ASPE
ASSISTANT SECRETARY FOR PLANNING AND EVALUATION

OFFICE OF BEHAVIORAL HEALTH, DISABILITY, AND AGING POLICY

State Efforts to Coordinate Provider Directory Accuracy: Final Report

Prepared for
the Office of the Assistant Secretary for Planning and Evaluation (ASPE)
at the U.S. Department of Health & Human Services

by
RTI International

December 2023

Office of the Assistant Secretary for Planning and Evaluation

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This research was funded by the U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation under Contract Number #HHSP233201500039I and carried out by Research Triangle Institute. Please visit https://aspe.hhs.gov/topics/behavioral-health for more information about ASPE research on behavioral health.

STATE EFFORTS TO COORDINATE PROVIDER DIRECTORY ACCURACY: FINAL REPORT

Authors

Stephanie Kissam, MPH
Michele Dorsainvil, MA
Keegan Barnes, BA
John Feher III, BA
RTI International

December 27, 2023

Prepared for

Office of Behavioral Health, Disability, and Aging Policy
Office of the Assistant Secretary for Planning and Evaluation
U.S. Department of Health and Human Services
Contract #HHSP233201500039I

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Acronyms

The following acronyms are mentioned in this report and/or appendices.

ACRS	Active Care Relationship Service®
API	Application Programming Interface
BSC	Blue Shield of California
CAQH	formerly the Council for Affordable Quality Healthcare
CHIP	Children's Health Insurance Program
CMS	Centers for Medicare & Medicaid Services
DMHC	California Department of Managed Health Care
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HITECH	Health Information Technology for Economic and Clinical Health
IHA	Integrated Healthcare Association
LGBTQIA	Gay, Lesbian, Bisexual, Transgender, Queer, Intersex, and Asexual
MiHIN	Michigan Health Information Network
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration System
ONC	Office of the National Coordinator for Healthcare Technology
QHP	Qualified Health Plan
S.B.	Senate Bill
URL	Uniform Resource Locator

Executive Summary

ES.1. Background and methods

Provider directories are lists of in-network providers produced by health care plans. They are an important tool for individuals seeking health care providers, and for regulators who monitor the adequacy of health plans' provider networks. Inaccurate provider directories make it difficult for patients, particularly those seeking behavioral health-related care, to locate and access care and may result in unexpected out-of-network fees.[1] Additionally, health plans may artificially inflate the size of behavioral health provider networks by listing more providers participating in their network than they have,[2] making it more difficult for policymakers and health care provider organizations to identify and address gaps in behavioral health care.

There are many reasons why health plans' provider directories are inaccurate. One reason is that health plans, or their vendors, typically rely on phone calls, faxes, and emails to health care providers to update and attest to provider directory information like location, office hours, whether they are accepting new patients, and whether they accept a health plan's insurance product. Even if some of this information has been pre-checked against other sources, providers may not respond to every health plan's request each time, or update every health plan whenever one of the details changes.

This study focused on how states may coordinate one type of solution to improve accuracy: a centralized provider directory. A centralized provider directory can become the single source of provider information that is distributed to multiple participating health plans, thereby reducing the administrative burden on health care providers. This burden may be especially high for behavioral health providers who work in solo practice.

To learn from states' experiences with centralized provider directories, the study team conducted an environmental scan of peer-reviewed journal articles, other reports published by governmental and private entities, and government and industry websites; interviewed key informants; and developed case studies of two states with contrasting experiences: (1) California, which has an operational centralized provider directory; and (2) Michigan, which has a centralized provider directory that supports other core functions involved with electronic health information exchange (HIE), but is not used by health plans to manage provider information in consumer-facing directories.

ES.2. How have states developed, and supported the development of, centralized provider directory databases?

Only California has an operational centralized provider directory, called Symphony. As the statewide, cloud-based technology platform for health plans and providers, Symphony serves as a single source for provider directory data and supports compliance with California's state legislation aimed at improving provider directory accuracy (S.B. 137) and other federal

regulatory requirements. As a condition of approving Blue Shield of California's (BSC's) acquisition of Care1st, California's Department of Managed Health Care (DMHC), which regulates most health plans in the state, required BSC to invest in a California statewide provider directory solution. Integrated Healthcare Association (IHA) was subsequently selected as the host by BSC with the support of DMHC.

Efforts to use a centralized provider directory as a source of provider data for payers was explored in Michigan, and planned in Rhode Island and Oregon, but never implemented. Each had their own reasons for not pursuing implementation, with some combination of technical challenges, cost, and lack of interest among a broad range of stakeholders. In these three states, the effort hinged on leveraging an existing technology platform. Other states have developed centralized databases for collecting data about providers, but not for the purposes of improving accuracy of health plans' provider directories; for example, in accordance with state law, Washington's OneHealthPort is a centralized database that collects provider credentialing information for the purpose of distributing to hospitals and health plans.

ES.3. How have these databases been used?

In California, Symphony accepts information from both health plans and providers, validates it against multiple reference sources, and distributes it to participating health plans for use in updating their consumer-facing directories. This service streamlines the process for updating provider directories and aims to reduce burden on providers by consolidating their directory updates for all participating health plans. Although this solution has the potential to ensure greater accuracy of health plans' provider directories, the state agency that regulates health plans does not use Symphony in its monitoring of whether health plans' consumer-facing provider directories are accurate.

ES.4. Is there any evidence that centralized provider directory databases lead to fewer directory inaccuracies or improve behavioral health provider networks?

No evidence exists to assess whether the only currently operational centralized provider directory database leads to fewer health plan directory inaccuracies. Prior to the implementation of Symphony, one pilot study conducted by AHIP suggested that even when a vendor centralized health plan directories across multiple health plans in a state, few providers completed the validation process, whether contacted by phone, email, fax, or online portal alerts, and that validating data over the phone took less time than using an online portal.[3] Additionally, despite the potential impact of improved provider directories on the accuracy of behavioral health provider networks, no research to date has focused on whether centralized efforts could be used in monitoring and improving the adequacy of health plans' behavioral health provider networks.

ES.5. Can these projects inform enforcement efforts or best practices for maintaining accurate provider directories?

With Symphony as the only operational state-based centralized provider directory to help payers maintain accurate provider directories, and no evidence regarding whether the accuracy of California health plans' provider directories improved since Symphony's implementation, it is premature to identify best practices for how a centralized provider directory might improve accuracy of provider information. However, the environmental scan and case studies identified several lessons learned from the process of planning and implementing centralized provider directories:

- The cost of implementation is significant. Based on the experience of Symphony, costs include technology implementation; incentives to providers like initially waiving participation fees to use the centralized provider directory for reviewing and approving updated information; and governance and administration to maintain and increase health plan and provider participation.
- Data standards are critical. A prerequistite to implementing a centralized provider directory is having clear and widely agreed-upon standards for formatting the many data elements involved in identifying how individual providers, provider organizations, health plans, and health plan products are related.
- Multi-stakeholder agreement on how a centralized provider directory can be beneficial to all parties, particularly health plans and providers, is a useful precursor to establishing a centralized provider directory.
- Regulatory mandates on health plans' compliance with accuracy standards may be useful in motivating participation in a centralized provider directory, but are not sufficient to attain high levels of participation.

ES.6. Policy implications

A centralized provider directory database may be one solution that could be used to help health plans maintain accurate provider directories. However, it may be that there is no single best intervention to use to solve the problem of provider directory inaccuracy. Rather, there are multiple opportunities for federal and state policy -- and federal support to states -- to foster improvements in the accuracy of health plans' provider directories:

- Providers need incentives to improve the accuracy of health plan provider directories. State regulators, Medicaid agencies, and the Centers for Medicare & Medicaid Services (CMS) can place mandates on health plans to adhere to a specific standard for accuracy, but no such mandates exist on providers who are asked to verify the information in health plans' provider directories either by health plans, health plan vendors, or a centralized provider directory entity.
- State government does not need to lead or coordinate a centralized provider directory, but many state agency resources can shape how it is implemented. For example, documenting

the extent of current provider directory inaccuracy among health plans in a state may garner support for seeking alternative processes and solutions, such as a centralized provider directory, that will improve the accuracy of health plans' provider directories.

- Health plans operating in multiple states would benefit from a single set of data standards used to format the data elements involved in a provider directory. CMS's recent regulations for Medicaid, Children's Health Insurance Program (CHIP), and Medicare Advantage health plans to make provider directory information available in a standardized, machine-readable format is a significant contribution to defining these data standards.
- Beyond a centralized provider directory solution -- for which there is not yet evidence about its success in improving accuracy -- there may be additional interventions required to improve the accuracy of health plans' provider directories. For example, one potentially promising method is to use data analytics to compare health plans' directories, many of which are available in machine-readable formats thanks to federal regulation, to lists of actively practicing behavioral health providers that may be available in claims data. This alternative to a "secret shopper" method or phone survey method for monitoring may offer efficiency and value in identifying inaccurate listings of behavioral health providers in health plans' provider directories, and seeking enforcement of directory accuracy and health plan provider network adequacy.

Section 1: Background

1.1. Purpose of This Study and Methods Used

Provider directories are lists of in-network providers produced by health care plans. They are an important tool for individuals seeking health care providers, and for regulators who monitor the adequacy of health plans' provider networks. Inaccurate provider directories make it difficult for patients, particularly those seeking behavioral health-related care, to locate and access care and may result in unexpected out-of-network fees.[1] Additionally, health plans may artificially inflate the size of behavioral health provider networks by listing more providers participating in their network than they have,[2] making it more difficult for policymakers and health care provider organizations to identify and address gaps in behavioral health care.

This study examines state experiences to create *centralized provider directories* as a potential intervention that could help multiple stakeholders -- including individual providers, provider organizations, health insurance issuers and health plans, and regulators of health insurance and health plans -- maintain more *accurate* provider directories. A centralized provider directory can become the single source of provider information that is distributed to multiple participating health plans, which reduces the administrative burden on health care providers who receive requests from each health plan or health plan vendor to update and verify data elements like location, hours, and whether or not they are taking new patients. This burden may be especially high for behavioral health providers who work in solo practice.

The questions guiding the study were:

1. How have states developed, and supported the development of, centralized provider directory databases?
2. How have these databases been used?
3. Is there any evidence that centralized provider directory databases lead to fewer directory inaccuracies or improve behavioral health provider networks?
4. Can these projects inform enforcement efforts or best practices for maintaining accurate provider directories?

The sources used to answer these research questions were an environmental scan of peer-reviewed journal articles, other reports published by governmental and private entities, and government and industry websites; interviews with key informants; and synthesis of written materials and interviews to develop case studies of two states with contrasting experiences (California and Michigan). In addition to the case studies, the environmental scan identified several states that had explored or implemented centralized provider databases, some of which would serve to populate health plans' provider directories and others that served different functions. The environmental scan also identified nationwide vendors that also offered services to health plans to help them maintain their provider directories. ***Appendix A*** describes the methods used in developing these sources in more detail.

This background section defines health plan provider directories and relevant laws and regulations governing them; summarizes available data on the extent of inaccuracies measured in health plans' provider directories; and describes the promise held by a centralized provider directory to improve directory accuracy.

1.2. Health Plan Provider Directories

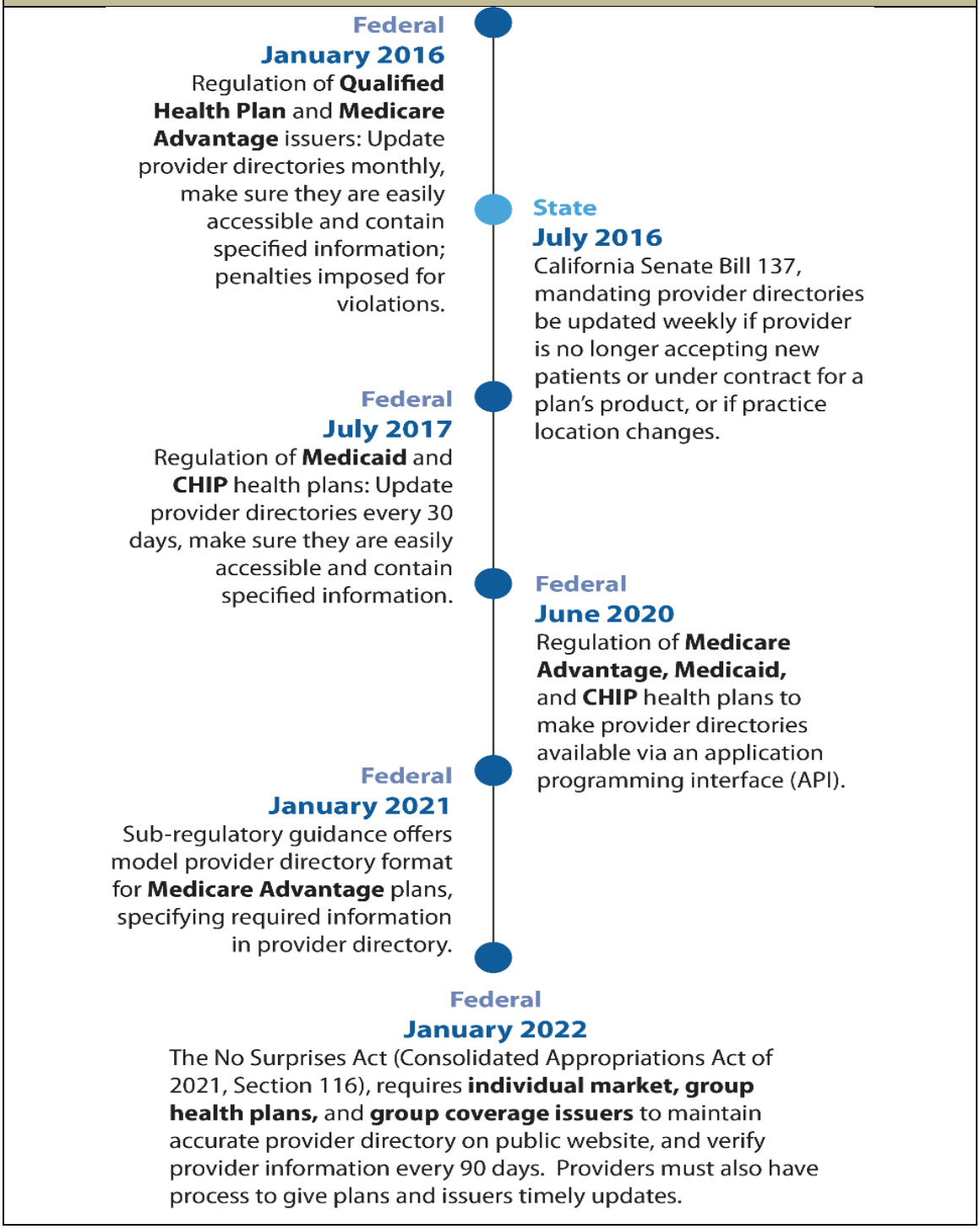
Different stakeholders have different priorities for how they use health plan provider directory information. Common data elements available in health plans' provider directories are summarized in ***Exhibit 1***. From the perspective of health plans, provider directories are listings of health care providers with which they have contracted to offer in-network services to health plan subscribers. Consumers primarily use provider directories to select health plans and, once subscribed to a health plan, to find providers when they need care. Regulators have a vested interest in provider directories because they rely on these provider directories to make assessments about network adequacy -- that is, whether a health plan has a sufficient number of providers in locations that make health care accessible to the health plan's subscribers.

Exhibit 1. Common Health Plan Provider Directory Data Elements	
Demographic -- Personal	First and last name Gender Age Languages spoken Race/ethnicity
Demographic -- Professional	Specialty Medical education National Provider Identifier Medical license number Privileges
Facility/Organization	Name Address/locations Phone number Accessibility, hours of operation Health plan product participation
Accessibility information (required for some health plans)	Availability to accept new clients Accessibility to individuals with physical disabilities Cultural and linguistic capabilities
Source: Adapted from https://www.caqh.org/sites/default/files/explorations/defining-provider-data-white-paper.pdf.	

Federal laws and regulations -- and, in some places, state laws and regulations -- set the context for efforts to improve provider directory accuracy. ***Exhibit 2*** illustrates the timeline over which federal regulations about health plans' provider directories have expanded to cover more health plan types. In addition to requiring specific types of information in health plans' provider directories, regulations also place expectations on health plans to make their directories available in machine-readable formats, also known as an application programming interface (API). California Senate Bill 137 (S.B. 137) -- often regarded as the most stringent requirements placed

on health plans -- is also noted in ***Exhibit 2***.[4] The No Surprises Act, passed in 2021 and effective as of January 2022, is the most recent rule that for the first time gives opportunities for redress to consumers who receive "surprise" medical bills from health care providers that were inaccurately listed in a health plan's provider directory as in-network.[5]

Exhibit 2. Timeline of Regulations Pertaining to Health Plans' Provider Directories



1.3. Inaccuracies in Provider Directories

Regulators and researchers have found inaccuracies in health plans' provider directories across all types of health plans, and many provider types -- including, but not limited to, behavioral health providers. Methods to assess the accuracy of provider directories include:

- Phone survey of providers listed in a directory.
- Secret shoppers calling to find out information and make an appointment.
- Comparison of provider directory information to information obtained through an Internet search for a provider's specialty, address, phone, and availability.

These methods have been used across studies of inaccuracies in health plans' directories. Three major areas for study have been inaccuracies across provider directories published by health plans in California, across provider directories published by federally-regulated health plans, and of behavioral health provider information in particular.

Inaccuracies in California health plans' provider directories. Some of the earliest published studies that focused on assessing the accuracy of provider directories examined Qualified Health Plans (QHPs) offering insurance on the health insurance marketplace in California. California established the nation's first state-based marketplace after the Affordable Care Act became law. On the basis of customer complaints, and after a large number of consumers became newly enrolled in QHPs in 2014, the California DMHC ran its own telephone-based surveys to verify provider directory information of two large health plan issuers in the state, with a follow-up in 2016; both surveys yielded showed inaccuracies across both issuers, with worse results in 2016.[6,7] For BSC, for example, 18.2% of the sampled providers were not practicing at the listed location in 2014; 26.2% of sampled providers were not practicing at the listed located in 2016.[6]

A different 2015 study assessed whether provider directories contained accurate information about whether primary care physicians were accepting new patients, comparing the QHP and non-QHP products of two large insurance issuers in California. Using a "secret shopper" method, the study found little difference between QHP and non-QHP error rates based on the information in these products' provider directories. For both QHP and non-QHP products, 10% of directory listings were wrong about whether a provider practiced within the group listed, 30% of listings had the wrong specialty, 18-19% of listings had the wrong telephone number, and 10% of listings were wrong about whether the provider accepted new patients.[8] More recently, a study based on data collected in 2018 and 2019 by health plans under a DMHC requirement for health plans to report whether providers are meeting timely access standards found that, depending on specialty and year, only between 74% and 88% providers could be reached using information available in a provider directory.[9]

Inaccuracies in federally-regulated health plans' provider directories. CMS conducted a phone survey of providers listed in Medicare Advantage Organizations' directories over three rounds starting in 2016, prompted by Medicare beneficiary complaints and a study of provider directory inaccuracy published in *JAMA Dermatology*.[10] In the third round of surveys, conducted between November 2017 and July 2018, CMS found that over 48% of locations listed for primary care, cardiology, oncology, or ophthalmology providers had at least one inaccuracy in terms of address, phone number, or whether the provider accepted new patients.[11] Using a different method -- an Internet search -- CMS compared information available on the Internet about a provider with the online and hard copies of provider directories published by QHPs sold on the federally-facilitated marketplace in 2020. In this study, seven out of 22 QHPs sampled contained inaccurate information such as group affiliation, specialty, address, telephone number, whether the provider accepted new patients, or more than one of those data elements.[12]

Inaccuracies of behavioral health provider information. One study of large Washington, DC-based commercial insurance carriers' provider directories found that for psychiatrists, telephone numbers could be verified for only 51% of the directory listings, and only 15% of those who said they had appointment availability were accepting new patients.[13] Another study surveyed privately-insured people nationally; using self-reports of inaccuracies in mental health provider directories. This study found that among people who used a provider directory to look-up in-network mental health providers, 24% reported finding inaccurate contact information, 26% reported that providers listed did not accept their insurance, and only 36% reported that a provider actually took new patients when the provider directory said they would accept new patients.[1] After calling every mental health provider listed in Louisiana Medicaid managed care plans' directories as treating children under the age of 18, researchers found that almost 30% did not accept Medicaid or did not treat children.[14]

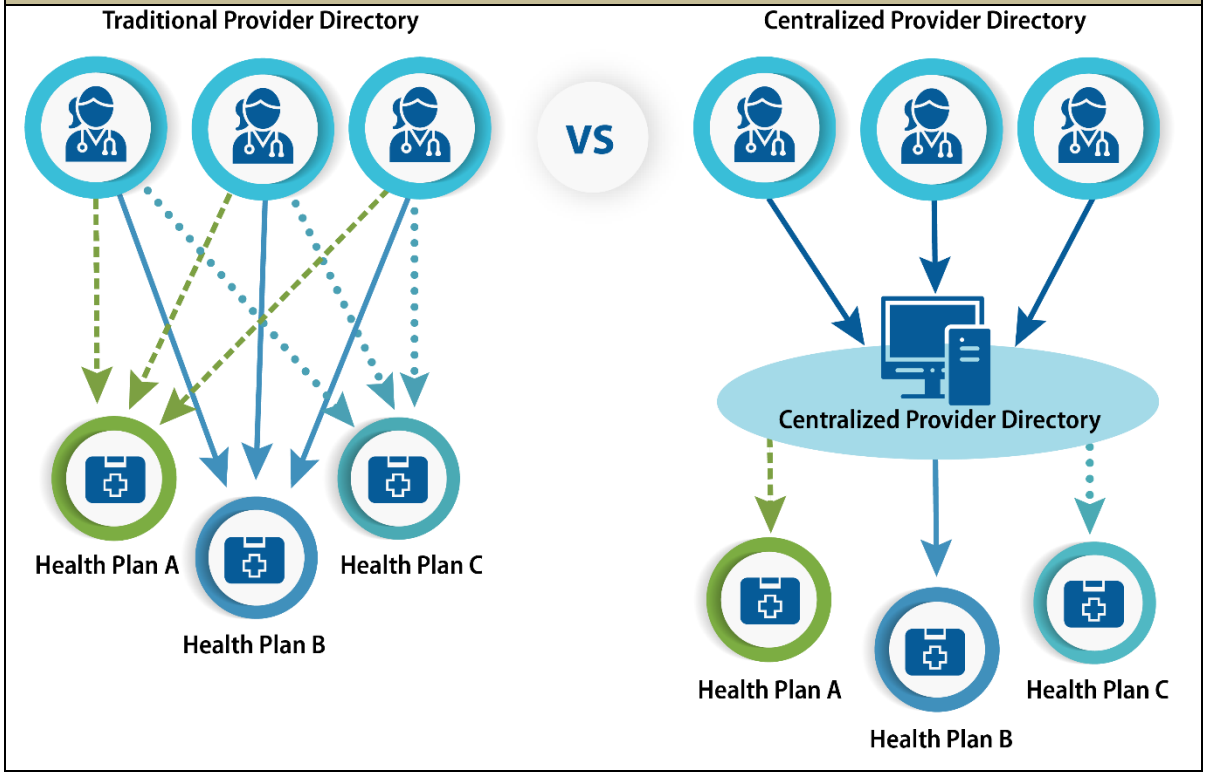
1.4. What is the Promise of a *Centralized* Provider Directory?

Exhibit 3 contrasts how health plans create and maintain provider information in their own provider directories, versus the promise of centralizing provider information held by a single entity. Presently, in its decentralized structure, individual health plans -- or vendors working on their behalf -- reach out to providers via emails and calls at predetermined times based on regulation requirements. On average, one provider may need to respond to 20 health plans to verify information.[15] Some health care providers -- especially solo practitioners, who often do not have the ancillary staff to help with this administrative task -- may not respond to requests for updates due to limited capacity. Insofar as behavioral health care practitioners have solo or small group practices without administrative support, the accuracy of behavioral health care provider information available to consumers through health plans' provider directories may be especially poor, leading to potential concerns for access and the ability to monitor the adequacy of health plans' provider networks.

CAQH (formerly the Council for Affordable Quality Healthcare) and LexisNexis are two entities in the private sector who began offering services to health plans (DirectAssure® and Provider Data MasterFile™, respectively) in 2016 to check provider information against other available sources and request that providers verify their information, on behalf of multiple health plans at once. Both operate on a nationwide basis, and both offer electronic portals that providers can use to attest to the accuracy of information. In 2019, CAQH reported having confirmed directory information for over 1 million providers, and delivered that information to 40 health plans.[16] DirectAssure works in conjunction with the common credentialing service run by CAQH that providers used prior to DirectAssure. CAQH prompts providers to update information via quarterly emails, and phone calls to providers that do not respond to the emails.[17] LexisNexis creates a Provider Data MasterFile from multiple publicly-available sources (e.g., state licensing boards, National Plan and Provider Enumeration System [NPPES]) and proprietary sources to serve as a reference source for health plans for information on providers.[18] Its provider-facing tool, VerifyHCP, serves as a portal providers can use to attest to their information for multiple health plans at once.

Both CAQH and LexisNexis are vendors that offer services that may act like centralized provider directories, insofar as they centralize provider information and streamline provider contacts to some extent. A centralized provider directory can increase the accuracy of health plans' provider directory information if certain conditions apply. A centralized provider directory accepts provider information once, and distributes that information to multiple health care plans, in hopes of reducing administrative burden and the cost of staff time for both parties. This reduction in administrative burden can happen for providers in two ways. First, if the centralized provider directory has a robust process of reconciling provider information data from multiple sources (provider organizations, health plans, and other publicly-available reference sources), it may make the baseline provider information more accurate even before providers are asked to verify or update information. Then, by streamlining the frequency and the number of requests they receive to attest to or update information, health care providers may be more likely to: (1) respond to requests for updates or attestation that existing information is correct; and therefore, (2) offer more accurate information that is used to populate participating health plans' provider directories that consumers see.

Exhibit 3. The Promise of Centralized Provider Directories: Simplifying the Process for Health Care Providers



There is one available study to inform how a centralized provider directory that delivers information to multiple health plans might increase accuracy of provider information in health plans' provider directories. The industry group AHIP (formerly known as America's Health Insurance Plans) conducted a pilot in 2016 in Florida, California, and Indiana to consolidate provider directory updates for 13 participating health plans using health care information management companies Availity and Better Doctor. These two vendors tested approaches for centralizing provider outreach and data validation. Results suggested that even when centralized, few providers completed a validation process, whether contacted by phone, email, fax, or online portal alerts, and that validating data over the phone took less time than using an online portal.[3] Thus, even when health plans centralized efforts to contact providers about provider directory information and used online systems to make it easy to correct information, providers did not improve their response rates. As a result, the study authors made two related recommendations that would shift more accountability for maintaining accuracy from health plans to providers: first, improve provider engagement to increase awareness and understanding of the need to alert plans of changes in information; and second, consider using regulatory and financial measures to increase provider accountability. Additionally, the authors concluded that the lack of data standards for storing provider data contributed to difficulty in integrating provider data in a central location, which prompted a recommendation to develop industry-wide data standards, definitions, and file format protocols to improve technical integration.[3]

Section 2: Findings

Several states have developed centralized databases of provider information for different purposes. However, only one state, California, has developed and implemented an operational centralized provider directory that has the technology and governance dedicated to easing the administrative burden on providers and health plans to improve the accuracy of *health plans'* provider directories. This centralized provider directory, called Symphony, is managed by the IHA. Symphony has a single purpose, or "use case": to improve provider directory accuracy through a service that centralizes the submission of data, validates participating health care providers' directory information, reconciles differences through the master data policies and facilitates discrepancy resolution for participating providers and health plans. Other states have explored ways to apply the work they do to maintain health care provider databases for other purposes -- such as patient-level HIE -- to populate health plans' provider directories.[19] However, these other entities have chosen not to pursue this service, either because of lack of stakeholder interest within the state, a re-prioritization of funding, or other reasons.

Among efforts to increase the accuracy of health plans' provider directories, establishment of a governance and technological solution like Symphony is just one type of intervention. Still, there are lessons from what worked to implement Symphony -- and why efforts in other states did *not* lead to the implementation of a centralized provider database to improve accuracy of health plans' provider directories -- that can inform policymakers' decision about whether or how to support centralized provider directory databases.

The remainder of this section offers additional detail on these overall findings. Findings are organized by each of the questions that this study posed.

2.1. How Have States Developed, and Supported the Development of, Centralized Provider Directory Databases, and How Have These Databases Been Used?

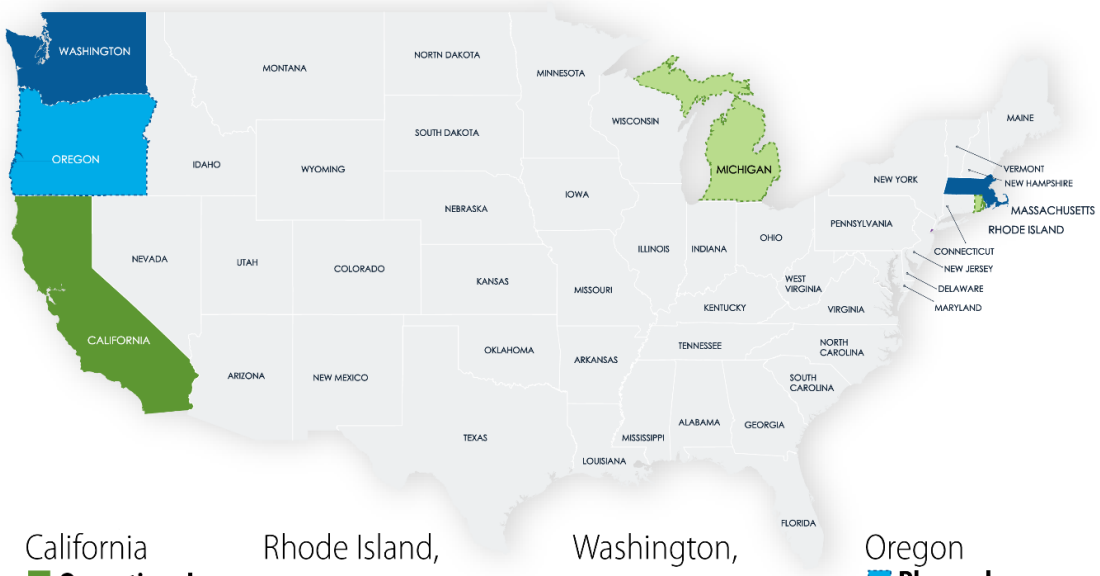
The idea of a state-level centralized provider directory database had both federal and state-level origins. At the federal level, in the early 2010's, the Health Information Technology for Economic and Clinical Health (HITECH) Act funding became available to states to develop and plan statewide HIEs for the purpose of routing patient-level electronic health information to individual health care providers.[20] Once the HIEs were established, the Office of the National Coordinator for Health Information Technology (ONC) encouraged these same entities to consider different needs or use cases. ***Exhibit 4*** outlines different categories of use cases identified during a series of workshops and meetings that ONC held in 2016, including the core work of HIEs to exchange patient-level electronic health information ("Basic Information Exchange" in ***Exhibit 4***).[21] Later, ONC invited state-level HIEs and other entities to explore how HIEs, which managed provider information like provider addresses for direct secure messaging of electronic health information, could be leveraged for other purposes. Information that would populate health plans' provider directories ("Patient/Payer Focused" B1 and B2 in

Exhibit 4) and centralized provider credentialing ("Other" D1 in ***Exhibit 4***) were among the ideas explored in workshops and volunteer committees that ONC convened in the late 2010's, and in which state-level HIEs like the Michigan Health Information Network (MiHIN) and Rhode Island Quality Institute participated.[19]

Exhibit 4. Categories of Uses for a Centralized Provider Directory Database	
Basic Information Exchange	Enable electronic exchange (e.g., discovery of electronic endpoints such as electronic health records endpoints, FHIR server URLs, direct secure messaging addresses) (A1) Find an individual and/or organization, even if no electronic endpoint is available (A2)
Patient/Payer Focused	Find provider accessibility information (e.g., specialty, office hours, languages spoken, new patient availability) (B1) Present the bidirectional relationship between provider and insurance plan (which plans does a given provider contract with and which providers are in a given plan's network) (B2) Plan selection and enrollment (B3) Claims management, including adjudication, prior authorization, and payment (B4)
Care Delivery and Value-Based Care	Allow for provider to patient communication (e.g., for alerts) (C1) Support care coordination between providers on a care team (C2)
Other	Support provider credentialing (D1) Facilitate regulatory efforts, including quality reporting and network coverage (D2) Improve fraud detection (D3)
Source: Adapted from Use Cases -- ONC Tech Lab Standards Coordination -- Confluence, https://oncprojectracking.healthit.gov/wiki/display/TechLabSC/Use+Cases.	

State-level origins of a centralized provider directory database are also evident. ***Exhibit 5*** illustrates the status of efforts to develop "centralized provider directory databases," but not all databases had the purpose of helping health plans maintain and improve their own health provider directories. The map shows three operational databases and three databases that were considered but never implemented. Only Symphony, the centralized provider directory effort in California, had the main goal of increasing the accuracy of provider networks listed by health plans, and the dedicated funding source to support that goal. Two other states (Rhode Island and Michigan) also considered ways in which existing databases could be used for multiple purposes, and both centered their technical solution around the state's HIE.[22] However, neither state ultimately leveraged its HIE infrastructure to become a centralized provider directory database for use by health plans in updating consumer-facing provider directories.

Exhibit 5. Map of Provider Directory Database Efforts as of 2022



California
Operational
Centralized provider directory maintaining health plan network information

Rhode Island, Michigan
Planned, never implemented
Centralized provider directory planned as extension of existing services

Washington, Massachusetts
Operational
Other: Provider credentialing (WA), Provider location and organizational affiliation (MA)

Oregon
Planned, never implemented
Other: Provider credentialing and location

Centralized databases in other states had other purposes. The State of Washington has an operational provider directory database for the purpose of centralizing the provider credentialing process to reduce burden on providers who need to show documentation for health plans and hospitals (OneHealthPort in Washington, established as mandated under state law).[23] Oregon explored a similar effort but abandoned it due to cost.[24] Later, the state explored the possibility of harnessing federal Medicaid information technology funds to improve their system for locating health care providers -- which would help providers with care coordination for Medicaid beneficiaries, among other potential uses[25] -- but ultimately decided to invest elsewhere instead.[26]

Massachusetts Health Quality Partners, a private, non-profit organization, hosts an operational provider directory that maps individual practitioners to provider organizations and health care systems for research use by "academic researchers, health plans, government agencies and provider organizations to link to other databases," but is not intended as a source to improve the accuracy of health plans' provider directories.[27] Separately in Massachusetts, a legislatively-mandated Provider Directory Task Force examined potential solutions to inaccurate provider directories between January 17 and April 3, 2020. Among the task force's recommendations were that "Carriers should explore the creation of one centralized portal to

collect all provider information to reduce administrative burden to providers and minimize errors," and specifically mentioned a "common portal being developed by CAQH" as one possible such centralized portal, or a portal "substantially similar". The task force also recommended that "Providers should be educated about the importance of updating information regularly and should take steps to update information regularly" and "Carriers should explore and make the best efforts to create a consolidated process among carriers to arrange audits via telephone, email, or other methods, so that providers are not called by numerous carriers." The task force also recommended specific data that should be included in health plans' provider directories; the timeliness for updating key information such as whether or not the provider is accepting new patients; and how directory information should be accessible to consumers.[28]

Additional potential state efforts are referenced in older reports, including potential efforts in Utah[29] and Maryland[30] but little documentation is available to verify the extent of these efforts and what level of planning has occurred.

2.2. Case Studies of Contrasting Paths in Two States

As seen in ***Exhibit 5***, relatively few states have pursued efforts to improve provider directory accuracy. The remainder of this section examines efforts in two states specifically: California and Michigan. These two states contrast in how the vision for a centralized provider directory originated, the underlying technical approach used or considered, and their outcomes as of 2022.

Initiation. In California, consumer complaints to DMHC in 2014, and subsequent verification of high error rates in health plans' provider directories as described above, illustrated for multiple stakeholders that inaccuracy of health plans' provider directories was a problem. State regulators and health plans viewed the high error rates as partially the result of low provider response rates to health plans' requests for updated information.[6] For a provider contracted with multiple health plans, updating accessibility and availability information for each plan in a timely manner could be overly burdensome. As such, a centralized provider directory would improve response rates by sharing provider responses across all contracted health plans. Around the same time, California S.B. 137 passed, which led to important requirements on health plans and providers around standardization and updating of provider directories.[4]

When BSC moved to acquire Care1st Health Plan in 2015, one of DMHC's conditions for acceptance was that BSC donate $50 million toward goals that would improve the health care delivery system statewide; ultimately that money was targeted toward establishing a statewide centralized provider directory. In 2016, a committee representing DMHC, BSC, and other stakeholders convened, and in 2017, the committee selected IHA to lead the effort.[31] Both the funding and IHA's effort to build the centralized statewide provider directory (called Symphony) were dedicated to improving the accuracy of health plans' provider directories (use cases B1, B2, and B3 in ***Exhibit 4***). Neither S.B. 137 nor DMHC required the use of Symphony, but Symphony

was a platform that could help health plans and providers comply with state law[32] and federal regulations.[32-34]

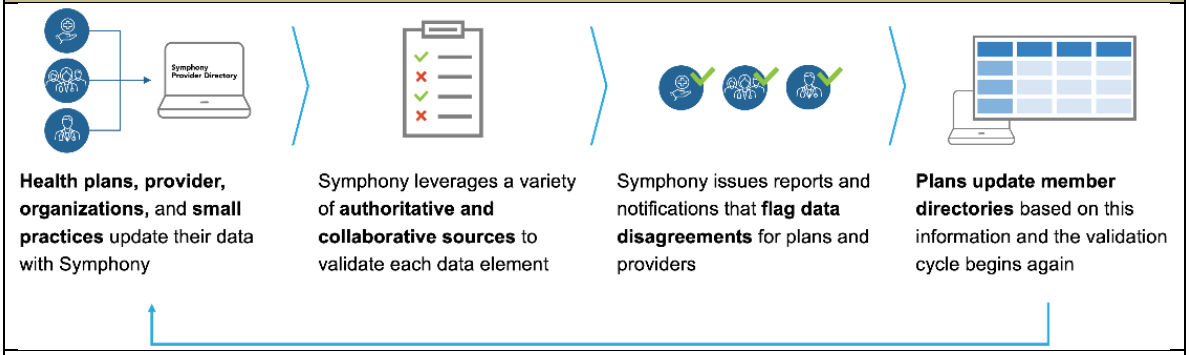
In contrast, stakeholders in Michigan did not have the same studies documenting whether health plans in the state had accurate provider directories or not, nor state legislation aimed at improving the accuracy of provider directories. Instead, the motivating factor was the potential to leverage existing technology and relationships with health care providers already held by MiHIN, Michigan's HIE. When MiHIN began exploring a centralized provider directory in 2014 as a potential new service to offer, MiHIN already had established the the technology and relationships needed for exchanging electronic patient-level health information (use cases A1, A2, and C2 in ***Exhibit 4***). Since an HIE facilitates the secure movement of patient data between providers, MiHIN had already built and was maintaining what they call a "health directory," which is a record of each provider's electronic contact information.[35] As an HIE, MiHIN participated in workgroups that ONC convened to understand how HIE platforms could be used for other use cases (as described in ***Exhibit 4***) beyond the flow of electronic patient-level health information (interview, 2022).[36] Through this process, MiHIN explored ways to extend its existing services to include some of the data elements needed for patient/payer focused use cases as described in ***Exhibit 4*** (interview 1, 2022).

Technical approach. In California and Michigan, the efforts to build a centralized provider directory database began with two different types of technological platforms. In California, IHA originally selected two vendors, Availity and Gaine, to build the technology platform that powers Symphony, the centralized provider directory (interview 2, 2022). Availity had previous experience in managing provider information for use by health plans' provider directories that was tested in a pilot study.[3] MiHIN, in keeping with its primary mission, had already built a statewide Health Provider Directory that logs providers' preferences for where they would like to receive patients' electronic health information that is routed through the HIE, but did not yet have other information or processes necessary for helping health plans update provider directories such as information about provider participation in a specific health plan's network(s) (interview 1, 2022).

Since the Symphony provider directory is the only operational statewide centralized system used by health plans to update and maintain their provider directories, it is the model for describing the components and functionalities of any centralized database that a state may consider developing. First, Symphony uses a robust stakeholder and governance structure to identify the data standards and needs of both health plans and provider organizations, to ensure that it can receive, validate, and deliver provider directory information. Symphony's proprietary data dictionary contains hundreds of unique data elements, and where applicable, their mapped relationships (e.g., relationship between individual and organization). Once a health plan or provider organization has signed up to participate, Symphony accepts provider directory information using a Secure File Transfer Protocol or a point-and-click portal (see ***Exhibit 6***). Providers who do not have a contract with Symphony but are contracted with a health plan that

uses Symphony are able to update their information through the point-and-click portal only (interview 2, 2022).

Exhibit 6. Process Used by Symphony to Update Health Plans' Provider Directories



Source: Symphony staff, personal communication, 2022.

Symphony uses a proprietary data validation model to clean the data received from the providers and plans (see ***Appendix C*** for further explanation of this process). Data from both providers and health plans contain information on provider demographics and provider-plan contracts. The data validation model compares each group's data to reference sources, such as NPPES or the state's board of licensure, and it prioritizes primary materials, such as contracts between health plans and providers. Symphony also uses provider attestation in its validation process.[31] Once a "mastered copy" or "golden record" is created, it is shared with the health plans. Health plans use that information to update the provider directories that they make available to consumers. Some health plans have opted to build systems that allow for direct integration of the updated information from Symphony into their system, offering a fully automated data exchange process. Implementing this level of automation requires thorough testing and validation, the extent of which is determined by the size and capability of the respective health plan. Symphony does not make health plans' provider directories available to consumers directly (interview 2, 2022).

In contrast to Symphony, MiHIN's Health Provider Directory is not "payer centric" nor designed for the purpose of helping health plans keep their own consumer-facing provider directories updated. After convening stakeholders, MiHIN deprioritized this use case, determining it was best left to a national organization such as CAQH or the Federal Government. MiHIN deprioritized this particular type of provider directory because it encountered several barriers in its efforts to apply its expertise in exchanging patient-level information to a new service that would communicate provider information to health plans to improve the accuracy of their own consumer-facing directories.

Fast Healthcare Interoperability Resources (FHIR) Standards

In its Interoperability and Patient Access Final Rule of 2020, CMS mandated standards for its provider directory requirement, known as Fast Healthcare Interoperability Resources (FHIR).[a] FHIR standards support structural or syntactical interoperability; that is, FHIR dictates how data are labeled so that they can be easily understood by a variety of systems, or more generically, how data becomes "machine-readable." Without standards, a provider's name might be encoded in many possible ways: doctor_name, name_provider, doc_firstname.lastname, and so on. Under FHIR, every system encodes that information as Practitioner.name. These standards allow data coming from numerous sources to be automatically understood and compiled.

The actual movement of data is typically managed by APIs. The Final Rule mandated that CMS-contracted health plans publish their provider directories as publicly-available FHIR APIs. This allows any third party application to quickly pull together provider directory information from any number of health plans. These FHIR APIs improve the accessibility and transparency of provider directory data.

Notes:

a. Centers for Medicare & Medicaid Services (CMS). (2020). Medicare and Medicaid Programs; Patient Protection and Affordable Care Act; Interoperability and Patient Access for Medicare Advantage Organization and Medicaid Managed Care Plans, State Medicaid Agencies, CHIP Agencies and CHIP Managed Care Entities, Issuers of Qualified Health Plans on the Federally-Facilitated Exchanges, and Health Care Providers. Federal Register. 85 FR 25510. https://www.federalregister.gov/documents/2020/05/01/2020-05050/medicare-and-medicaid-programs-patient-protection-and-affordable-care-act-interoperability-and.

The barriers MiHIN faced were lack of interest from health plans and ultimately the different approaches to data management involved. The first -- and perhaps greatest -- barrier at the time was health plans' disinterest in changing their current processes from CAQH. For example, CAQH serves multiple health plans, and reports receiving data from providers across all 50 states.[37] Since health plans had existing relationships with these national vendors like CAQH and LexisNexis, which by all accounts were serving these health plans' needs already, it would have been difficult for MiHIN to establish itself as a new entity in such a market (interview 1, 2022).

Additionally, there is a key technical difference that caused MiHIN to decline becoming the designer and operator of a centralized provider directory to improve the accuracy of health plans' provider directories. Instead, MiHIN has focused on a more "patient centric" approach called the Active Care Relationship Service® (ACRS). In keeping with the HIE's role of routing electronic health information, the ACRS solution maps relationships across providers, payers, value-based care programs, state programs, and other services to a specific shared patient. When health plans and providers showed little interest in developing a centralized provider directory for use across the state, MiHIN chose not to pursue further investment in a payer centric approach on its own because its stakeholders did not see the benefit, and instead kept its focus on ACRS (interview 1, 2022).

Outcomes as of 2022. As of July 2022, Symphony has successfully increased participation from health plans and provider organizations to fulfill its goal as a statewide centralized provider directory. It has contracted with health plans that cover one-half of the insured lives in California, including ten of 12 Covered California plans, and is delivering updated, validated provider information to participating health plans. The combination of initial seed funding that covered initial start-up costs and its current business model will enable Symphony to be financially self-sustaining by the end of 2022. At the same time, Symphony still plans to increase participation of providers and provider organizations (interview 2, 2022).

In contrast, in Michigan, in addition to MiHIN's statewide provider directory used for information routing and ACRS, MiHIN developed an entirely different service for health plans called the InterOp Station, which is a tool for receiving and reformatting clinical, claims, and provider data on behalf of health plans, so that they can adhere to mandated interoperability rules under the 21st Century Cures Act.[38] These data, now standardized and stored in a cloud environment, are accessible via Fast Healthcare Interoperability Resources (FHIR) APIs. Although there is no component of the InterOp Station that attempts to reduce the burden on providers in updating information in a central location for the purpose of maintaining information accuracy across multiple provider directories, MiHIN offers the infrastructure to health plans to make their provider directories "machine-readable" (interview 1, 2022).

2.3. Is There any Evidence that Centralized Provider Directory Databases Lead to Fewer Directory Inaccuracies or Improve Behavioral Health Provider Networks?

Accurate provider directories are viewed as an important end-goal to help regulate and enforce the *adequacy* of health plans' provider networks.[2,8,39] However, there is little evidence on the specific interventions -- whether technical solutions like making provider directories available in publicly-available machine-readable formats, creating a centralized provider directory, regulatory mandates and policy enforcement mechanisms, or some combination -- that may improve accuracy of information contained in the directories. ***Exhibit 7*** summarizes each type of intervention observed and the evidence of its impacts.

As noted in ***Exhibit 7***, few rigorous evaluations are available to suggest which interventions -- whether grounded in federal or state regulations, or in a technology-based solution like a centralized provider directory -- may be effective in improving accuracy. One study that examined whether provider directories in machine-readable formats (i.e., available via an API, as now required of provider directories published by QHPs, Medicare Advantage plans, and Medicaid and CHIP managed care plans) identified that machine-readable directories were no more accurate, in and of themselves, than other information files that health plans make available, when validated by a phone survey.[40]

Exhibit 7. Available Evidence on Results from Efforts to Improve Provider Directory Accuracy			
What the Effort Is	**How It Would Improve Accuracy**	**Available Evidence**	**Challenges**
Machine-readable formats	Enable more efficient data checking and cleaning by more easily comparing provider data across sources.	Directories posted in machine-readable formats are not more accurate in addresses or phone numbers than conventional flat files available, and Google search outperformed accuracy of directories or NPPES. No information about accuracy of whether providers are in-network or not.[a] Some evidence from a New York Department of Health process to cross-check provider information submitted from health plans of reduced errors over time.[b]	Neither health plans nor regulators are investing in cross-checking data available. Enforcement of whether directories are available in machine-readable formats is low.
Centralized provider directory	If having a single place to which they report updates reduces burden of keeping information current with health plans, then they are more likely to make updates when their information changes, and health plans are more likely to receive it.	Symphony (California) is the only existing centralized provider directory that is currently operational. No evaluations have been conducted to assess whether accuracy has improved.	Symphony has recruited many health plans and provider organizations to join but does not yet have 100% participation. Joining Symphony requires investment for provider organizations, who do not face repercussions for not keeping information up-to-date.
Enforcement of accuracy using other source (e.g., all-payer claims database) as comparator	Provider information available in health care claims can serve as a "source of truth" to check whether providers are actively delivering services within the specialty listed, based on claims data.	One state, New Hampshire, makes available a list of providers in each county who have filed claims for substance use services, and uses it to monitor provider networks.[c] The state received CMS funds to help develop this method to monitor network adequacy for mental health and substance abuse providers.[d] No evaluations found.	Not all states have an all-payer claims database. Using Medicaid claims alone may give an incomplete record of available behavioral health providers.
Regulators' accuracy surveys and fines for non-compliance	Threat of fines may motivate health plans to take additional steps to ensure accuracy.	Burman reports error rates of 50% after three years of quarterly accuracy surveys in Louisiana and similarly high error rates in annual surveys in Maryland.[e]	Regulators may not always levy fines, or fines may not be sufficiently motivating to health plans.

Exhibit 7 (*continued*)			
What the Effort Is	**How It Would Improve Accuracy**	**Available Evidence**	**Challenges**
State law permitting health plans to delay payment to providers who do not update data and remove those who do not verify data	If providers -- not just health plans -- are subject to financial penalties, they may be more responsive to efforts to keep information about them accurate and up-to-date.	No information available about if or how health plans use this option.	California's S.B. 137 allows this,[f] but concerns over maintaining providers in health plan networks make it unlikely health plans would use this mechanism (interview 3, 2022).

Sources:

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e. Burman, A. (2021). *Laying Ghost Networks to Rest: Combatting Deceptive Health Plan Provider Directories*. Yale Law and Policy Review, 40.
f. State of California. (2017). *Cal. Health & Saf. Code § 1367.27*. https://casetext.com/statute/california-codes/california-health-and-safety-code/division-2-licensing-provisions/chapter-22-health-care-service-plans/article-5-standards/section-136727-provider-directories.

One reason there is little data on the accuracy of provider directories is that few state regulators conduct regular surveys of all health plan products; for example, Louisiana does regular surveys, but only of Medicaid managed care plans' provider directories.[42] As one state regulator noted, a telephone-based survey to health care providers, which would ideally check information presented in a health plan's provider directory (and which are a commonly used method used to uncover the potential scope of error rates, as described above), is suboptimal for monitoring and enforcing rules on provider directory accuracy. Health plans have difficulty reaching many solo practitioners (including many behavioral health providers) to verify provider directory information for the same reasons telephone surveys or other methods of monitoring do not work: these providers do not have ancillary staff to answer phone calls, may not receive phone calls, or may not bother calling back (interview 3, 2022).

2.4. Can These Projects Inform Enforcement Efforts or Best Practices for Maintaining Accurate Provider Directories?

Only Symphony is an operational centralized provider directory aimed at improving the accuracy of health plans' provider directories. California law requires health plans to make timely updates to their provider directories when provider information changes, and is likely one factor motivating health plans representing a majority of the insured lives in the state to make use

of Symphony as a technical solution for maintaining accurate provider directories. However, key informants did not speculate on how Symphony might be used in efforts to enforce California law, as it is currently not used for that purpose (interviews 2 and 3, 2022).

Because only one state has experience with an operational centralized provider directory, it is premature to identify best practices for this type of directory. Instead, the next section summarizes lessons from states' experiences in planning and implementing centralized provider directories as an intervention to maintain more accurate health plan provider directories.

Section 3: Lessons Learned

Case studies of California and Michigan, in combination with information available on the fate of other state-based efforts to centralize provider directories, revealed several challenges in the process of developing and implementing centralized provider directories for the purpose of improving the accuracy of health plans' consumer-facing provider directories. ***Exhibit 8*** illustrates the main areas for decision-making that states, and other entities, will likely consider when weighing the feasibility of pursuing a centralized provider directory.

Exhibit 8. Initiation and Decision-Making in the Course of Planning and Implementing a Centralized Provider Directory

To start, state-based efforts may be more successful when initiated with broad, local stakeholder interest in trying to improve the accuracy of health plans' provider directories. This is one conclusion that can be drawn from the contrasting examples of California and Michigan. In California, consumers and the state's regulatory agency had a clearly defined sense of the problem of provider directory inaccuracies. A major payer in the state, BSC, was a focus of a 2014 report on the level of provider directory inaccuracy[6] and became a champion of a potential solution: an independent entity that could host and create a centralized provider directory. Unlike California, MiHIN explored potential extensions of its existing technology platform and relationships, but not in response to a public report or wide stakeholder agreement that health plans' provider directories contained inaccuracies.

Once there is stakeholder interest, other factors will influence the path a state could take in pursuing a centralized provider directory. These factors include:

- Funding (availability and source).
- Technology platforms (new or re-purposed).
- Existing data standards (or willingness to develop them).
- Implementation strategy (length of pilot phase, value proposition to health plans and providers).

- Governance structure (hosted and supported by an appropriate entity, with successful buy-in from multiple stakeholders).
- Regulatory context (which may or may not motivate health plan and provider participation).

Funding matters, because the cost of implementation is significant. Based on the experience of Symphony, costs include technology implementation; incentives to providers like initially waiving participation fees to use the centralized provider directory for reviewing and approving updated information; and governance and administration to maintain and increase health plan and provider participation (interview 2, 2022).

California's ability to secure approximately $50 million is a unique combination of events that is unlikely to reoccur in other states. New funding mechanisms could support the technical infrastructure to facilitate receipt, data validation, and distribution of provider data from a central entity, similar to the ways in which the HITECH Act of 2009 facilitated storage and exchange of electronic patient-level health data. Responsible for the most important development related to health care technology in the last 20 years, the HITECH Act accelerated adoption of the digitization of health records by over 55% in 6 years.[43]

Technology platforms are just one piece of the puzzle. To date, efforts that explored how existing technology platforms might be adapted to the purpose of improving health plan provider directory accuracy have ended during the exploration stage. In part, having varied needs for provider directory databases -- for example, provider credentialing, or exchange of electronic health information -- increases the complexity and cost of the technology solutions when trying to meet several different needs at once. California's practice of limiting Symphony's scope to address one use case -- to improve provider directory accuracy -- may be a promising practice for future initiatives. Symphony was established after several years of planning, which included convening multi-stakeholder meetings inclusive of health plan representatives, provider organizations, regulators, consumer advocates, and the state's medical association to define the purpose and needs of a centralized provider directory host. In contrast, states that attempted to combine multiple technology platforms for multiple uses -- such as in Michigan, Rhode Island, and Oregon -- chose not to pursue a centralized provider directory database to help health plans increase the accuracy of their own provider directories.

Data standards are critical. A prerequisite to implementing a centralized provider directory is having clear and widely agreed-upon standards for formatting the many data elements involved in identifying how individual providers, provider organizations, health plans, and health plan products are related. As demonstrated by Symphony's example, achieving health plan and provider buy-in on standards for defining and formatting data elements required a strong multi-stakeholder governance and committee structure (interview 2, 2022). Part of Symphony's success has been in having visible and clear initial standards as defined by the DMHC.[44] The 2016 pilot conducted by the industry group AHIP also recommended industry-wide standards to be set for provider directory data.[3] A truly industry-wide standard would be

utilized nationally, obviating the need for each state entity to produce a competing set of standards. FHIR standards seem poised to fill this need. As of July 1, 2021, all Medicare Advantage, Medicaid Managed Care Organizations, and CHIPs are required to support FHIR-based Provider Directory APIs.

An implementation strategy must prioritize getting providers to participate. Some lag in provider participation in Symphony is likely due to perception of the administrative burden, the unknown value proposition, and mistrust of data. One source estimates that responding to health plans' requests for updated information costs the average physician practice $998 per month and requires one full staff day per week.[15] Transitioning to a centralized provider directory that lessens this burden may produce a return on investment for provider organizations over time. But the initial costs of transition and onboarding to a new technology platform can seem daunting, especially for behavioral health providers who have limited to no administrative support. Provider buy-in of centralized provider directories appears to follow the technology adoption life cycle, with innovators and early adopters recognizing the value of these efforts, and conservative and risk-averse providers awaiting greater institutional consensus. Incentives, provider-focused marketing, and seeing others succeed in a pilot phase are needed to encourage more providers to overcome the structural inertia and adopt organization change.

Financial incentives may not be sufficient to create provider buy-in. In California, there is a cost associated with onboarding each health care provider organization that uploads data files directly to the technology platform. Presumably, this cost would ultimately lower what provider organizations spend in maintaining their directory information with each individual health plan over time. Symphony initially incentivized providers by waiving onboarding fees, investing an estimated $12-$16 million in covering those providers' upfront costs (interview 2, 2022). However, without this financial investment, provider organizations may not have done the work needed to change their internal processes to fully integrate with Symphony. One representative involved in Symphony came to the understanding that waiving initial fees may not have been the right decision. Rather, to ensure providers had "skin in the game," alternative ways to reward early adopters could have been to discount initial fees or make participation free for a limited number of months, while still charging one-time onboarding costs (interview 2, 2022).

Other reasons exist for provider hesitancy to participate in a centralized provider database like Symphony. First, there is the chicken-and-egg problem that providers and plans only find utility in the centralized database if their contracted partners are also participating. For Symphony, IHA mitigated the risk that one type of partner (e.g., health plans) would join without the other (e.g., providers) through extensive communication with multi-stakeholder groups before and after winning the bid to host and create Symphony. In 2021, Symphony began to collaborate with their largest health plans to improve provider organization uptake; because health plans were aware of their largest provider organization holdouts and the unique barriers for each group, they could initiate conversations between Symphony representatives and key leaders in each provider organization (interview 2, 2022).

Second, institutional inertia plays a role in provider hesitancy. Coordinating changes within an organization requires building support by key stakeholders in unison. Even if joining a centralized database like Symphony is deemed worthwhile by many or most members within a provider organization, building the necessary momentum to allocate funds, onboard, and learn new processes requires dedicated champions embedded within the organization. As Jacqui Darcy at IHA emphasized: "You've got to get buy-in … champions at the health plan level can be fabulous advocates to provider organizations who they contract with to engage their network." Relatedly, the COVID-19 pandemic presented many provider organizations with unprecedented challenges and likely dissuaded organizations from making major process changes or investments that had uncertain benefits (interview 3, 2022).

Thoughtful and inclusive governance structures may build trust across stakeholders needed to accelerate adoption of a centralized provider directory. The stakeholder engagement that began with the planning for, and selection of, IHA as the host for Symphony has continued through Symphony's governance structure. Health plans, provider organizations, and purchasers continue to discuss technical and policy-related aspects of the centralized provider directory (interview 2, 2022).

Laws and regulations may motivate participation in centralized provider directories, but practical limitations persist on enforcing regulations. California law (S.B. 137) requires health plans to maintain accurate provider information in their provider directories and permits health plans to act against providers if providers themselves do not update information.[4] Laws and regulation have laid the groundwork for the value that a centralized provider directory can offer health plans and provider organizations: In its promotional material, IHA highlights how Symphony helps health plans to adhere to requirements of S.B. 137, in addition to the mandates that federal regulations place on Medicare Advantage and Medicaid/CHIP managed care plans.[32-34] Yet even with a regulatory environment that empowers state and federal agencies to enforce expectations for directory accuracy and sets forth penalties for infractions, there is evidence from California that regulation alone is unlikely to drive participation in a centralized provider directory.

For example, California's S.B. 137 allows a health plan to delay payment to a provider who fails to update their information to the health plan. Although these consequences are serious, the administrative burden of withholding payment -- as well as disbursing payment within 30 days of a provider becoming compliant -- is often too large to make this enforcement mechanism attractive. Alternatively, S.B. 137 allows a health plan to remove a non-compliant provider from the directory. In theory, this has the double benefit of: (1) incentivizing providers to maintain accurate information if they want to take on new patients; and (2) cleaning directories of non-compliant providers. Yet health plans must meet certain requirements for network adequacy, so striking too many providers from the directory -- even if they are grossly non-compliant -- is also an unappealing choice for any health plan seeking to maintain a sufficient provider network.

Moreover, enforcement of regulations hinges on telephone surveys to verify provider information or secret shopper methods to determine accuracy of information at a single point in time. Without an investment in different methods, regulators face the same potential failures in contacting providers as vendors or Symphony do -- and add to the burden on providers to respond. With different insurance products regulated by different entities[39] monitoring and enforcement of the patchwork across federal and state rules for the somewhat varying contents required by provider directories across health plan types (e.g., health insurance marketplace plans, Medicaid and CHIP managed care plans, Medicare Advantage, and group insurance products) can also be duplicative and inefficient.

Finally, when regulators increase the scrutiny on health plans -- and increase the financial penalties for non-compliance with provider directory rules -- risks to health plans increase, and it may be more likely that health plans seek to control more aspects of how their provider directories are populated and how the information from providers is verified. This desire for control may reduce their willingness to trust a centralized entity.

Section 4: Policy Implications

This study of state efforts to coordinate provider directory accuracy through support for centralized provider directories found only one operational case -- Symphony, operated by IHA, in California. Although state-based, Symphony is a privately-led effort; the state's health plan regulator, DMHC, lent support to this centralized provider directory by directing seed money toward the effort -- an investment of $50 million required from BSC, as a condition of its merger with another health plan.

With just one example of a state-based centralized provider directory -- and no studies to date that have produced data demonstrating that provider directory accuracy has improved -- one implication of this study for policymakers is that there is no single best intervention to use to solve the problem of provider directory inaccuracy. Rather, there are multiple opportunities for federal and state policy -- and federal support to states -- to address improvements in the accuracy of health plans' provider directories.

Providers need incentives to improve the accuracy of health plan provider directories. State regulators, Medicaid agencies, and CMS can place mandates on health plans to adhere to a specific standard for accuracy, but no such mandates exist on providers who are asked to verify the information. Yet, health plans, health plan vendors, or a centralized provider directory entity rely on providers' responses to verify information they have gathered -- and in the case of national vendors and Symphony, pre-checked -- before delivering it to health plans for use in consumer-facing provider directories. Making the process less burdensome for providers to verify their information, through a centralized provider directory for example, is one type of incentive, but other mandates from state boards of licensure or financial incentives from health plans or other entities may also be useful.

State government does not need to lead or coordinate a centralized provider directory, but many state agency resources can shape how it is implemented. For example, documenting the extent of current provider directory inaccuracy among health plans in a state may garner support for seeking alternative processes and solutions, such as a centralized provider directory, that will improve the accuracy of health plans' provider directories. In California, the DMHC conducted two telephone surveys, one in 2014 and another in 2016, that documented the extent of inaccuracies in the provider directories published by two large health insurers. The public interest in provider directory inaccuracies likely helped convince those health insurers -- and other health plans and providers -- to participate in the development and implementation of Symphony. Other states have regulations that set baseline expectations for the frequency of updating inaccurate information in health plans' provider directories, but few others have published studies of provider directory accuracy specifically.

State government may play a role in determining whether other factors are also present to facilitate implementation: funding -- for supporting provider adoption, technology, and

governance; mandatory use of certain data standards for storing and transmitting provider directory information; and a regulatory environment that prioritizes enforcement of accuracy standards. Additionally, the state Medicaid agency, a state-run health insurance marketplace, and state boards of licensure may all have a role in coordinating access for a centralized health provider directory to other reference data sources on providers. Coordinating state agency resources to support improvement in provider directory accuracy may require strong leadership within state government and federal intervention to ensure that the financial and technical resources are available to any entity that undertakes this effort.

Health plans operating in multiple states would benefit from a single set of data standards used to format the data elements involved in a provider directory. CMS's recent regulations for Medicaid, CHIP, and Medicare Advantage health plans to make provider directory information available in a standardized, machine-readable format is a significant contribution to defining these data standards.

Beyond a centralized provider directory solution -- for which there is not yet evidence about its success in improving accuracy -- there may be additional interventions required to improve the accuracy of health plans' provider directories. The commonly used methods to monitor the accuracy of health plan provider directories are time-intensive and may be subject to the same flaws inherent in trying to update the provider directories in the first place -- that is, the state's inability to contact providers can result in errors in the monitoring results themselves. States could benefit from resources or funding that would help them monitor provider directory inaccuracy, such as:

- Dedicated funds for "secret shopper" studies that are conducted on a routine basis. State insurance regulators, or Medicaid agencies that contract with Medicaid managed care, may benefit from such funds, since this is a commonly-used method to measure provider directory inaccuracy.
- Guidance and technical assistance to state regulators in how to compare provider directories in machine-readable formats against other sources. The use of machine-readable formats should aide identification of inconsistencies when comparing provider information between provider directories published by different health plans, as described by others about efforts in New York State,[30] and between provider directories and information available from Internet searches, or between provider directories and national provider information database required by all Medicare-participating providers (NPPES).
- Guidance and technical assistance in using All-Payer Claims Databases (as in New Hampshire)[41] or Medicaid claims data to detect when health plans' provider directories may be listing providers -- especially behavioral health providers -- that are not actively practicing (i.e., document the existence of "ghost" networks).

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Appendix A: Methods

The methods used to develop the findings for this study included:

- An environmental scan of peer-reviewed journal articles, other reports published by governmental and private entities, and government and industry websites.
- Key informant interviews.
- Development of case studies of two states.

Environmental scan. A search of peer-reviewed literature in PubMed used a key word search for the term "provider directories" along with known or related terminology, such as "centralized provider directories," "behavioral health provider directories," and "provider directory accuracy." The search parameters included literature dating back to 2000.

The search returned 61 titles with the following results:

- 28 mentioned provider directory.
- 18 mentioned accuracy.
- 11 related to some component of health information technology.
- 9 related to behavioral health.
- 6 mentioned costs associated with maintaining directories.
- 6 articles mentioned network adequacy.
- 5 articles mentioned legal, policy, or regulatory issues.
- 2 discussed the importance of provider directories to LGBTQIA populations.
- 0 mentioned centralized provider directories.

Further analysis revealed that the overall focus for peer-reviewed journal articles found in the search was on the extent of inaccuracies among provider directories, rather than evaluations of interventions to improve accuracy. Additional journal articles were identified in the citation lists of articles found in the first search and other reports (grey literature) published online. Through web searches and a review of relevant grey literature, the study team identified reports on centralized provider directories produced by vendors and documentation of state-coordinated efforts on state websites.

The environmental scan identified the following states with some type of activity in developing statewide databases of provider information: California, Massachusetts, Michigan, Oregon, Rhode Island, and Washington.

However, not all state-based databases (planned or implemented) had the functionality relevant to this study: centralizing provider information for the purposes of helping to populate health plans' provider directories with more accurate information for the benefit of consumers and regulators. Two nationwide vendors CAQH and LexisNexis do offer this functionality, but because the focus of this study was on state efforts to coordinate provider directory accuracy, the study team used vendor-produced materials as background information only.

Key informant interviews. The study team selected two priority states from which to recruit key informants: California and Michigan. Key informants were identified because of their involvement with the planning or implementation stages of a centralized provider directory, or were a state agency representative that could speak to the state's efforts in supporting the entity that was planning or building the centralized provider directory. The study team conducted three interviews and received a fourth written response to interview questions from key informants in these two states; the study team thanks the MiHIN team, Jacqui Darcy at IHA, and Mary Watanabe at the California DMHC for their participation. Additional outreach to a potential informants from Michigan and in a third state, Rhode Island, did not result in an interview.

The study team also conducted an interview with a staff person currently working on a project at CMS, because of this person's knowledge of federal and state efforts to develop web-based, searchable provider directories that would enable consumers to find specific provider types regardless of insurance status. This interview served as background information and did not contribute to the analysis of state efforts to coordinate provider directory accuracy synthesized in the case studies.

Case studies. Drawing from both document review and discussions with the key informants, the study team synthesized the experiences related to building a centralized provider directory in two states, California and Michigan, using a case study format. These case studies contrasted the experiences in these two states on the following dimensions: Initiation, technical approach, stakeholder engagement, funding, and lessons learned.

Appendix B: Relevant Laws and Regulation

The following information supplements information summarized in ***Exhibit 2.***

Federal regulation of QHP network adequacy standards and provider directory accuracy became effective January 2016. This established that each QHP must publish an up-to-date, accurate, and complete provider directory, including information on which providers are accepting new patients, the provider's location, contact information, specialty, medical group, and any institutional affiliations.[45] It also prioritized transparency for consumers by specifying that the general public must be able to view the directory without having to create an account or enter policy information.

California S.B. 137, borne out of consumer complaints about being misled on which plans had contracted with their providers, established requirements on health plans and health insurers for how to update and make available their provider directories. The Bill, effective July 2016, requires timely communication of any changes in practice demographics through weekly update, and states that plans must offer an online provider directory available to the public, including physicians, without any sign-in restrictions or limitations. Providers are also required to give instructions to new patients who mistakenly contacted the provider because of an error in the directory on how to contact the plan to find a new provider or to the regulator to report a directory inaccuracy.

In 2017, regulation on Medicaid managed care plans, prepaid inpatient health plans, prepaid ambulatory health plans and primary care case management specified additional types of information that should be included in provider directories. Unique to this regulation was the inclusion of whether the provider had completed cultural competence training (later replaced in a 2020 amendment with a description of a provider's cultural and linguistic capabilities)[48] and whether the provider's office/facility has accommodations for people with physical disabilities, including offices, exam room(s), and equipment.

Effective January 2021, the Interoperability and Patient Access rule specified that Medicare Advantage Organizations and Medicaid Managed Care Plans, State Medicaid Agencies, CHIP Agencies and CHIP Managed Care Entities were required to make provider directory information machine-readable (available through an API), and that updates be made no later than 30 calendar days after the provider directory information is received. Additionally, the impacted payers must include digital contact information in the NPPES.[46]

Most recently, the No Surprises Act (Section 116 of the 2021 Consolidated Appropriations Act), effective January 2022, establishes new federal protections against surprise medical bills arising out of certain out-of-network emergency care. In doing so, this Act created the first a set of expectations placed on *commercial insurers* to maintain their provider directories, and on providers to be responsive to health plans' requests for updates. This Act states that health insurance plans must establish a public-facing provider database and must have

a process to ensure that their directory database is up-to-date and accurate. Additionally, they must also establish a process and timeline to remove providers from the directory who have not verified their information. Plans must have a process in place to verify the provider directory database at least once every 90 days and have 2 business days to update the provider directory upon receiving a provider notification that their information has changed. Lastly, plans must respond within 1 business day to inquiries from consumers about whether a provider or facility is in-network for them.

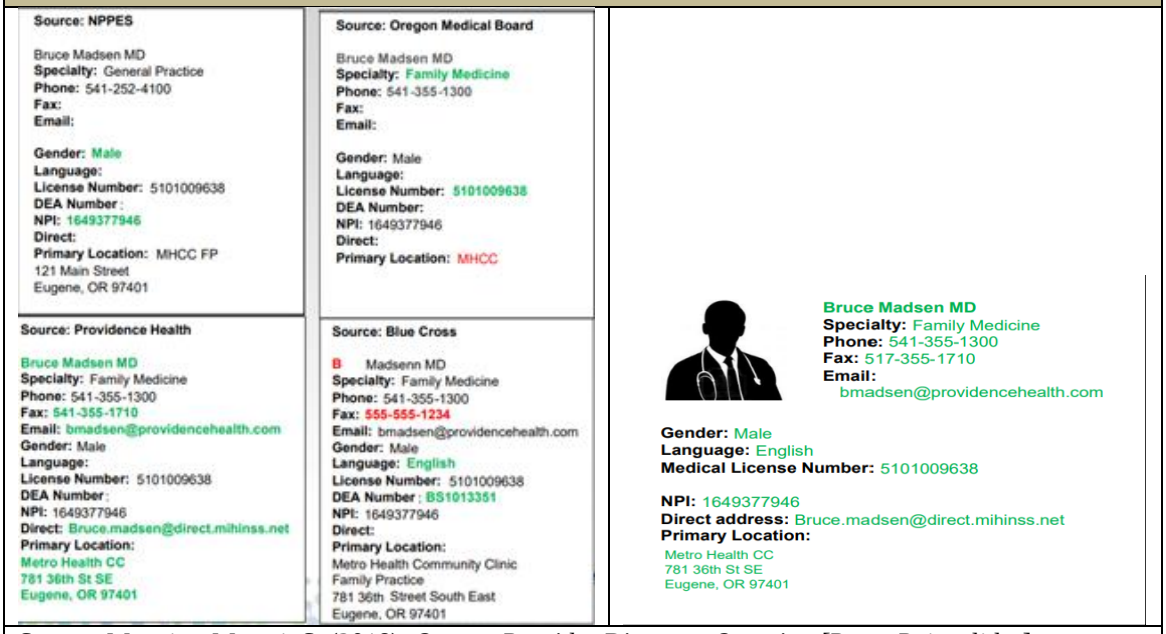
The Federal Government will lead enforcement for most private health plans, while states will lead enforcement for state-regulated plans and providers. The 2021 Consolidated Appropriations Act also empowers consumers to file complaints about medical billing by contacting the appropriate enforcement entity (federal vs. state) depending on the type of plan. Additionally, a national consumer help desk[47] has been established to ensure that insurance companies, medical providers, and health care facilities have followed the no surprise billing rules.

Appendix C: Data Validation

One of the key ways that a centralized provider database can add value to its users -- both health plans and health care providers -- is by cleaning provider information before a health care provider is requested to validate it. Symphony, as well as other national vendors in the private sector like CAQH and LexisNexis, each have proprietary methods for data validation. To validate its data, a centralized provider directory is set up to check its provider information against other existing sources of data. To create the final dataset from multiple sources, processes for managing conflicting data are put into place. For very small or rarely changing databases, these processes can be as basic as calling a provider to confirm a detail. For large, dynamic databases, however, multiple algorithms may be employed to "pre-clean" the data. Multiple examples of survivorship (i.e., determining which datum remains when conflicting data are entered) are shown below in ***Exhibit C-1***.

Certain data have an authoritative source; in this example, the National Provider Identifier (NPI) is a unique value assigned to physicians by the NPPES. Accordingly, the NPI supplied by NPPES will survive and pass onto the cleaned set. Similarly, a state's Medical Board is an authoritative source for the license number.

Exhibit C-1. Using Multiple Sources of Data to Determine the Most Accurate Information for a Provider



Source: Mannino-Marosi, S. (2018). *Oregon Provider Directory Overview* [PowerPoint slides]. https://www.oregon.gov/oha/HPA/OHIT/Documents/PD_014_Provider_Directory_demo.pdf.

Where there are no authoritative sources, other strategies must be used. Data that appear across multiple sources are often more likely to be accurate, which is why the 781 36th Street

address survives over the 121 Main Street address. For values that change frequently, such as availability for new patients, a system may prioritize the data source updated most recently.

Regardless of the level of pre-cleaning involved, providers must verify the data by attesting to it. A well-functioning data validation process will minimize the amount of time providers spend correcting data, reducing overall provider burden. Building such a process requires a deep understanding of the data and their sources, and should be seen as an inescapably iterative process.