths	Employment, Transportation
17. Childhood vaccinations	Access to Health Care
18. Chlamydia (STD) Rate	Sexual & Reproductive Health
19. Home Water and Wastewater Services	Access to Clean Water
20. Fluoridated Community Drinking Water	Access to Clean Water
21. Early Prenatal Care	Access to Health Care
22. Preventable Hospitalizations	Access to Health Care
23. Cost as a Barrier to Healthcare	Access to Health Care
24. Poverty	Economic Stability
25. High School Graduation	Education

Based on Healthy Alaska 2020, our definition of SDOH is expanded to include economic stability (including food insecurity and housing instability); education (through high school); neighborhood and built environment (including housing); and social and community context (e.g., incarceration).

For the purpose of this report, a third source for defining SDOH comes from a Community Health Needs Assessment (CHNA) conducted by the Mat-Su Health Foundation in 2016. Matanuska-Susitna Borough (Mat-Su) is home to 106,532 Alaskans (2017 data) and has the highest rate of population increase in the state. Mat-Su residents who participated in focus groups and stakeholder interviews identified transportation, family/social connection and support, income and housing, and education/information as the top non-medical factors affecting health in their community. Other key issues identified by the community were substance abuse and lack of access to treatment, lack of access to medical and behavioral health care for some Mat-Su residents, insufficient focus on prevention, and the importance of safe, accessible parks and other recreational facilities.[148]

Certain populations within the community were identified as having special health needs:

- Lesbian, Gay, Bisexual, Transgender, Questioning (LGBTQ) residents were less satisfied than heterosexual residents with the health care they received.
- Women, older residents, and residents with less than a high school education were more likely to report poor mental health days.
- Cost was more likely to be a barrier to accessing care for women, rural residents, residents with less education, and residents with lower incomes.

The CHNA recognized that housing and health are closely related. Medical crisis can lead to homelessness, and the homeless often face health challenges related to access to care, increased risk of becoming ill or injured, and challenges to recuperation after an illness or injury. Housing can be a particular challenge for prisoners re-entering the community. Homeless youth face additional challenges completing high school and finding jobs due to lack of education.

In this chapter, we review selected reports and studies completed in the past decade (2008-2018) that address SDOH as defined in the Alaska context, specifically related to health reform and focused on 20 publications requested by the PMC. Our goal is to assess what lessons can be learned from work to date and the implications of our understanding of SDOH for an Alaskan healthcare roadmap. A short methods section is followed by an overview of the state's population demographics for the state, and the context in which to consider the impacts of SDOH. Next are summaries of selected publications on SDOH, grouped into the categories laid out in Exhibit 5.1 above, namely:

- Individual: Aging
- Individual behavior: Addiction; Diet, Nutrition, Exercise; Sexual and Reproductive Health
- Social relationship: Trauma, Connectedness
- Community and region: Access to Clean Water (Water Security); Food Security; Incarceration; Neighborhood and Built Environment (Housing)

Key findings and recommendations pertinent to health reform are presented, in addition to noting significant gaps in the SDOH evidence base.

Methods

An initial literature review, using the SDOH subject areas noted above as search terms, yielded over 300 studies and/or publications. Searches were conducted in Pub-Med and the Web of Science, restricted to English language reports published between 2008 and 2018 and focused on Alaska. Grey literature was identified by searching the websites for the following Alaskan health organizations as well as the ICHS files:

- Alaska Mental Health Trust Authority (AMHTA)
- Alaska Department of Health and Social Services (AKDHSS)
- Alaska Native Health Board (ANHB)
- Alaska Native Tribal Health Consortium (ANTHC)
- Anchorage Municipality
- Center for Alaska Native Health Research (CANHR) at the University of Alaska Fairbanks
- Mat-Su Health Foundation (MSHF)

We provided the PMC with the complete list of identified publications and reports as well as a more focused list of 35 publications and reports deemed most relevant to current health and healthcare concerns in Alaska. The PMC selected a subset of 20 studies and publications for more detailed review. This set of publications informed our working definition of SDOH (for example, focusing on access to clean water rather than environmental exposures). In addition to the 20 studies and publications, our team added a small number of publications that were identified as part of the initial group of 300 reports, where appropriate, to support analysis of the core group of 20 studies.

Demographics, Socio-Economic Status, and Geographic Distribution of Alaska's Population

An overview of Alaska' population characteristics offers context for better understanding the implications of SDOH in Alaska for health reform. Exhibit 5.3 below lists the reports used to provide basic descriptions of the state's population demographics, socio-economic status, and geographic distribution in the state, considering the state overall and the Alaska Native population in particular.

Exhibit 5.3: Reports/Studies Related to Alaskan Context for SDOH

Date	Title	Author(s)
2013	Assessing the social and physical determinants of circumpolar health	Driscoll, DL et al.
2015	Healthy Alaskans 2020 Health Assessment: Understanding the Health of Alaskans	AKDHSS
2016	Community Health Needs Assessment	Mat-Su Foundation
2017	Alaska Native Health Status Report, 2nd edition	ANEC
2018	Alaska Population Overview: 2017 Estimates	AKDLWD

Population. The population of Alaska, as of July 1, 2017, was 737,800, almost evenly divided between male (51 percent) and female (49 percent).[149]

Race and Ethnicity. The largest racial group in Alaska is White with 66 percent of the population, followed by American Indian or Alaska Native (AI/AN) with 15 percent. Seven percent of Alaskans report being of Hispanic origin, which is reported separately from race. Alaska has a relatively high percentage (7 percent) of residents who report two or more races. The percentage reporting AI/AN increases to 20 percent when individuals reporting more than one race are included. The areas of the state with the highest proportion of AI/AN people are the Southwest, Northern, and Interior regions. AI/AN people are often Indian Health Service (IHS) beneficiaries and may have some or all of their health care paid for by IHS.[149]

Geographic Distribution. Access to health care providers may be more limited in the state's more rural areas resulting in either more limited care, high travel costs to access care, or both. Alaska is the least densely populated state in the country, with 1.1 persons per square mile, compared to 79.6 persons per square mile for the United States as a whole.[150] Population change results from both natural increase (births minus deaths) and net migration (in-migration minus out-migration). Areas of the state with the highest birth rates tend to be those with a higher proportion of Alaska Native (AN) people. The lowest birth rates occurred in areas with a very high proportion of male residents or areas with older populations. Alaska traditionally has high migration rates both in and out of the state. From 2016 to 2017, under 40,000 people moved to Alaska and over 48,000 left resulting in a net loss of 8,885 people. Alaska also has high rates of migration in and out of the state's major population centers. Between 2010 and 2017, the Matanuska-Susitna Borough (MatSu) had the higher annual rate of increase due to migration (1.3 percent). From 2016 to 2017, five of Alaska's six economic regions had net migration losses to the sixth region, the Anchorage/MatSu region.[149]

Household size. The U.S. Census defines a household as all people who occupy a housing unit. Statewide the number of people per household was 2.71 in 2017, up from 2.65 in 2010 and higher than the U.S. average of 2.53. The state's northern and western areas tend to have higher household sizes with an average of 3.76 people per household in Northwest Arctic Borough, 3.60 in the Bethel Census Area, and 3.33 in the Nome Census Area. Smallest household sizes are found in the Southeast region where the population tends to be older and the average household size was 2.45.[149]

Age Profile. Demographics relate to health care costs in a number of ways. Older adults tend to have more chronic conditions and therefore experience higher health care costs. Health care needs and costs also tend to be highest in the last year of life. The median age for Alaskans in 2017 was 34.9 years, which is younger than the national median of 38.0 years. Eleven percent of Alaskans were age 65 years or older, and 25 percent were age 17 years or younger.

Alaska Native Health Status

The Alaska Tribal Health System is an important piece of Alaskan healthcare. Similarities and differences in SDOH between tribal and non-tribal people and communities affect healthcare needs and outcomes across the state.

Approximately 153,000 Alaska Native (AN) people used the Alaska Tribal Health System, which is a 30 percent increase since 2001. More than a third of the AN population is under the age of 20 years, but the fastest growing age group is 60 to74 years. Compared to Whites, AN people are less likely to attain a high

school diploma or higher educations, more likely to live in poverty, and have a lower median household income.

Life expectancy at birth for AN people in Alaska for 2009-2013 was 70.7, an increase of 5.4 years since the 1980-1983 time period, but still 7.3 years less than for Alaskan Whites. Life expectancy varies from 69.3 to 73.8 years across tribal health regions. Cancer, heart disease, and unintentional injury accounted for nearly half of all AN deaths between 2012 and 2015. Unintentional injury and suicide were the leading causes of potential life lost.

AN infant mortality rate decreased 49% from approximately 17.5 per 1,000 live births in 1981 to 8.9 percent in 2013. AN infants experience higher mortality in the post-neonatal periods (28 days to 1 year) than in the neonatal period (<28 days of age). Infant mortality can be affected by multiple SDOH including mother's education, household income, sanitary conditions, and prenatal and postnatal care. Infant mortality rates varied from 2.6 to 10.9 across tribal health regions. More than a third of AN mothers reported using tobacco during pregnancy in 2013 and 3.5 percent reported consuming alcohol while pregnant in 2012.

The AN population has been hit hard by sexually transmitted diseases, especially in the 15-34 age group. Alaska has the highest chlamydia (CT) rates in the country. The AN rates are 3.6 times higher than those of non-native Alaskans and 8.8 times higher than those of U.S. Whites. Approximately 75 percent of CT cases occur in women. In 2015, AN CT incidence rates ranged from 319.2 to 2855.8 per 100,000 population across tribal health regions. That same year, Alaska ranked 8th among U.S. states for gonorrhea (GC) cases, and the AN GC incidence rate was more than six times higher than the rate for non-native Alaskans. AN GC incidence rates ranged from 83.1 to 1,090.6 per 100,000 population across tribal health regions in 2015.

More than a third of AN adults (36.4 percent) are current smokers, and smoking prevalence has not decreased significantly in the past 20 years. Smokeless tobacco use has also remained stable at approximately 13 percent. Close to 20% of AN adults report binge drinking in the past month. More than a third (35.5 percent) of AN adults has experienced intimate partner violence and 28.4 percent have experienced four or more adverse childhood experiences. Less than 20 percent of AN adults meet the current recommendations for physical activity with approximately a third classified as overweight and another third classified as obese.

In 2016, approximately 83.5 percent of rural AN households were served by water and wastewater service, a significant increase from 2004 when 75.2 percent of rural AN households had water and wastewater service. Access to water and sewer service varies from 73.3 percent to 100 percent across tribal health regions.

Aging as a Social Determinant of Health

Alaska has a younger population than the rest of the United States, as evidenced by both a lower median age (34.9 years in Alaska vs. 38.0 years in the United States overall) and a smaller percentage of adults over the age of 65 years (about 11 percent in Alaska, compared with almost 16 percent for the United States).[149] However, the proportion of elder Alaskans is growing rapidly, with predictions that a

population of less than 20,000 older Alaskans (1980s), grown to about 83,000 residents in 2017, will reach over 120,000 Alaskans age 65 years or older by 2045.[57,149] Older Americans in general face health challenges related to high rates of poverty, geographic isolation, and limited access to health care.[6]

Exhibit 5.4: Reports/Studies Related to Aging as SDOH

Date	Title	Author(s)
2016	Challenges and barriers to health care and overall health in older residents of Alaska: evidence from a national survey	Foutz J, Cohen, S.A., & Cook, S.K.

Findings. A recent analysis of Behavioral Risk Factor Surveillance System (BRFSS), a cross-sectional sample of adults nationwide, found that among respondents age 65 years and older, Alaskans are more likely to be younger, female, and to identify as AI/AN compared with respondents in the lower 48 states and the District of Columbia. Alaskan respondents reported higher incomes, and were more likely to have some college or trade school education. There was no difference in health insurance status between Alaskan and non-Alaskan older adults. While there was no difference in body mass index (BMI), older Alaskans were 59 percent less likely to have had a routine check-up with a doctor within the past year.[6]

Recommendations. The finding that older Alaskans are less likely to have had a routine check-up suggests challenges in accessing care, and also an opportunity for promoting preventive care. Access to care in Alaska reflects a myriad of factors that could include, for example, limited numbers of providers accepting Medicare or taking new Medicare patients, long distances to reach providers in rural areas, and extreme weather that limits the ability to travel.[35] The U.S. Preventive Services Task Force establishes national guidelines for preventive services including immunizations and screening recommendations for older adults. Health reform in Alaska should consider preventive, routine care for older Alaskans as an objective, with attention to identifying and mitigating barriers to access (e.g., support for travel). This recommendation aligns with Healthy Alaska 2020, which gives multiple leading health indicators related to access to care for older adults including reducing cancer mortality and preventable hospitalizations, improving mental health, and lowering cost as a barrier to care.

Individual Behavior as a Social Determinant of Health

Addiction

Addiction is a significant health concern in Alaska affecting all regions and populations of the state. Risk factors are complex and often related to broader population-level forces and influenced by community dynamics. Alcohol and other substances including opiates, heroin, methamphetamine, prescription drugs, and tobacco are often used together and many users have a co-occurring mental health problem that may or may not be recognized.

The economic costs of addiction in Alaska total billions of dollars each year.[151] These economic costs reflect increased health care utilization, increased criminal justice system costs, lost or reduced workplace productivity, greater spending on public assistance and social services, and a range of other impacts. A wide variety of healthcare costs are associated with alcohol and substance abuse, including hospitalization

from injuries and illness, residential and outpatient treatments, pharmaceutical prescriptions, nursing home and long-term-care- facilities, and treating spectrum disorders or birth defects associated with substance use.

Mortality rates related to addiction are increasing across the state. Alaskans experience higher rates of alcohol-attributable mortality compared to most other states, although alcohol mortality rates have seen less drastic increases in recent years than those due to other substances. Since 2010, twice as many people on average have died from alcohol attributable causes each year as have died from methamphetamines and opioids combined. However, the acuteness and novelty of the opioid epidemic contrasted with the endemic and enduring nature of alcohol has contributed to increased attention on opioid prevention and treatment, while problems with alcohol persist, often in combination with abuse of other drugs.[152]

Exhibit 5.5: Reports/Studies Related to Addiction

Date	Title	Author(s)
2015	Health Impacts of Heroin Use in Alaska. *State of Alaska Epidemiology Bulletin*, *17*(1), 1–19.	AKDHSS
2015	Closing the Gap at the Top of the World: Reducing Racial Disparities in Smoking in Alaska's North Slope Region, 2015 Health Disparities Profile ANTHC Tobacco Prevention Program, 40p.	ANTHC
2017	Health Impacts of Methamphetamine Use in Alaska. *State of Alaska Epidemiology Bulletin*, 1-12.	AKDHSS
2017	Economic costs of Alcohol Abuse in Alaska, 2016 Update, 96p	McDowell Group
2018a	Health Impacts of Alcohol Misuse in Alaska. *State of Alaska Epidemiology Bulletin*, 1–41.	AKDHSS
2018b	Health Impacts of Opioid Misuse in Alaska. State of *Alaska Epidemiology Bulletin*, 1-26.	AKDHSS

Findings. Addiction contributes to the high cost of health care in Alaska. One set of estimates identifies the economic burden by substance type, including:

- Alcohol abuse: $148 million in inpatient, outpatient, and ED costs (2015 data)[152]
- Opioids: over $23 million in costs for in/outpatient services related to opiate misuse , most of which are paid by Medicaid and Medicare (2016-2017)[153]
- Heroin: in/outpatient hospital costs exceeding $2 million for heroin (2008-2012) with Medicaid service payments for heroin poisoning increasing tenfold from 2004 to 2013[14]
- Amphetamine poisoning: inpatient care exceeding $5.3 million and total outpatient cost over $657,000 (2015-2016 data)[13]
- Tobacco use contributes to hospitalization costs due to cancers, heart disease, breathing problems, diabetes and stroke. Cancer is a leading cause of death in Alaska, followed by heart disease.[154]
- Smoking cost Alaska an estimated $575 million in direct medical expenditures in 2014. However, these figures underestimate total costs, as lost productivity from tobacco-related illness and costs due to secondhand smoke exposure-related illness or death are not included.[155]

Between 2010 and 2017, Alaska experienced a 77 percent increase in mortality from opioid overdoses (including heroin). Use of the overdose reversal drug naloxone is increasing, reflecting more statewide

availability, and Medicare D opioid prescriptions have decreased since 2015, suggesting more judicious prescribing practices in the state.[153] Opioids were also involved in 53 percent of methamphetamine-related hospitalizations; methamphetamine is commonly used in combination with other drugs, such as alcohol, benzodiazepines, cocaine, heroin and other opioids. Between 2008 and 2016, methamphetamine-related deaths increased across all regions, races and age groups.[13] Between 2008 and 2013, heroin-related deaths jumped by over 300 percent, with most (94 percent) classified as drug overdoses.[14] In addition, underlying mental health problems among persons with opioid and other substance use disorders are often factors associated with suicide.

AN people are disproportionately impacted by alcohol misuse, accounting for two-thirds of all alcohol-attributable hospitalizations and half of all alcohol-attributable deaths in Alaska. Based on a conservative estimate, approximately 60 percent (or $594.3 million) of all substance impairment-caused traffic collision costs are related to alcohol abuse. In addition, the mortality rate in AN men from lung cancer is 1.5 times higher compared to non-AN men, largely attributed to tobacco use.[154]

Recommendations. The current epidemic of opioid abuse and addiction more generally, including poly-substance abuse, should be addressed by coordination and partnerships across Alaskan agencies and non-governmental organizations dedicated to preventing and treating mental illness and substance abuse. In addition, young people need access to effective drug and alcohol prevention education.

Addiction should be viewed as a chronic disease, using evidence-based screening tools, such as the Substance Abuse and Mental Health Services Administration's (SAMHSA) "Screening, Brief Intervention, and Referral to Treatment" model, and assuring access to treatment and recovery services. Healthcare providers need more training in addiction medicine to improve their ability to diagnose co-occurring mental disorders and reduce the stigma and discrimination that people who inject drugs experience in hospital settings.[14] People who abuse opioids and methamphetamine need access to integrated care models that can provide linkages to behavioral health professionals, case workers, and other specialists as appropriate.

Continued support is needed for widespread availability and appropriate use of naloxone to prevent deaths from acute opiate overdose. Treatment for heroin/opiate addiction should combine behavioral and pharmacological approaches and Alaska's existing heroin treatment resources should be evaluated to identify and address of coverage gaps across the state. In addition, incentives for providers should encourage prescribing that reduces the likelihood of addiction to prescription drugs among adolescents and young adults, curtails the illicit drug supply, and promotes mental wellness.

These recommendations support Healthy Alaskans 2020, specifically four leading health indicators that concern reducing mortality from cancer and that related to alcohol and reducing the percentage of Alaskan, both adolescents and adults, who report binge drinking in the past 30 days.

Diet, Exercise, and Nutrition (Food Security)

While Healthy Alaskans 2020 leading health indicators give priority to exercise, and both diet and nutrition are considered key aspects of an Alaskan-specific SDOH related to food, the studies reviewed as part of this meta-analysis focus on implications of food security for health reform. The U.S. Department

of Agriculture (USDA) defines food security as "access by all people at all times to enough food for an active, healthy life."[156] Alaska faces unique challenges to food security. Compared with the United States overall, Alaska has a much lower rate of in-state production of food, reflecting the relatively short growing season, limited arable land, remoteness, and lack of supporting infrastructure (e.g.,, roads for transporting goods).

Exhibit 5.6: Reports/Studies Related to Food Security

Date	Title	Author(s)
2013	Hunger in urban Alaska: the daily lives of food pantry users	Burke T.
2013	Food security in Alaska: challenges, opportunities, and benefits of local food production and distribution	Snyder E. and Donovan S.
2015	Food in the last frontier: inside Alaska's Food security challenges and opportunities. Environment: Science and Policy for Sustainable Development, 57 (3): 19-33	Hodges Snyder E. and Meter K.

Findings. Alaska faces multiple challenges to food security, including an ongoing economic recession, changes in global food supplies, and diminished capacity for in-state farming.[18] In addition, the rapid pace of climate change challenges food growers and harvesters to adapt production and storage techniques. State resilience to a major food disruption is uncertain. There is growing evidence that rural communities are just as vulnerable as urban areas to the risk of food insecurity, as the number of youth involved in subsistence food traditions is declining. Most household foods still come from a store even among people who practice subsistence, bartering, or gardening.[18] Large-scale projects with significant investment of public funds have failed to improve food security in Alaska. Local production, harvest, and consumption together represent a promising agenda to address Alaskan community food security and improve access to nutritious and culturally preferred foods.

Although food security has implications for diet and nutrition, obesity is about as common among Alaskans as among U.S. residents nationally (roughly 31 percent in Alaska, versus almost 30 percent nationally in 2016) and is associated with heart disease, diabetes, and some cancers.[93] Only 10 percent of Alaskan adults and high school students meet recommendations for the consumption of fruits and vegetables. The prevalence of food insecurity is greatest in Alaska's rural areas, and AN adults are twice as likely to be food insecure as their non-AN counterparts.[18]

In part, food insecurity reflects the relatively high cost of food, with Alaskans spending a higher percentage of family income on food compared with all U.S. families (14 percent versus 10 percent). Poverty is a significant threat to the ability of some families to access nutritious foods. Among Anchorage food pantry users, for example, almost half (49 percent) report choosing between purchasing food and paying heat or utility bills. Price incentives favor the least nutritious store-bought food over freshly grown and produced local food.

Recommendations. Improved food security can support state health reform, which is related to both greater access to food and opportunities to improve the content and quality of the Alaskan diet. To bolster food production, small-scale incentives tailored to unique local characteristics are better able to respond to changing conditions and consumer needs in a resilient and self-sustaining local food system. For

example, enforcement of the 7 percent bidder preference for Alaska food contracts would be expected to nurture markets for local food growing operations.[18]

To encourage greater demand for and consumption of fresher local foods, continue to leverage access to institutional settings like nursing homes, food banks, shelters, hospitals, schools, and prisons. Encourage the work of policy councils such as the Alaska Food Resource Working Group and programs such as Farm to School and Nutritional Alaskan Foods to Schools. Increase funding for consumer and producer education programs to encourage the consumption of nutritious local foods and attract and support farmers knowledgeable in Northern growing methods. Programs such as ANTHC's Store Outside Your Door provide an innovative approach to educating younger generations of AN people about how to harvest, cook and eat traditional foods.

Sexual and reproductive health

Sexual and reproductive health (SRH) includes behaviors and systems related to sex and reproduction as well as maternal and child health. While there is little published literature on the epidemiology of SRH in Alaska, it is a complex issue globally. SRH includes, but is not limited to prevention of infections and unwanted pregnancy. The WHO has defined sexual health as "a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled."[157]

Reproductive health often refers to the physical, emotional, and social well-being in all matters relating to the reproductive system, at all stages of life. It implies that people are able to choose when to conceive a child, are biologically able to conceive a child, and (for women) deliver a healthy infant. Reproductive health requires that people be able to protect their fertility even before they are ready to conceive through adequate nutrition, and other decisions about lifestyle and sexual behavior.[158]

Exhibit 5.7: Reports/Studies Related to Sexual and Reproductive Health

Date	Title	Author(s)
2016	Recent Decline in Teen Birth Rate—Alaska, 2008-2013. Alaska Epidemiological Bulletin	Reilly K, et al.
2016	What is missing? Addressing the complex issues surrounding sexual and reproductive health in the circumpolar north. International Journal of Circumpolar Health vol. 75	Jessen C, et al.
2017	HIV Outbreak in a Rural Alaska Community. AK Epidemiological Bulletin 1 (Jan 2017)	Boyette M, et al.
2017	The Role of Alaska's Tribal Health Workers in Supporting Families. Journal of Community Health	Chernoff M and Cueva K

Findings. The studies present a varied set of observations regarding SRH. A report on one specific large rural community outbreak of HIV underscored the importance of adhering to recommended HIV screening practices, for example, to offer annual screening of all adults in rural.[159] Barriers such as limited access to health care and education, and concerns about stigma and confidentiality remain in rural Alaska.

Diversity of SRH needs exist even in small, isolated Alaskan communities, even despite similar SRH disparities and outcomes.

Across the state, the overall trend of teen births is declining, but regional variability still remains. Within the ANTHC, CHA/P programs offer a promising model for SRH care, delivered to rural families in their home communities. Interviews with six CHA/Ps working in two southwestern Alaskan communities (Bristol Bay region) highlight how CHA/Ps describe their delivery of care following scope of practice manuals, including prenatal care, emergency childbirth delivery, well-child visits, referrals to social services, and sex education for teens, all along a continuum of care for families.[160]

Recommendations. As with other SDOH discussed above, local context is important. Community-based participatory research on SRH and culturally responsive programs with programs designed to address SRH issues should be adapted to fit the local context.[161]

Efforts should continue to reduce the overall rates of violent victimization, educate youth about healthy relationships, and reduce stress in victimized women as soon as possible to reduce the incidence and severity of poor health outcomes.

Effective communication between caregivers, health care providers and teens is needed to integrate SDOH into teen pregnancy prevention programs.

All communities should continue to improve adherence to recommended sexual infection screening practices and strive to overcome stigma and lack of access to SRH care and education.[159]

These recommendations align with and support the two related recommendations in Health Alaskans 2020 Leading Health Indicators regarding SRH, namely, to reduce incidence of rape, as well as minimize the chlamydia rate.

Social Relationships as Social Determinants of Health

The presence and character of social relationships can influence health in both positive and negative ways. Studies reviewed below consider two aspects of social connectedness, through the lens of Alaska's relatively high rates of trauma and suicide, especially for youth.[162]

Trauma

Traumatic stress increases the risk of both medical and behavioral health problems. One trend in health education is awareness of the public health impacts of individual experiences of intense physical and psychological traumatic stress, which have lasting effects on well-being. Such stressors include adverse childhood experiences (ACEs), including child abuse and neglect. Compared with other states, Alaska has some of the highest rates of ACEs, including sexual abuse, having an incarcerated family member, substance abuse in the home, and separation or divorce.[163] Knowledge of ACEs can explain how past trauma may have contributed to poor health in adulthood.

In recent years, studies have noted the positive impact of trauma-informed care (TIC) and organizations are increasingly committed to TIC implementation. TIC has been defined as practices that promote a culture of safety, empowerment, and healing by recognizing the existence and influence of traumatic episodes within the community. It is a strengths-based approach requiring understanding and responsiveness, which in some places may require a shift in culture and some re-learning by educated providers.[164]

Exhibit 5.8: Reports/Studies About Trauma

Date	Title	Author(s)
2014	Local perspectives of the ability of HIA stakeholder engagement to capture and reflect factors that impact Alaska Native health. International Journal of Circumpolar Health, 73(1).	Jones J et al.
2014	Is Race a Factor in Disparate Health Problems Associated with Violence Against Women? Journal of Health Disparities Research and Practice, vol. 7.	Rivera M and Garcia G
2016	Adverse Childhood Experiences (ACEs) in Alaska: New Data Fuels a Statewide Initiative (abstract from conference in Finland).	Chamberlain, L.
2016	Development of a Screening and Brief Intervention Process for Symptoms of Psychological Trauma Among Primary Care Patients of Two American Indian and Alaska Native Health Systems. The Journal of Behavioral Health Services & Research.	Hiratsuka VY et al.
2016	Violence against American Indian and Alaska Native Women and Men: 2010 Findings From the National Intimate Partner and Sexual Violence Survey	Rosay A
2018	Implementing trauma-informed care at a non-profit human service agency in Alaska: assessing knowledge, attitudes, and readiness for change. Journal of Evidence-Informed Social Work, 15(5), 550–563.	Marvin AF and Robinson RV

Findings. A nationally representative sample survey of AI/AN finds that more than four in five AI/AN women report experiencing violence in their lifetime and more than one in three report experiencing violence in the year prior to the survey; similar findings are reported for AI/AN male survey respondents.[165] Almost half (49 percent) of women and 20 percent of men surveyed reported needing services as a result of violence, most often medical care (38 percent of women and nine percent of men). Among those who reported needing care, 38 percent of women and 17 percent of men could not access such care. The Alaska Victimization Survey offers a state-specific perspective on these findings.[166] Alaska women who are minority group members are more likely than white Alaska women to experience adverse health problems related to violence, including high blood pressure, fair to poor physical and mental health, irritable bowel syndrome, frequent headaches, and chronic pain.

Findings from state-level BRFSS data indicate that more than one-quarter of Alaskans indicated that they experienced three or more adverse childhood experiences (ACEs) before the age of 18, a greater number than that reported by respondents in five other states.[163,167] ACEs are associated with multiple Alaskan public health concerns including heavy and binge drinking, smoking tobacco, poor physical health, and asthma.[167] High rates of acute, chronic, and intergenerational trauma are experienced by AI/AN people. Common traumatic experiences included physical and sexual abuse.[168]

Studies reviewed identified lessons learned for organizations interested in trauma-informed care. One theme from interviews with AI/AN people on health care is the need to develop trusting patient-provider relationships.[168] In addition, agencies adopting TIC practices should review attitudes among their own staff when looking at readiness for change of organizational culture toward TIC. Further, a review of organizational policies and procedures should accompany movement toward a more trauma-informed community of employees and clients.[164] In a study of trauma screening, AI/AN respondents expressed a preference that trauma informed screening be provided in a safe, timely, culturally appropriate, and community oriented manner. Further, interviews identified four themes to guide development of psychological trauma intervention materials, including normalization; simplicity, education/resource sharing, and resiliency.[168]

In addition to TIC, health impact assessment (HIA) represents another means to acknowledge and incorporate perspectives of AN/AI residents into health care research and health services delivery.[169] A study of AN/AI resident experiences with an HIA about a proposed Alaska coal mine offers guidance on how such studies might engage more meaningfully with Indigenous populations regarding development of resources on or near indigenous lands. The Native participants described a lack of recognition of an Indigenous worldview and past experiences, which influence health. Engagement must be built upon trust through acknowledging historical experiences with research and health issues; recognizing Indigenous sovereignty; understanding Indigenous diversity and its implications; planning for extended timelines; interpreting data within the cultural context; and utilizing Indigenous ways of knowledge.[169]

Recommendations. Increased screening and intervention for trauma and ACEs should be accompanied by immediate access to behavioral health providers. Providers should be trained to use non-stigmatizing language and ensure that public waiting areas and other clinic spaces respect the need for privacy.

In addition, for research and public engagement related to population health, especially for AN/AI residents, community driven facilitation approaches should be used to address the issues of intergenerational trauma in a respectful manner and to build and ensure trust (e.g., during the stakeholder engagement process in HIAs). Training should be done beforehand and indigenous knowledge recognized and implemented to address health and wellness in AN communities.

These recommendations promote strategies to address trauma that align with guidance from Healthy Alaska 2020, which included three trauma-related leading health indicators goals to reduce rates of child maltreatment, rape, and dating violence among youth.

Connectedness

In earlier work on SDOH in Alaska and the Circumpolar North, “connectedness” was defined in terms of relationships between individuals and others and the benefits or detriments of those relationships for individuals and society.[144] This definition is based on literature reviews that linked connectedness to suicide (2009, 2011), HIV and STDs, diabetes, and chronic obstructive pulmonary disease.

One stark reminder of the impact of connectedness can been seen in Alaska’s suicide rate. Recent data (2016) indicate that Alaska has a suicide rate 87 percent higher than the national rate (25.3 per 100,000

age-adjusted population, versus 13.5), with rates trending upward over the past decade. Within Alaska, the suicide rate among AN people is more than twice that for non-Natives. Suicide is a complex social phenomenon. Two of the articles we reviewed examined interventions that aimed to reduce suicide rates by strengthening connectedness.[15,170]

Work to identify the mechanisms and pathways of protective factors from the perspective of local perceptions of and approaches to mental health and well-being may contribute to community and individual well-being. For example, from an Inuit holistic perspective, health and well-being depend just as much on the physical, spiritual, and social environment as on individual circumstances. Healthy communities and families foster and support youth who are resilient to mental health challenges and able to adapt and cope with multiple stressors, be they social, economic, or environmental.

Exhibit 5.9: Reports/Studies Related to Connectedness

Date	Title	Author(s)
2013	Risk Factors for Suicide at the Community Level - Alaska, 2003-2011, Alaska Epidemiology Bulletin-Recommendations and Reports. Vol 16, No. 1, 6p	AKDHSS
2013	A review of protective factors and causal mechanisms that enhance the mental health of Indigenous Circumpolar youth	MacDonald et al.
2014	Feasibility of a Community Intervention for the Prevention of Suicide and Alcohol abuse with Yup'ik Alaska Native Youth: The Elluam Tungiinun and Yupiucimta Asvairtuumallerkaa Studies	Mohatt et al.
2019	Alaska Violent Death Reporting System Suicide Death Update - Alaska, 2012-2017, Alaska Epidemiology Bulletin No. 1, 1p.	AKDHSS

Findings. Multiple mental health indicators for Alaskans highlight health disparities related to connectedness, compared with the United States overall.[162] While the mean number of poor mental health days in the last month reported by adults are similar for Alaskans and for adults nationally, Alaskans are more likely to report serious thoughts of suicide (5.2 percent, compared with 4 percent nationally), a consistent trend over the past decade. Over one-third of Alaskan teens report depression (36.1 percent, compared with 29.9 percent nationally), with the percentage for Alaskan teens trending upward over the past decade.[162]

AN are 1.5 times more likely than non-Native Alaska residents to present with serious psychological distress, with a high prevalence of depression, substance abuse, anxiety, and posttraumatic stress disorder (PTSD).[171] IHS documented that a third of all patients were treated for mental health issues or substance abuse disorders in 2006. Social inequities such as poverty, lack of education, distance of facilities from remote communities, and challenges of cross-cultural communication create barriers to accessing health services. Interviews with rural residents and health care providers suggest that the challenge of service provision in a state as large as Alaska may motivate patients to put off treatment until their condition has worsened significantly.

Between 2012 and 2017, there were 1,103 suicides, comprising 69 percent of the violent deaths in Alaska.[172] Alaska's suicide rate was either the first or second highest in the nation for each of those years. During that period, suicide was the leading cause of death among Alaskans aged 10–64 years and the sixth leading cause of death overall in the state. Although suicide rates remained highest in rural areas, rates increased in urban areas during this period. Suicides tend to cluster in time and space, particularly

among teenagers. Almost all decedents (97 percent) had known precipitating circumstances: over one-third (37 percent) had a documented current mental health problem, one-quarter (25 percent) had a documented substance abuse problem, and almost two-thirds (60 percent) were being treated for mental illness[16] Other precipitating factors included physical health (21 percent), criminal/legal problems (13 percent), and jobs (12 percent). Indigenous youth in the Circumpolar North experience significant health disparities and poorer mental health than non-Indigenous youth.[15] The suicide rates AN males ages 15-24 is 14 times the national rate; in northwest Alaska, suicide is the leading cause of death for 15-18 year-old Inupiat youth.[15]

Protective factors are key to youth resilience.[15] Protective factors exist on the community, family and individual levels and are similar for both indigenous and non-indigenous youth. Protective factors can exert a positive influence on mental health in multiple ways: helping to develop a more supportive social environment; enhancing self-esteem and self-confidence and foster self-reliance; and enabling individuals to participate in their land-based culture.

A meta-analysis of studies about youth suicide among the Sami ethnic minority group in Norway illustrates the potential impact of such protective factors.[15] In the 1980s, suicide rates for Sami youth were higher than that for the non-Sami population. Since that time, efforts intended to revitalize Sami politics, culture, and language included the development of many Sami institutions (e.g., schools, hospitals, and legislature), self-governance, improved living conditions and socio-economic status, and a range of positive social and cultural improvements in Sami communities. The article finds that greater engagement by Sami youth is associated with improved health outcomes and a lessening of health disparities.[15]

Recommendations. Health reform should consider local perceptions of and approaches to mental health and wellbeing, and in doing so, address the mechanisms and pathways for suicide prevention. A multi-level modeling approach that accounts for individual, familial, and community factors may improve understanding of suicide risk factors in Alaska. Research on factors promoting wellbeing and resilience among Indigenous youth has begun to identify possible protective factors for Indigenous mental health. In AN communities, health resilience will differ within and among communities. It will be crucial to take into account the diverse cultural, geographic, political, economic, and social settings, contexts and histories when considering resilience in an Indigenous context.

Following Norway's example with the Sami ethnic minority group, providing youth more opportunity to learn about and participate in their culture is likely to result in greater connectedness within the community and improved mental health outcomes. In addition, reform should consider the role of social media in how youth communicate and interact, to explore possible opportunities and environments where youth can successfully navigate challenges and enhance their resilience.[15]

These recommendations align with two of the 25 leading health indicators in Healthy Alaskans 2020, related to reducing suicide deaths and providing social support for youth.

Community and Region as Social Determinants of Health

Access to Clean Water (Water Security)

Water security within a population refers to the capacity to ensure sustainable access to acceptable quality and quantity of water and food that supports health and well-being. Water should be clean for drinking and sanitation purposes. This security ensures protection against water-borne disease, as well as the preservation of ecosystems to provide food and water resources for socio-economic development.[173] Alaska also has a higher level of homes, including entire communities, without access to in-home piped water. Exhibit 5.10 lists studied reviewed in this section.

Exhibit 5.10: Reports/Studies Related to Access to Clean Water

Date	Title	Author(s)
2016	Improving health in the Arctic region through safe and affordable access to household running water and sewer services: an Arctic Council initiative. International Journal of Circumpolar Health, 75, 31149.	Hennessy TW and Bressler JM
2016	Alaska Native consumers of modern sanitation services provide insights to inform infrastructure designs and health promotion planning	Ritter T. et al.
2016	Extreme water conservation in Alaska: limitations in access to water and consequences to health	Thomas TK et al.

Findings. Significant health disparities remain between Arctic people who have differing access to water and sanitation services. Public health professionals have historically focused on the prevention of diarrheal illnesses, but the diarrheal hospitalization rate in remote Alaska communities is similar to that of the general U.S. population. Yet, the infectious disease rates related to lack of sufficient clean water for washing, for example, respiratory and skin infections in Alaska, are some of the highest in the nation. This difference is likely explained by the fact that water is safe to drink, but water rationing still occurs in remote communities due to poor in-home water service. Limited in-home water availability in some Alaskan communities places them at-risk for adverse health outcomes. After the installation of running water in Alaskan households, the numbers of clinic visit from diarrhea, respiratory disease, and skin infections have been shown to decrease.

A complicating factor in water security is the rapid pace of climate-related change. With a changing climate, food growers and harvesters must adapt production and storage techniques, and water sources may be threatened by melting permafrost, saltwater intrusion, and increased organic and sediment loads due to erosion.

Recommendations. Examine drinking water quality policies for deterrents to implementation of water and sanitation upgrades in rural communities with limited resources. Prioritize innovations that make water supply convenient and plentiful for personal hygiene and household uses within communities that cannot support modern infrastructure. Develop sustainable funding to maintain community water and sanitation systems.

Provide education on effective hand washing and hand sanitation for reduction of water-washed infectious diseases in communities with limited access to clean water. Continue to promote collaboration

and innovation within communities and across the state to address the needs of Alaskans who lack adequate access to clean water.

These recommendations align with a leading health indicator in Healthy Alaskans 2020, related to increasing the percentage of rural community housing units with water and sewer service.[29]

Incarceration

One report was selected for review in this section, regarding health disparities experienced by those involved with the justice system. While not focused on Alaska specifically, the report considers the experience of AI/AN as one of many minority groups in the United States that have experienced higher incarceration rates than whites. Coverage opportunities made available by the ACA and implementation of integrated health care models may reduce health disparities experienced by the re-entry population who often do not have health coverage or may have lost it due to incarceration. Discharge planning can help to link reentrants to available health care coverage opportunities by the use of integrated healthcare models. These models have the potential to reduce disparities and improve outcomes such as reliance on emergency room care, number of hospital admissions, and cost, with improved patient health and better healthcare access.

Exhibit 5.11: Report/Study Related to Incarceration as a SDOH

Date	Title	Author(s)
2014	Reducing Ex-offender Health Disparities through the Affordable Care Act: Fostering Improved Health Care Access and Linkages to Integrated Care. AIMS Public Health Volume 1, Issue 2, 76-83.	Ejike-King and Dorsey R

Findings. Mental illness and substance use disorder issues often exist as comorbidities among justice-involved individuals. Medicaid enrollment assistance is common practice in discharge planning for those with severe mental illness. Discharge planning is a good time to assist justice-involved individuals with attaining new health care opportunities provided by the ACA.[20]

Recommendations. Assistance with Health Insurance Marketplace applications prior to release for all inmates during discharge planning will better prepare this population for re-entry to society. This will promote continuity of healthcare by linking them to sources in the community which will lead to positive health outcomes as they re-integrate into society.[20]

Neighborhood and Built Environment (Housing)

One study related to homelessness as a SDOH was selected for review in this section; see Exhibit 5.12. Housing affects both physical and mental health. Safe housing is protective against crime, injury, cold, respiratory symptoms and general poor health outcomes. Having a safe, secure place to live also improves an individual ability to work and care for family members. Poor living conditions are associated with chronic illness, such as asthma and injury. Neighborhood further affects individual safety and mental health.[174] The Housing First evaluation, conducted by the Institute for Circumpolar Health Studies at the

University of Alaska Anchorage, evaluated changes in quality of life and cost and usage for emergency services and health care for chronically homeless alcoholics who moved into one of the first two Housing First facilities in Alaska. Use of EDs and other emergency services decreased after tenants moved into Housing First facilities. Individuals selected to enter the newly opened Anchorage and Fairbanks Housing First facilities when they first opened had spent many years living on the streets and were unable or unwilling to stop drinking alcohol. Many had experienced childhood and/or adult trauma. They were likely to be in need of physical and mental/behavioral health care services which they may not have been able to access until moving into permanent housing.[17]

Exhibit 5.12: Study Related to Neighborhood and Built Environment

Date	Title	Author(s)
2018	Changes in the health status of newly housed chronically homeless: the Alaska Housing First program evaluation, Journal of Social Distress and the Homeless, Vol 27 no.1	Driscoll D

Findings. Use of EDs and other emergency services, decreased after tenants moved into Housing First facilities. Total health care costs also decreased during the first year after they moved in but increased in the second year. This pattern was driven mostly by costs for inpatient care. Average healthcare costs in a given year tended to be driven by a small number of tenants with very high costs, although the specific individuals incurring extremely high costs varied from year to year. Medication adherence and self-reported use of outpatient medical service increased after moving into Housing First. Alcohol consumption continued but at a reduced level after they moved into the Housing first facilities. Tracking use and costs for health care, particularly behavioral health care, was more difficult than expected. Clearly this population has ongoing physical and behavioral health care needs but disjointed systems of care and payment make it difficult to track needs, services provided, and costs.[17]

Recommendations. Housing First tenants, as a group, incurred high costs for health care both before and after moving into the facilities. Education about how to navigate the healthcare system, and more importantly, staff assistance in deciding when and how to access health care could help tenants improve their health and reduce their health care costs. Generalizability from this study may be limited, as the residents served by the Housing First program lived with multiple co-morbidities related to alcohol abuse, trauma, and multiple chronic conditions, and had experienced homelessness for relatively long periods of time.[17]

Discussion and Recommendations

In order to effectively transform the Alaska health care system, SDOH must be taken into consideration across the board to ensure that the needs of the population are being met. Based on the reports reviewed above, we have the following specific recommendations:

- Changes in demographics and population distribution must be anticipated to ensure that the evolving healthcare system will meet the needs of Alaskans moving forward.
- Addiction to alcohol and other substances is a driving force for negative health outcomes and increased healthcare costs. Health and social service organizations across the state need to include aggressive primary, secondary, and tertiary prevention strategies as well as access and funding for

treatment. Many substance users have co-occurring mental health issues that need to be identified and addressed.

- Historical experience and cultural considerations for AN communities as well as other minority populations must be taken into consideration when planning for healthcare transformation. Diverse needs and health disparities is a recurring theme across the reports reviewed.
- The health care system must consider marginalized groups. These include the homeless, substance users with and without co-occurring mental illness, individuals who have been incarcerated, and individuals who have experienced various types of trauma, such as ACEs and sexual assault and domestic violence as adults. To promote healthy habits and positive health outcomes the time needed to develop trusting relationships within the health provider community must be factored into organizational change.
- Alaska has an unacceptably high rate of suicide. While continuing to support suicide prevention services and bystander training, additional efforts are needed to understand and address the underlying causes.
- A focus on the continuity of healthcare during major transition in patients' lives, such as the age of majority, childbirth, transitions in housing or the release from incarceration, may aid in understanding how healthcare needs and costs change over the life course.

Limitations. Findings are based on a narrow sample of publications from among the nearly 300 studies and reports identified in our initial, systematic literature review. Therefore, they are unlikely to offer representative findings about SDOH and health reform.

Chapter Summary

Healthy Alaskans 2020 lays out goals for the health and wellbeing of residents that are integrally related to the non-medical social determinants of health. The history, geography, and culture of the state are embedded in these SDOH, yet they are not mentioned directly either in the AKHCC's roadmap of recommendations and core strategies (2014) or in the PMC's articulation of its goals in terms of health care's triple aim to improve access to care and health care quality (as experienced by patients and providers) while reducing the cost of care. The sampling of reports reviewed comprise a needs assessment that draw connections, particularly between individual behavior and health (e.g., addiction), between at-risk social relationships (e.g., suicide, trauma) and health, and between community assets (clean water, housing) and health. In addition, our review highlights individual models that show promise, such as primary care/care coordination models that link at-risk residents to behavioral health services or permanent supportive housing. There is little evidence of cost savings and some indication that addressing SDOH may not lead to significant reductions in health care spending; assessment of measures related to quality or health equity might prove more meaningful as a gauge of the value of health reform.

Chapter 6: Health Reform in Alaska, 2008 to 2018: Synthesis of Meta-Analysis Findings

A matrix to synthesize thematic findings, supported by analyses of related reports and studies, is presented in Exhibit ES.1 below. Findings and related recommendations are presented separately for the topic areas of data analytics and payment reform, as the literature reviewed for these two topics typically concerned trends at the state level, with analysis more in the form of a narrative synthesis.

Exhibit 6.1: Matrix of Commonalities, By Topic

Domain	Sub-Domain	Key Findings
Primary Care & Coordinated Care	**Overall Findings**	▪ Alaska is doing better than many states in keeping health equity-related programs funded, but the competition for resources is still very high and noted that a reduction in health disparities isn't every stakeholder's priority[1]
	Region	Rural - General ▪ Alaska's circumpolar geography leads to higher costs and more challenging access[2] ▪ Community Health Aids and Practitioners serve rural Alaskans that would otherwise go without medical care, serving as a model for other rural AK regions[3] Gulf Coast ▪ Cost, lack of specialists, transportation, time, and mistrust/dislike of providers are barriers that had kept residents from accessing local healthcare in the previous year[4] ▪ Patient-centered medical homes have improved (a) diabetes care in self-management, outcomes, and utilization for patient and (b) reversed the trend in ED utilization to be decreasing after implementation compared to before[49] ▪ Electronic clinical reminders increased preventive screening rates over a four year period, to above the national average screening rates for Indian Health Service members[64] Southeast ▪ Recruit work-staff that reflects ethnic, racial, and a culturally diverse patient population ▪ Develop a community health work initiative that employs individuals to serve as liaison with community ▪ Increase primary care access by leveraging mid-level providers Southwest ▪ In Southwest, IHS was able to improve service delivery because it was limited delivery of care to IHS facilities, while other goals that required cooperation with outside UWC were not met (ex: diagnostic screenings, HbA1c control)
	Population	
	Individuals with Disabilities	▪ Providers spend significantly more time with patients with disabilities than patients without disabilities[5] ▪ Structural, financial, and personal barriers make accessing healthcare difficult, leading to lower rates of utilization among people with disabilities[5] ▪ More training is needed for health care providers (physicians and support staff) on caring for people with disabilities; surveys show providers are interested in more training, individuals with support staff with less caseload diversity access more services than those cared for by support staff with more caseload diversity[5] ▪ Alaska ought to develop additional levels of care along the continuum of long-term services and supports; and, incentivize movement towards the lower end through increased coordination at both the individual and systems level[5]

Domain	Sub-Domain	Key Findings
	American Indian / Alaska Natives (AIAN)	▪ There exist large disparities in health outcomes between native and non-native Alaskans ▪ Roughly 26% of AIAN children in Alaska received care within a patient-centered medical home compared to 57% of non-Hispanic white children in Alaska (analytically-adjusted results)[48] ▪ Health IT, telehealth, and related innovations are important aspects to address persistent disparities in AIAN residents, including the IHS's electronic health record system and AFHCAN telehealth solution.[61] ▪ The Nuka System of Care – Alaska Native-owned system of care – has shown to provide a dramatically different care experience than what was encountered under the government-run program in the same region. The result was better relationships between patient and providers, healthier patients, and a 'healthier' organization[50]
	Older Alaskans	▪ A survey of older adults reports that Alaskans are 59% less likely to have a routine check-up in the past year and 12% less likely to report excellent health status than comparable older adults in the contiguous U.S.[6] ▪ KANA identified the need to expand personal care assistance options, Medicaid eligibility counseling, case management & coordination, elder abuse training and intervention protocols, hospice & palliative care services, and more "lower" levels of care management facilities in order to better support older adults in the Gulf Coast region[39]
	Service Type	
	Preventive Care	▪ Pilot programs increased colorectal screening rates in rural Alaska areas from 29% in 2000 to 55% completed in 2010 by teaching mid-level providers to (a) conduct flexible sigmoidoscopy and (b) provide endoscopies at rural tribal health facilities, while (c) creating of CRC first-degree relative database and (d) support/implemented screening navigator services[8]
	Emergency Care	▪ The reduction in ED utilization experienced by AMCCI participants saved the Alaska Medicaid program over 8.5 million dollars in 2017. Overall medical services utilization for these participants decreased by 9 percent.[9]
	Behavioral Health	▪ There is a statewide 22% vacancy for psychiatrists, a 17% vacancy rate for behavioral health aides, a 13% vacancy rate for Clinical Psychologists in rural Alaska (as compared to only a 6% such rate in urban areas), and a 15% vacancy rate for Clinical Social Workers in rural areas (but only an 8% vacancy rate in urban Alaska).[10] ▪ The State ought to clarify if Pioneer Homes can admit older adults with serious mental health conditions[59] ▪ Develop a center of excellence with trained professionals for mental health care, to support care in other areas of Alaska[59]

Domain	Sub-Domain	Key Findings
	Telehealth	Beliefs[62] ▪ Referring providers in Alaska believe that the use of telemedicine improves both clinical outcomes and patient satisfaction ▪ Clinician involvement in selecting medical devices, creating protocols, and improving and modifying software are key to the success of a telemedicine program Implementation: ▪ Rural organizations can use telehealth services to connect providers to consultative services, treat difficult cases, reduce professional burnout, and enhance services, all while keeping their patients closer to home with careful planning, collaboration, and acceptance of telehealth limitations[11] ▪ Consultants using telemedicine should always have the options of recommending a traditional face-to-face encounter when appropriate care cannot be delivered solely through the telemedicine encounter[62] ▪ A telemedicine system must have robust processes for initial and ongoing training, technical and clinical support, and technology assessment[62] ▪ Case Studies on Telehealth use in Alaska found that leveraging existing infrastructure and workforce developments contributed to the Tribal Health System and Community Health Aid Program's success with telehealth services[63] Condition-Specific: ▪ Store-and-forward telemedicine is well suited to the specialty of otolaryngology[62] ▪ The combination of high-quality images of the tympanic membrane and tympanometry data allows a diagnosis to be established in most telemedicine cases involving ear disease[62] ▪ For facial trauma and facial plastics, the review of images before seeing the patient has proved invaluable for consulting ear, nose, and throat (ENT) surgeons.[62] ▪ Implementation of a telemedicine program for 60 breast-cancer consultations with breast cancer patients at the Alaska Native Medical Center was found to have high patient satisfaction with the experience/technology/medical consultation and satisfaction with the referring physician[44]
	Trauma	▪ Rural trauma in Alaska during the winter months requires a coordinated highly skilled approach for rescue, recovery, resuscitation, and transport to tertiary care centers. Injuries vary by sport and trauma[12] ▪ Early assessment and resuscitation of trauma cases rely on minimizing delays to receiving care[12] ▪ Prehospital care can be initiated by first responder and rescue teams, with advanced medical care by critical care transport teams, in order to improve potential outcomes[12]
	Operational	▪ Federally Qualified Health Centers (FQHCs) should expand clinic hours and work closer with mental health service providers to provide better care[37] ▪ FQHCs currently use QAPI program to assess patient experience, which can be enhanced by adding a qualitative collection to the program; QAPI should also include a part to measure 'connectedness' of patients[37] ▪ Hospitals should expand social media presence to enhance marketing[37] ▪ ▪ As demonstrated in Bristol Bay, the "Circuit Rider" service delivery model improves access for their rural consumers, dispatching a professional familiar with the region on periodic rounds to provide residents with advocacy and case management services as well as training and technical assistance[45]
	Payer – Medicaid	

Domain	Sub-Domain	Key Findings
	Medicaid	A number of reports documented suggested changes to the Medicaid program in order to better support Alaskans, including areas of: Fraud and Abuse[7] ▪ Enroll all rendering provider types and engage recipients in helping to identify fraud by providing them with Explanation of Benefits statements ▪ Streamline audit and investigation processes for providers by focusing resources on provider types that pose the greatest risk of over payment, reducing audit cycle time and improving communication on audit status, and seeking a waiver of certain federal audit requirements ▪ Continue strengthening of coordination and collaboration with the Department of Law's Medicaid Fraud Control Unit ▪ strengthen state seizure laws and consider bonding requirements for high-risk providers Prescription Drug Oversight[7] ▪ Create a robust prescription drug control program, including financial support for and upgrade of the Prescription Drug Database to real-time functionality and remove statutory barriers to state agency access to the database to facilitate fraud identification and drug abuse prevention Program Management/Support: ▪ Improve medical management to reduce waste by expanding prior authorization requirements and making the process more efficient for providers, streamlining Service Utilization Review, implementing care coordination for over-utilizers of emergency room services, tightening review of travel for compliance with program requirements, investigating cash transactions for controlled substance prescriptions, and implementing electronic verification of certain services.[7] ▪ Restructure the process for matching people with funding sources and setting budgets for waiver and Personal Care Attendant (PCA) services ▪ Shift consumer directed funds to a Medicaid authority that provides the State with greater control while providing consumers with greater flexibility ▪ Support populations not meeting the Nursing Facility Level of Care (NFLOC) eligibility criteria[53] ▪ Draw more Medicaid Federal Financial Participation for the Chronic and Acute Medical Assistance Program and Pioneer Homes[53] ▪ Improve Quality Management Process[53] ▪ Restructure Care Coordination[53] ▪ Expand Information Technology (IT) efforts[53]

Domain	Sub-Domain	Key Findings
Social Determinants of Health	*Addiction, Drug Use, and Smoking Cessation Efforts*	▪ The rate of methamphetamine related mortality increased 4-fold during 2008–2016. Methamphetamine is commonly used in combination with other drugs (such as alcohol, benzodiazepines, cocaine, heroin, and other opioids). It's important to strengthen partnerships between all agencies and organizations in Alaska that work to address substance misuse and abuse.[13] ▪ Optimistically, the percentage of traditional high school students who report using heroin at least once dropped in 2011 and 2013 and has not increased since then. The rate of Medicare Part D patients who received opioid prescriptions has also decreased annually since 2015, suggesting that more judicious prescribing may be occurring in Alaska. Furthermore, naloxone use is increasing; this is likely due in part to the increased statewide availability of this life saving overdose reversal medication. ▪ Even so, there are identified measures to reduce heroin-related morbidity and mortality include the following: ▪ Broaden access to naloxone for acute heroin overdose reversal ▪ Reduce inappropriate prescribing of opioids by health care providers and enable early identifications of opioid abuse through Alaska's Prescription Drug Monitoring Program ▪ Treat heroin addiction with a combined behavioral and pharmacological approach ▪ Evaluate Alaska's existing heroin treatment resources to better understand the degree and distribution of coverage gaps statewide, and work to address the identified gaps ▪ Endorse SAMHSA's evidence-based "Screening, Brief Intervention, and Referral to Treatment" model to assist health care providers with assessing patients for risky substance use behaviors, engaging in communication, and treating ▪ Assure that students get effective drug prevention education.[14]
	Behavioral and Mental Health Care/ Suicide Prevention	▪ Creating opportunities and environments, such as on social media, where youth can successfully navigate challenges and enhance their resilience can in turn contribute to fostering healthy circumpolar communities. Youth perspectives of mental health programs are crucial to developing appropriate mental health support and meaningful engagement of youth can inform locally appropriate and culturally relevant mental health resources, programs and community resilience strategies.[15] ▪ The suicide rate statewide among Alaska Native people was found to be more than two times the rate for Alaska non-Natives, but for all Alaskans it was worse in 2016 and then 2015 (two sources here). Additional risk factors identified in studies include living in a rural non-hub community located off of the road systems and increased geographic latitude.[16] ▪ While the incidence of suicide reflects personal, situational and historical circumstances, the associations between suicide rates, Alaska Native heritage, community type and latitude should be considered along with other known risk factors, such as access to behavioral health care, presence of law enforcement, access to lethal means and presence of community members with suicide prevention training.[16]

Domain	Sub-Domain	Key Findings
	Food Insecurity, Homelessness, and other Community-based efforts	▪ The rate of chronic homelessness improved for Alaskans in 2016 compared to 2015[162] ▪ In Anchorage and Fairbanks, Housing First participants demonstrated significant reductions in alcohol dependence, improvements in physical and mental health, and social connectedness Overall, emergency service use decreased from the year before participants entered the housing first model to the year after.[17] ▪ Community Health Aids/Practitioners CHA/P) are highly motivated employees and support families and healthy child development throughout their work. The CHA/P program is a comprehensive approach for rural families to receive care in their home communities.[3] ▪ "Faster" and "bigger" programs are not better when improving food security issues in Alaska. Rather, small-scale incentives tailored to unique local characteristics are shown to be more capable of responding to changing conditions and consumer needs in a resilient and self-sustaining local food system.[18]
	Teen Pregnancy	▪ Statewide, Alaska trend of teen birth rate is declining but there is regional variability. Research suggests integrating SDOH education into teen pregnancy prevention programs, in addition to more communication between caregivers, health care providers, and teens, to decrease teen pregnancy state-wide.[19]
	Social/Criminal Justice Efforts	▪ Discharge planning has been shown as an effective time to assist justice-involved individuals with attaining new health care opportunities provided by the ACA. Doing so can promote continuity of health care by providing/ linking these individuals to sources needed to bolster positive health outcomes as they reintegrate into society.[20]

Data Analytics

CMS provides a rich set of data for Medicare enrollees. Many research questions about Medicare can be answer with the public use files. And access to LDS and RIF allows a still broader range of questions to be addressed. The CMS National Health Expenditure Accounts provide state-level data, and those data have been the authoritative source for the conclusion that Alaska's health care costs are higher than the rest of the nation and are growing more rapidly.[21] The CMS state-level data on Medicare is readily available and is capable of supporting research on a wide range of state-level questions for Medicare. But the inherent limitations of CMS Medicare files are obvious: They only cover Medicare enrollees, who are primarily individuals who are over 65. Moreover, Medicare rates are set by the government, so Medicare payments do not reveal anything about rates faced by non-Medicare patients.

The three commercially-available insurance claims datasets can provide data to analyze a range of important questions about Alaska's health care costs and the drivers of those costs. The four Milliman reports for AKHCC, the later Milliman report for Premera, and Oliver Wyman analysis for the Division of Insurance illustrate the kind of analysis that can be achieved with MarketScan data, perhaps in combination with Medicare data. These analyses supported the widely held view that provider compensation levels, especially for physicians, are the most obvious cause of Alaska's high health care costs.

There remain questions about the coverage in each of the datasets. Because different insurers and employers contribute to different systems, the three datasets may achieve rather different levels of

coverage of the commercial insurance claims in Alaska. The differences in the level of coverage that each achieves might influence research results. This is an answerable question, because samples for comparable periods could be acquired from each company. A second question is whether there are advantages among the three datasets for different kinds of research. Where MarketScan was built to serve commercial clients, the FAIR Health and HCCI systems seem to have more focus on access for researchers and government agency analysts. As researchers, we are impressed by several research-friendly aspects of the HCCI website, including an online data dictionary.[83] An obvious issue for research users of these databases is the cost for access. This is perhaps becoming less of an issue than in the past. Both FAIR Health and HCCI now have ten years of data, so effective competition among the three data companies may be emerging. HCCI posts its academic pricing on line. Its academic fee structure, (*e.g.*, $35,000 per year charge for full access for one user and $10,000 for an "additional seat") would not seem prohibitive for funded research.

The FAIR Health and HCCI datasets, which now have about 10 years of data, present an alternative to the MarketScan data. A question for all three of these national commercial datasets is the level of coverage for Alaska, because different insurers now provide their data to different datasets. But, in general, these national commercial insurance databases appear to offer wide opportunity to investigate commercial health cost data at the state level. The three-digit postal code identification used by MarketScan and FAIR Health may severely limit the usefulness of these datasets for regional analysis in Alaska. HCCI may have similar questions because five-digit postal code data is only available for postal codes with 1350 individuals. It will be necessary to explore with each company whether opportunities exist to map any underlying five-digit postal code data to relevant regions for Alaska.

In a keynote presentation at the Alaska State of Reform Health Policy Conference, held in Anchorage in October 2018, FAIR Health President Robin Gelburd argued that detailed examination of 2017 FAIR Health data suggested several areas of dramatically different usage patterns in Alaska as compared to other states. For older patients, especially, there seems to be a much higher reliance on the emergency room for delivery of care. The over-50 demographic also has a disproportionately high fraction of claims related to opioid abuse and dependence in Alaska. Based in large part on the Milliman analyses, the prevailing narrative has been that high levels of compensation for providers, and for physician services in particular, have been the primary cause of Alaska's higher health care costs. The FAIR Health presentation raises the legitimate point that there has not been a careful analysis of the differences in health care use in Alaska and the impact of those differences on costs.

This chapter did not identify any broad studies that attempted to measure quality of care or patient satisfaction in Alaska. (Some case studies covered elsewhere in this research did include study-specific measures of quality of care and/or patient satisfaction.) We did note that two prominent national surveys that include information related to quality of care and patient satisfactory, MCBS and MEPS, respectively, do no sample in Alaska and have a sample that is too small for inferences in Alaska. The availability of state-wide data that can be used to infer quality of care and patient satisfaction warrants additional investigation.

Health benefit data for state and local employee and retirees seem to present a large convenience sample already under public control that could be used to address a variety of research questions on health care costs in Alaska. The two recent Milliman *Annual Medicaid Data Books* for 2015-16 and 2016-17

demonstrate that an exceptionally high level of detail can be achieved with state Medicaid data. The question of whether Alaska should build an all-payer claims database is a central issue for Alaska's capacity to analyze health care costs in the future.

Payment Reform

Alaska has continued to find ways to shift health costs onto the federal government. Alaska's 1332 waiver was an innovative "win-win" approach that stabilized the ACA market at no net cost to the federal government. Some strategies, such as creation of CCAs by tribal health organizations, replace state funds with federal funds. The largest shift, under Medicaid expansion, reduced the pressures of uncompensated care on providers and indirectly on the entire health care system, but also resulted in some increase in state expenditures. Of course, Alaska is not alone in trying to shift costs onto the federal government. The long-run question is whether the federal government, facing its own structural deficits, will eventually take steps to shift costs back onto states.

The most significant initiatives in payment reform during 2008-2018 were the Medicaid reforms under SB 74. AKDHSS reported significant savings due to administrative changes in the first two years, but those savings were not enough to reduce the overall growth in Medicaid costs that resulted from increased enrollment. Time will be required to assess the long-term effects of those administrative changes. SB 74 includes several pilot and demonstration projects that may help both the public and private sector better assess the applicability of new delivery models in Alaska. Pilot projects are just being initiated for a managed care model in Anchorage and the Mat-Su region, and a PCMH model in Anchorage. Likewise, implementation of the 1115 waiver may yield some evidence on the opportunity to achieve economies by contracting with administrative service organizations.

Two of the options for VBP, ACOs and PCMHs, include features similar to those in earlier cost-containment models such as HMOs and gatekeeper models. Alaska has little or no experience with these earlier models, in part because of its strong Choice of Health Care Provider statutes. A lurking question is whether the existing Choice of Health Care Provider statutes will make emergence of some value-based care models more difficult.

Alaska's inherently small markets for many services constrain some options for greater competition, such as greater use of joint purchasing strategies. Two large insurers cover a very large share of commercial insurance. In rural Alaska and for some specialties anywhere in Alaska, there is no opportunity for competition. Current arguments over the 80th percentile rule involve a similar market question of whether Alaska wants to modify its rules to give insurers more leverage in negotiations with providers. Medical tourism has become more common, but this approach to competition seems inconsistent with the broader objectives of expanding the economy by providing more consumer services in-state.

Alaska has perhaps been willing to pay more for health care in order to attract more providers to Alaska. Some defenses of the current 80th percentile rule have made this argument. In the case of pharmacies, the recent PBM bill could be seen as protecting small independent pharmacies, even if that results in some increases in pharmacy prices

The underlying question for payment reform is state-wide: will Alaska remain under fee-for-service payment structures for Medicaid and private commercial insurance, or will it move sharply towards some alternative VBP model or models? But it is entirely conceivable that Medicaid and commercial insurance might adopt different VBP models in urban versus rural areas. An ACO may require large enrollment that can only be achieved in Anchorage, for example. The configuration of a PCMH might be very different in small rural villages as compared to the urban areas. And, there are almost certainly questions of how VBP would work for tribal health organizations that have compacts with and revenues from the IHS.

Chapter summary

The meta-analysis findings presented in the preceding chapters detail a myriad of reform initiatives, most of which are known at best descriptively. Our review highlights the need to support evaluations that can give more definitive answers to questions about whether these initiatives represent meaningful steps toward improved access to care, better quality of care, or viable prospects to reduce health care costs in Alaska. While the meta-analysis is selective rather than comprehensive in terms of the number of publications included, it describes the scope and quality of evidence about reform in the state and casts a net broadly to identify reforms across regions, populations, payers, and types of health services delivered as well as outcomes. Together with the historical scan report that accompanies this report, the findings presented here will serve as building blocks for the NORC team's subsequent analyses of promising reforms from selected states (national scan) and guidance to the PMC on a roadmap for state health reform.

Appendix A: Glossary of Acronyms and Terms

Exhibit A1: Glossary of Acronyms and Terms

Term	Definition
AAPM	Advanced Alternative Payment Model
ACA	Patient Protection and Affordable Care Act
ACF	Administration for Children and Families
ACO	Accountable Care Organization
AFHCAN	Alaska Federal Health Care Access Network
AHRQ	Agency for Healthcare Research and Quality
AI/AN	American Indian/ Alaska Native
AICS	Alaska Island Community Services
AIM	Alaska Innovative Medicine program
AKDHSS	Alaska Department of Health and Social Services
AKDOA	Alaska Department of Administration
AKHCC	Alaska Health Care Commission
AK-IBIS	Alaska Indicator-Based Information System for Public Health
AKPCA	Alaska Primary Care Association
AMCCI	Alaska Medicaid Coordinated Care Initiative
AMHTA	Alaska Mental Health Trust Authority
ANMC	Alaska Native Medical Center
ANTHC	Alaska Native Tribal Health Consortium
AOTF	Alaska Opioid Task Force
API	Alaska Psychiatric Institute
APCD	All-payer claims database
APM	Alternative Payment Model
ARTN	Alaska Rural Telehealth Network
ASO	Administrative Service Organization
BIA	Bureau of Indian Affairs
BPCI	Bundled Payments for Care Improvement
BRFSS	Behavioral Risk Factor Surveillance System
CCA	Care Coordination Arrangements
CCD	Coordinated Care Demonstration
CDC	U.S. Centers for Disease Control and Prevention
CHAP	Community Health Aide Program
CHC	Community health center
CHIP	State Children's Health Insurance Program
CIT	Mat-Su Borough Crisis Intervention Team Coalition
CMMI	Center for Medicare and Medicaid Innovation
CMS	Centers for Medicare and Medicaid Services

Term	Definition
CSV	Comma-separated value, used to organize data in a delimited text file
DOD	U.S. Department of Defense
DRG-PPS	Diagnosis-related group prospective payment systems
ECHO	Extension for Community Healthcare Outcomes
ED	Hospital emergency department
EHR	Electronic health record, electronic medical record
EMS	Emergency medical services
FFS	Fee-for-service
FORHP	Federal Office of Rural Health Policy
FQHC	Federally qualified health center
GAF	Geographic Adjustment Factor
HCA	Health Care Authority
HCCI	Health Care Cost Institute
HCIA	Health care innovation award
HCP-LAN	Health care payment learning and action network
HFDR	Alaska Health Facilities Data Reporting Program
HHS	U.S. Department of Health and Human Services
HIE	Health information exchange
HIT	Health information technology
HMO	Health management organization
HRSA	Health Resources and Services Administration
HUMS	High-Utilizer Mat-Su program
IAP	Medicaid Innovation Accelerator Program
IHS	Indian Health Service
KANA	Kodiak Area Native Association
LDS	Limited Data Sets
MC	Managed care
MCO	Managed care organization
MIDAS	Multi-Dimensional Insurance Data Analytics System
NBER	National Bureau of Economic Research
NCQA	National Committee for Quality Assurance
NGA	National Governor's Association
NHE	National Health Expenditure Accounts
PBM	Pharmacy benefit manager
PCMH	Patient-Centered Medical Home
PERS	Alaska Public Employees' Retirement System
POWHN	Prince of Wales Health Network
PMC	Project Management Committee
PTN	Patient transformation network
PUF	Public Use Files
PW GPCI	Physicians Work Geographic Practice Cost Index
RHC	Rural health center

Term	Definition
RIF	Research Identifiable Files
SB74	Alaska Senate Bill 74 (Medicaid reform)
SDOH	Social Determinants of Health
SEARHC	Southeast Alaska Regional Health Consortium
SIDS	Sudden infant death syndrome
SMHP	State Medicaid HIT Plan
SNF	Skilled nursing facility
STD	Sexually transmitted disease
TB	Tuberculosis
TCPI	Transforming clinical practice initiative
TRS	Alaska Teachers' Retirement System
TRUST	Target Rural Underserved Track Program
USDA	U.S. Department of Agriculture
VA	Veterans Administration
VBP	Value-based purchasing
WICHE	Western Interstate Commission for Higher Education

Appendix B: Initial List of Reports and Studies Submitted to the PMC

Exhibit B.1: Reports/Studies, Primary Care Utilization and Coordinated Care

Organization/Author(s)	Year	Title	Primary Care	Coordinated Care
HCBS Strategies Inc.	2008	Recommendations for the Alaska Long Term Care Plan		■
Alaska Health Care Commission [HCC]	2009	2009 Report: Appendix B, Coordination of Health Care Planning Efforts in Alaska		■
Alaska Department of Health and Social Services [AKDHSS] Division of Senior and Disabilities Services	2009	Alaskan's at-risk of out-of-state placement due to complex behavior management needs		■
Anderson, K	2010	A Review of Healthcare Reform in the United States and Alaska	■	■
Kokesh, J., et al.	2011	The Alaska Experience Using Store-and-Forward Telemedicine for ENT Care in Alaska	■	
Carroll, M., et al.	2011	Innovation in Indian Healthcare: Using Health Information Technology to Achieve Health Equity for American Indian and Alaska Native Populations	■	
Parret, V.C.	2011	Meeting the Needs of Breast Cancer Survivors in Alaska: Survivors' and Healthcare Providers' Perspectives	■	■
Association of State and Territorial Health Officials [ASTHO]	2012	Alaska: Closing the Resource Gap	■	■
Avey, J., Hobbs, R.	2012	Dial In: Fostering the Use of Telebehavioral Health Services in Frontier Alaska	■	
Golnick, C., et al.	2012	Innovative primary care delivery in rural Alaska: a review of patient encounters seen by community health aides	■	
Redwood et al.	2012	The Last Frontier: Innovative Efforts to Reduce Colorectal Cancer Disparities Among the Remote Alaska Native Population	■	■
Barradas et al.	2012	Medical Home Access Among AI and AK Native Children	■	■
Artuso, C.E.	2012	Rural Trauma Challenges in Alaska	■	■
Southcentral Foundation	2012	Southcentral Foundation: 30 Year Report	■	■
Gottlieb, K.	2013	The Nuka System of Care: Improving Health Through Ownership and Relationships.	■	
Driscoll, D., et al.	2013	Process and Outcomes of Patient-Centered Medical Care with Alaska Native People at Southcentral Foundation	■	■

Organization/Author(s)	Year	Title	Primary Care	Coordinated Care
Pruthi, S., et al.	2013	Successful Implementation of a Telemedicine-Based Counseling Program for High-Risk Patients with Breast Cancer	■	■
Johnston, J.	2013	Tribal implementation of a patient-centered medical home model in Alaska accompanied by decreased hospital use	■	■
AKDHSS Department of Public Health [DPH] Section of Women's, Children's, and Family Health	2014	Alaska Maternal and Child Health Data Book 2014: Life Course Edition	■	
AKDHSS Medicaid Reform Advisory Group [MRAG]	2014	Medicaid Innovations Descriptions	■	■
AKDHSS DPH Section of Women's, Children's, and Family Health	2014	Promotion, Prevention, and Preparedness for Alaskans with Disabilities: Alaska's Disability & Health Program		■
Onders, R., et al.	2014	Use of Electronic Clinical Reminders to Increase Preventive Screenings in a Primary Care Setting: Blueprint from a Successful Process in Kodiak, Alaska	■	
AKDHSS	2015	The Healthy Alaska Plan: A Catalyst for Reform	■	■
Smith, J.J., et al.	2015	Medical home implementation and trends in diabetes quality measures for AN/AI primary care patients.	■	■
HCC	2015	Transforming Health Care in Alaska- 2014	■	■
PeaceHealth Ketchikan Medical Center	2016	2016-2019 Community Health Needs Assessment and Implementation Plan	■	■
AKDHSS	2016	Alaska ECCS Impact Project	■	
Harris, R., et al.	2016	Assessing Needs for Cancer Education and Support in American Indian and Alaska Native Communities in the Northwestern United States	■	
Foutz J.D., et al.	2016	Challenges and barriers to health care and overall health in older residents of Alaska: evidence from a national survey	■	
Zatz, L.M.	2016	Describing Barriers to Healthcare Access in the Homer Area, Alaska	■	
Dillard D., et al.	2016	Development of a trauma screening and brief intervention process for Alaska Native people in a primary care setting	■	
Siemans, A.C.	2016	Improving Patient Care Delivery in a Small Alaska Native Care Organization	■	
The Pacific Health Policy Group	2016	Medicaid Coordinated Care Demonstration Project: Summary of Responses for Public Release	■	■
Southcentral Foundation	2016	Southcentral Foundation FY2015 Progress Report	■	■
Davidson, V.N.	2017	AK DHSS Annual Medicaid Reform Report- FY2017	■	■
AKDHSS MRAG	2017	Alaska Medicaid Redesign Quality and Cost Effectiveness Targets Reports	■	■

Organization/Author(s)	Year	Title	Primary Care	Coordinated Care
Cooke, S.	2017	Describing the Patient Care Experience: Quality Improvement in Federally Qualified Health Centers in Alaska	■	
Alaska Department of Administration Health Care Authority [AHCA]	2017	Health Care Authority Feasibility Study, Phase 2 - Analysis of Coordinated Health Plan Administration	■	■
AKDHSS MRAG	2017	Medicaid Redesign Telehealth Stakeholder Workgroup Final Report	■	
ASTHO	2017	Telehealth Resource Guide	■	
Marvin, A. et al.	2018	Implementing trauma-informed care at a non-profit human service agency in Alaska: assessing knowledge, attitudes, and readiness for change.	■	

Exhibit B.2: Reports/Studies, Data Analytics

Organization/Author(s)	Year	Title	Notes
AK Health Care Commission [HCC]	2011	Drivers of Health Care Costs in Alaska and Comparison States	
HCC	2011	Facility Payment Rates in Alaska and Comparison States	
HCC	2011	Physician Payment Rates in Alaska and Comparison States	
HCC	2012	Pharmaceutical Reimbursement in Alaska and Comparison States	
Mat-Su Health Foundation [MSHF]	2013	2013 Mat-Su Community Health Needs Assessment	
HCC	2013	All Payers Claims Database Study	
AKDHSS DPH Section of Women's, Children's, and Family Health	2014	Alaska Maternal and Child Health Data Book 2014: Life Course Edition	
HCC	2014	Alaska Employer Health-Care Benefits: A Survey of Alaska Employers	
HCC	2014	Snapshot of Employer-Sponsored Health Insurance in Alaska	
AKDHSS DPH Section of Health Analytics and Vital Records	2015	Alaska Vital Statistics 2015 Annual Report	
Alaska Mental Health Trust Authority [AMHTA]	2015	Alaska Scorecard 2015 - Key issues impacting Alaska Mental Health Trust Beneficiaries	
MSHF	2016	2016 Community Health Needs Assessment Supplemental Data Resource	
Alaska Div. Insurance	2016	Alaska 1332 Waiver – Economic Analysis	
Milliman, Inc.	2016	Alaska commercial healthcare prices. Summary of provider reimbursement and related measures	

Organization/Author(s)	Year	Title	Notes
Premera Blue Cross Blue Shield of Alaska	2017	Alaska medical costs are more than double the national average	
AMHTA	2017	Alaska Scorecard 2016 - Key issues impacting Alaska Mental Health Trust Beneficiaries	
AKDHSS	2018	Alaska Medicaid Data Book SFY 2016 and SFY 2017	
University of Alaska Anchorage, Institute of Social and Economic Research (ISER)	2018	Trends in Alaska's Health-Care Spending	

Exhibit B.3: Reports/Studies, Payment Reform

Organization/Author	Year	Title	Notes
Alaska Health Care Commission [HCC]	2010	Transforming Health Care in Alaska: 2009 report/2010 - 2014 strategic plan	
HCC	2011	Alaska's Health-Care Bill: $7.5 Billion and Climbing	
HCC	2011	Drivers of Health Care Costs in Alaska and Comparison States	
HCC	2011	Estimated Economic Effects in Alaska of the "Patient Protection and Affordable Care Act", as Amended (PPACA)	
HCC	2011	Facility Payment Rates in Alaska and Comparison States	
HCC	2011	Physician Payment Rates in Alaska and Comparison States	
HCC	2011	Transforming Health Care in Alaska: 2010 report/2010 - 2014 strategic plan	
AKDHSS Division of Health Care Services	2012	Design Options for a Health Insurance Exchange - Actuarial Analysis	
HCC	2012	Pharmaceutical Reimbursement in Alaska and Comparison States	
HCC	2012	Transforming Health Care in Alaska: 2011 report/2010 - 2014 strategic plan	
The Lewin Group	2013	An Analysis of the Impact of Medicaid Expansion in Alaska – Final Report	Medicaid
Alaska Native Tribal Health Corporation [ANTHC]	2013	Fiscal and Economic Impacts of Medicaid Expansion in Alaska: a Preliminary Evaluation	Medicaid
ANTHC	2013	Healthier Alaskans Create a Healthier State Economy	Medicaid
The Urban Institute	2013	Medicaid in Alaska under the ACA	Medicaid
HCC	2013	Transforming Health Care in Alaska: 2012 report/2010 - 2014 strategic plan	
HCC	2014	Alaska Employer Health-Care Benefits: A Survey of Alaska Employers	
AKDHSS Medicaid Reform Advisory Group [MRAG]	2014	Alaska Medicaid Innovations Descriptions	Medicaid
HCC	2014	Health Benefit Recommendations for Alaskan Employers	
MRAG	2014	Medicaid Innovations Summary Draft Report for Governor Parnell	Medicaid
HCC	2014	Snapshot of Employer-Sponsored Health Insurance in Alaska	

Organization/Author	Year	Title	Notes
HCC	2014	Transforming Health Care in Alaska: 2013 report/2010 - 2014 strategic plan	
AKDHSS	2015	AK DHSS Annual Medicaid Reform Report FY2015	Medicaid
HCC	2015	The Healthy Alaska Plan: A Catalyst for Reform	
AMHTA	2015	Medicaid Expansion in Alaska - A review and analysis of prior forecasts	Medicaid
Evergreen Economics	2015	Projected Population, Enrollment, Service Costs and Demographics of Medicaid Expansion Beginning in FY2016	Medicaid
HCC	2015	Transforming Health Care in Alaska: 2014 report/2010 - 2014 strategic plan	
AKDHSS	2016	Alaska 1332 Waiver Application	Medicaid
Milliman, Inc.	2016	Alaska commercial healthcare prices. Summary of provider reimbursement and related measures	
AKDHSS	2016	AK DHSS Annual Medicaid Reform Report FY2016	Medicaid
AKDHSS	2016	Alaska Medicaid Management Information System (AK MMIS) Legislative Report Update - December 2016	Medicaid
Alaska Legislative Budget and Audit Committee	2016	Assessment of Medicaid Reform Options	Medicaid
AKDHSS and Alaska Dept. of Law	2016	Fraud, Abuse, and Waste, Payment and Eligibility Errors FY16 (Medicaid) – Joint Legislative Report	Medicaid
AKDHSS	2016	Medicaid Reform HCBS 1915(i) and 1915(k) Implementation Plan	Medicaid
AKDHSS	2017	Alaska Behavioral Health Reform 1115 Waiver Concept Paper	Medicaid
AKDHSS	2017	AK DHSS Annual Medicaid Reform Report FY2017	Medicaid
AKDHSS	2017	Alaska Medicaid Management Information System (AK MMIS) Legislative Report Update - June 2017	Medicaid
AKDHSS	2017	Alaska Medicaid Management Information System (AK MMIS) Legislative Report Update - December 2017	Medicaid
MRAG	2017	Alaska Medicaid Redesign Quality and Cost Effectiveness Targets Reports	Medicaid
Premera Blue Cross Blue Shield of Alaska	2017	Alaska medical costs are more than double the national average	
AHCA	2017	Estimate of the Potential Value of Consolidating Alaska State, Local, and School District Public Employee Health Plans	
AKDHSS	2017	Feasibility Study for the Privatization of Alaska Juvenile Justice Facilities	Medicaid
AKDHSS	2017	Feasibility Study for the Privatization of the Alaska Psychiatric Institute	Medicaid
AKDHSS and Alaska Dept. of Law	2017	Fraud, Abuse, and Waste, Payment and Eligibility Errors FY17 (Medicaid) – Joint Legislative Report	Medicaid
Alaska Dept. of Administration Health Care Authority [AHCA]	2017	Health Care Authority Feasibility Study, Phase 1 - Consolidated Purchasing Strategies	
AHCA	2017	Health Care Authority Feasibility Study, Phase 2 - Analysis of Coordinated Health Plan Administration	

Organization/Author	Year	Title	Notes
MRAG	2017	Medicaid Redesign Telehealth Stakeholder Workgroup Final Report	Medicaid
AHCA	2017	Medicaid Technical Assistance Health Care Authority Feasibility Study Final Report	Medicaid
AKDHSS	2018	Alaska Environmental Scan (Health Information Technology)	Medicaid
AKDHSS	2018	Alaska Medicaid Management Information System (AK MMIS) Legislative Report Update - June 2018	Medicaid
Alaska Office of Management and Budget	2018	How has the 80th percentile rule affected Alaska's health-care expenditures?	
AKDHSS	2018	Medicaid Section 1115 Behavioral Health Demonstration Application	Medicaid

Exhibit B.4: Reports/Studies, Social Determinants of Health

Organization/Author	Year	Title	Notes
Addiction			
Mohatt, G.V.	2008	Risk, Resilience, and Natural Recovery: A Model of Recovery from Alcohol Abuse for Alaska Natives	
Rasmus, S.M., et al.	2014	Creating Qungasvik (a Yup'ik intervention "toolbox"): case examples from a community-developed and culturally-driven intervention.	
Mohatt, G.V., et al.	2014	Feasibility of a Community Intervention for the Prevention of Suicide and Alcohol Abuse with Yup'ik Alaska Native Youth: The Elluam Tungiinun and Yupiucimta Asvairtuumallerkaa Studies	
Mat-Su Health Foundation [MSHF]	2014	Mat-Su Behavioral Health Environmental Scan, Report 1 - The Crisis Response System	
MSHF	2015	Mat-Su Behavioral Health Environmental Scan, Report 2 - The System of Care	
Driscoll, D., et al.	2016	Changes in health effects of substance use in a population of chronically homeless people after moving into a Housing First facility in Alaska	
Tibbett, T., Jeffery, M.I.	2016	Smart Justice and FASD in Alaska: From Prevention to Sentence Mitigation	
MSHF	2017	Mat-Su Behavioral Health Environmental Scan, Report 3 - Keeping our Children Well-Cared-For and Safe in Mat-Su	
AKDHHS	2017	Syringe Service Programs in Alaska	
Allen, J., et al.	2018	Multi-Level Cultural Intervention for the Prevention of Suicide and Alcohol Use Risk with Alaska Native Youth: a Nonrandomized Comparison of Treatment Intensity	
Access to Clean Water			
Ochante, F.	2013	Sustaining Access To Safe Drinking Water And Sanitation For Promoting Local Well-Being In Alaska Native Villages	

Organization/Author	Year	Title	Notes
Thomas, T.K., et al.	2013	Washeteria closures, infectious disease and community health in rural Alaska: a review of clinical data in Kivalina, Alaska.	
Ritter, T.L., et al.	2014	Consuming Untreated Water in Four Southwestern Alaska Native Communities: Reasons Revealed and Recommendations for Change	
Thomas, T.K., et al.	2016	Extreme water conservation in Alaska: limitations in access to water and consequences to health.	
Hennessy, T.W., Bressler, J.M.	2016	Improving health in the Arctic region through safe and affordable access to household running water and sewer services: an Arctic Council initiative.	
Connectedness			
Lewis, J., et al.	2010	The Indigenous Peoples of Alaska: A Call for a Strength-Based and Culturally-Appropriate Approach to Mental Health	
Ulturgasheva, O., et al.	2011	Navigating International, Interdisciplinary, and Indigenous Collaborative Inquiry: Phase 1 in the Circumpolar Indigenous Pathways to Adulthood Project	
Ford, T., et al.	2012	Providers' Voices on Telebehavioral Health: Survey of an Outpatient Counseling Agency in Alaska	Cross-listed with primary care/coordinated care
Avey, J.P., et al.	2013	Dial In: Fostering the Use of Telebehavioral Health Services in Frontier Alaska	Cross-listed with primary care/coordinated care
Rivkin, I., et al.	2013	Disseminating research in rural Yup'ik communities: Challenges and ethical considerations in moving from discovery to intervention development	
Gottlieb, K.	2013	The Nuka System of Care: improving health through ownership and relationships.	Cross-listed with primary care/coordinated care
Driscoll, D.L., et al.	2013	Process and Outcomes of Patient-Centered Medical Care With Alaska Native People at Southcentral Foundation	Cross-listed with primary care/coordinated care
de Schweinitz, P., et al.	2013	The Village Wellness Project: Building Community Resilience And Preventing Suicide In Rural Alaska	
Chamberlain, L.	2016	Adverse Childhood Experiences (ACEs) in Alaska: new data fuels a statewide initiative	
AMHTA	2016	2016 Alaska Scorecard: Key Issues Affecting Trust Beneficiaries	
Dillard, D.	2016	Development of a trauma screening and brief intervention process for Alaska Native people in a primary care setting	Cross-listed with primary care/coordinated care
Diet/Nutrition/Exercise			

Organization/Author	Year	Title	Notes
Nu, J., Bersamin, A.	2017	Collaborating With Alaska Native Communities to Design a Cultural Food Intervention to Address Nutrition Transition	
Leonard, T., et al.	2018	Overlapping geographic clusters of food security and health: Where do social determinants and health outcomes converge in the U.S?	
Walch, A., et al.	2018	A scoping review of traditional food security in Alaska.	
Economic Stability			
Gifford, V.	2010	Factors contributing to the long-term retention of behavioral health providers in rural Alaska	
Driscoll, D	2010	Assessing the influence of health on rural outmigration in Alaska	
Jones, J., et al.	2014	Local perspectives of the ability of HIA stakeholder engagement to capture and reflect factors that impact Alaska Native health.	
Black, J.C., et al.	2016	Understanding the Challenges to Providing Disabilities Services and Rehabilitation in Rural Alaska: Where Do We Go From Here?	
Education			
Coose, C. S.	2010	Distance nursing education in Alaska: a longitudinal study.	
Miller, J., Ward, K.	2013	Academic-community partnerships in rural and frontier communities: improving services for children with autism and other developmental disabilities in Alaska	
Chi, D. L.	2018	Dental therapists linked to improved dental outcomes for Alaska Native communities in the Yukon-Kuskokwim Delta	
Senturia, K.	2018	Dental health aides in Alaska: A qualitative assessment to improve pediatric oral health in remote rural villages	
Environmental Exposures			
Miller, P.K.	2013	Community-based participatory research projects and policy engagement to protect environmental health on St Lawrence Island, Alaska.	
AK DHHS	2018	Assessment of the Potential Health Impacts of Climate Change in Alaska	
Incarceration			
Alaska Mental Health Trust Authority [AMHTA]	2014	Trust Beneficiaries in Alaska's Department of Corrections	
Ejike-King L., Dorsey R.	2014	Reducing Ex-offender Health Disparities through the Affordable Care Act: Fostering Improved Health Care Access and Linkages to Integrated Care.	Medicaid
Neighborhood and Built Environment			
Alaska Housing Finance Corporation Alaska; Mental Health Trust Authority	2012	Baseline Report: Alaska Housing First Program Evaluation	
AMHTA	2017	Evaluating Housing First Programs in Anchorage and Fairbanks, Alaska - Final Report	

Organization/Author	Year	Title	Notes
Driscoll, D., et al.	2018	Changes in the health status of newly housed chronically homeless: the Alaska Housing First program evaluation	
Singleton, R., et al.	2018	Impact of home remediation and household education on indoor air quality, respiratory visits and symptoms in Alaska Native children	
Sexual and Reproductive Health			
Parret, V.C.	2011	Meeting the needs of breast cancer survivors in Alaska : survivors' and healthcare providers' perspectives	
AKDHHS	2013	Linkage to Care for People Living with HIV/AIDS in Alaska	
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