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**BUILDING A CULTURE
OF ANALYTICS FOR
HHS PROGRAMS:**
A HANDBOOK FOR
STATE EXECUTIVES
& ADMINISTRATORS



CONTENTS

- 5** THE VALUE OF ANALYTICS
- 6** MEDICAID AS A MODEL:
IMPROVING PROGRAMS
- 10** EXPANDING ANALYTICS BEYOND MEDICAID
- 12** BUILDING INTERNAL ANALYTIC CAPABILITIES
- 15** DETERMINING ANALYTIC MATURITY
- 18** BREAKING DOWN BARRIERS:
OVERCOMING KEY CHALLENGES
- 20** CHECKLIST: BEST PRACTICES FOR BUILDING
INTERNAL ANALYTIC CAPABILITIES
- 22** REINVENTING PROGRAMS THROUGH
ANALYTIC SERVICES

REINVENTING MEDICAID AND HEALTH AND HUMAN SERVICES PROGRAMS

Providing Medicaid and health and human services (HHS) programs to millions of vulnerable Americans is a mammoth undertaking — and one of our nation's biggest expenses. According to the U.S. Department of Health and Human Services, for fiscal year 2017 the federal government has allocated \$1.145 trillion for HHS programs, with Medicaid alone accounting for 34 percent of this total.

As states spend more on health care and Medicaid's share of their budgets continues to grow, executives, administrators and agencies must look for ways to contain costs, manage new requirements and operate more efficiently, while maintaining quality outcomes and beneficiary access. Fortunately, states can help achieve these goals by capitalizing on two valuable tools at their disposal: data and analytics.

Agencies collect a variety of data from Medicaid and HHS programs — from claims, eligibility and financial data to program and household data on the individuals they serve, and more. States can use this data proactively to control the cost of HHS programs; improve quality and access to care; and fight fraud, waste and abuse. Within Medicaid, the growing focus on value-based care, along with increased scrutiny on abuses within HHS programs, have increased the demand for transparency and accountability to justify priorities and spending on social programs. The current administration encourages states to implement state-specific reforms, making it likely that payment and service delivery reform programs will be a significant focus for years to come.

As efforts to ramp up Medicaid's big data and analytic capabilities increase and the Centers for

Medicare and Medicaid Services (CMS) provides more funding for agencies to improve their health IT infrastructures, states must seize the opportunity to develop a comprehensive data-driven strategy for reinventing HHS delivery and program efficiency across the enterprise.

Analytics provide executives and administrators strategic insights from their data that identify cost, efficiency and quality improvement opportunities. Analytic services can help states build the analytic capabilities they need quickly so they can proactively change outcomes and drive measurable results, including program and payment reform and improved health

outcomes. States can use analytic services to help achieve the Institute for Healthcare Improvement's Triple Aim initiative, which focuses on improving the patient experience of care, improving population health outcomes and reducing the per-capita cost of health care. Analytic services provide expertise, capacity and focus that helps agencies gain a holistic view of how citizens use federal and state programs and services. This insight enables agencies to better deliver the right care and program support to the right people at the right time.

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Understanding the Terms

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EWSP	WSP	SP
18,000	5,700	43.4
20,000	7,000	35.0
24,700	8,500	2.85
47,000	17,000	35.7
6700,70	5,700	8.43
34,700	5,700	59.3

EWSP	WSP	SP
18,000	5,700	43.4
20,000	7,000	28.5
24,700	8,500	3.45
47,000	17,000	35.7
6700,70	5,700	11.4
34,700	5,700	60.7

THE VALUE OF ANALYTICS

In the last several years, participation in Medicaid and HHS programs has grown dramatically, creating an unprecedented need to manage costs. One way states can make their programs more sustainable is by curbing the expense side of the equation, either through payment and program reform or by reducing waste and abuse, or typically both.

Analytics support these efforts, and are becoming a critical key “to transforming institutions and businesses into smart, forward-thinking organizations that raise health outcomes and bend the cost curve,” according to the National Association of Medicaid Directors (NAMMD).¹

Quality data is one of the foundations for good analytics, but states face several challenges when it comes to drawing insights from their information. Many states rely on a traditional Medicaid Management Information System (MMIS) to help improve their programs, but these systems were built to handle high-volume transactions, not necessarily to conduct in-depth data analyses. Another challenge is the lack of data interoperability across states’ HHS programs, which makes it difficult to obtain a comprehensive view of people enrolled in multiple programs.

Analytics can help close this visibility gap. Put simply, analytics help states identify problems and opportunities within their programs and use data to build solutions and processes to address these challenges and make better decisions. Analytics can help determine the root causes of problems, and provide insight and decision support to improve programs in the future.

Analytics can be used to:

- ◆ Measure and improve the coordination of care across Medicaid and HHS programs
- ◆ Evaluate whether people are complying with evidence-based treatment protocols
- ◆ Profile various segments (i.e., ZIP codes, outliers within specific subgroups)
- ◆ Analyze cost and utilization of care and measure physician cost and quality
- ◆ Perform quality and outcomes analyses that may influence provider reimbursement (i.e., emergency department utilization, readmission and quality measures)
- ◆ Analyze the performance of external entities such as accountable care organizations (ACOs), managed care organizations (MCOs), providers and state contractors
- ◆ Identify service areas with unexpected growth sooner and in time to act
- ◆ Support data evaluation and cost-savings assessments and analyses of service delivery systems and payment
- ◆ Provide financial and actuarial services to support value-based purchasing, cost-benefit analysis for the Medicare Shared Savings Program, managed care rate setting and more

MEDICAID AS A MODEL: IMPROVING PROGRAMS

Medicaid enrollment has increased in the last several years. More than 13.5 million people who didn't have health coverage are now enrolled in either Medicaid or the Children's Health Insurance Program (CHIP), bringing the total number of Americans covered under these programs to more than 74 million.²

As more people seek and qualify for services, it has forced long overdue changes within the system. With this effort in mind, CMS is helping states innovate and update their current IT infrastructure in several ways. In late 2015,

the agency extended the 90 percent federal match for investments to improve Medicaid systems — numerous states took advantage and are redesigning their Medicaid eligibility and/or claims processing and information retrieval systems.

With the Medicaid and CHIP Business Information Solution (MACBIS) initiative, CMS is supporting leading-edge technology and analytic solutions to properly support

the programs' role in evolving health care delivery reforms, ensuring access to coverage, and enabling proper monitoring and oversight.³

There is also a movement within the Medicaid program toward paying for quality of care rather than services rendered. Enhanced funding for technological improvements and CMS' Medicaid Information Technology Architecture (MITA) initiative are paving the way for more interoperability between state Medicaid and HHS organizations, allowing providers to connect to the broader health care continuum and statewide health information exchange systems, which will make it easier to share data to help improve outcomes.

Large states especially benefit from redesigning their Medicaid IT infrastructure and utilizing analytics to shorten the time to achieve objectives. As an example, Medi-Cal, California's Medicaid program, serves 12.4 million people, making it the largest program in the country. Mental health and substance use disorder programs are now under Medi-Cal's umbrella, making it necessary for the state's Department of Health Care Services (DHCS) to do more integrated work. The state uses a management information system (MIS)/decision support system (DSS) for data management and decision-making, with analytics tools layered onto the platform. This approach has helped DHCS

The movement within Medicaid to pay for quality of care rather than services rendered is an apt testing ground for the power of data and analytics.



54%

96%



better organize, code and group data from different sources; streamline reporting for CMS; create standard and ad hoc reports to support its everyday work; and examine quality and performance measures for different episode and risk groups. DHCS also is using data and analytics across departments. It is in the process of analyzing psychotropic medications for children in Medi-Cal and in foster care. By importing child welfare data into its MIS/DSS system, the department can create a matched data set that combines this data with Medi-Cal data to better provide care for foster children.

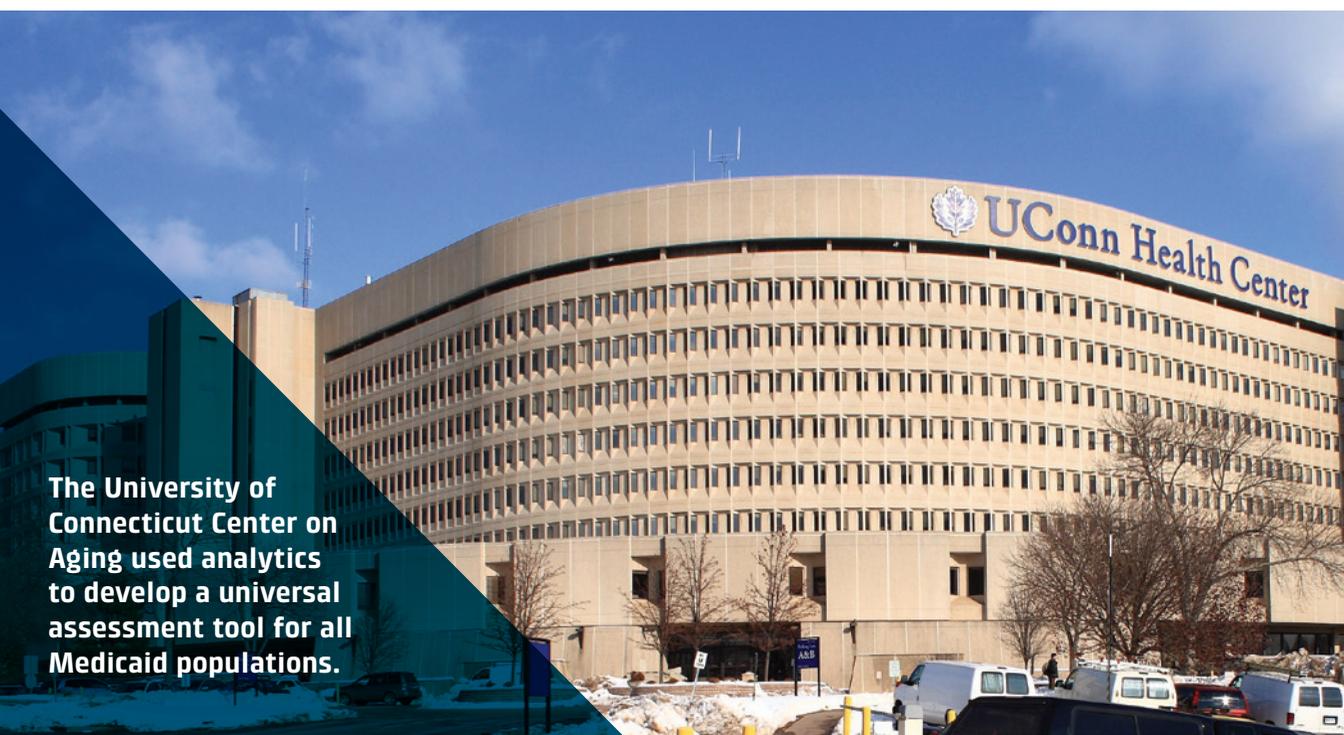
Dr. Linette Scott, chief medical information officer for DHCS, says quality analytics are essential to the department's operations, because DHCS runs 26 managed care plans and 58 mental health plans, plus parent and county plans. The department also has 170,000 enrolled providers in its fee-for-service program.

"In California, the program is very large," Scott says. "The only way to manage that program — from tracking the budget to monitoring service and utilization to looking at outcomes and performance — is to leverage this kind of data and information. We use our data warehouse and analytics tools in all aspects of delivering the program. We wouldn't be able to do our work without them."

States traditionally have used data for claims processing, to meet CMS reporting requirements or to create internal ad hoc reports. But today, Medicaid programs are leveraging analytics to enable predictive modeling, strengthen program integrity and better understand the needs of the people they serve.

The UConn Health Center on Aging used analytics to develop a universal assessment tool for all users of Connecticut Medicaid long-term services and supports. Prior to this effort, the state used different assessment instruments to determine level of need, depending on whether it was assessing older adults, younger adults with disabilities, people with brain injuries, or individuals with mental health issues or developmental disabilities.

Now, the center is using an analytic process to create an algorithm for level of need to be leveraged statewide, which will incorporate data sets such as activities of daily living, instrumental activities of daily living, medical conditions/diagnoses, cognitive functioning/memory, communication and behavioral concerns. In this case, analytics are helping the state streamline the process of assessing needs, assigning budgets and identifying services to ensure equity across programs.



The University of Connecticut Center on Aging used analytics to develop a universal assessment tool for all Medicaid populations.

Giving program participants the right type and level of support will improve their health outcomes. Noreen Shugrue, a research associate at the center, says the project is ongoing but the benefit of analytics already is clear. “The value that analytics brings is crucial,” she says. “You cannot allocate services and budget dollars fairly across populations without having good data on their needs and the effectiveness of the services that they’re getting.”

Analytics also play a critical role in Medicaid expansion states. West Virginia has seen its Medicaid/CHIP population grow from approximately 355,000 to more than 570,000 people since 2013.⁴ In 2015, the state transitioned its expansion population from a fee-for-service model to managed care. West Virginia officials realized that to manage growing enrollment, they needed more than a functional claims processing system. Tony Atkins, deputy commissioner of finance for the state’s Bureau for Medical Services, says West Virginia needed data analysis and algorithms to ensure program integrity and prevent fraud, waste and abuse. The state has used analytics for this purpose and has taken advantage of spatial geographic analytic mapping tools to identify patterns of providers’ habits and areas of overutilization.

“The value of analytics in decision-making is priceless. Information is power. If you don’t have the numbers right, then all the other policy, political and cost issues that come into play in the decision-making process become guesses.”

Tony Atkins, Deputy Commissioner of Finance, West Virginia Bureau for Medical Services

“The data analysis that we’re seeing is proving that there are providers who are supposedly delivering care to the expansion population, but aren’t doing it with integrity and honesty,” Atkins says. “We’re using data analytics and technology to help ferret out these kinds of things.” Atkins notes the state has identified a number of providers who aren’t providing quality care and has taken legal action against 50 of them to curb this abuse.

Beyond fraud detection, West Virginia also uses data and analytics for rate setting, benefit design and modeling. The state recently used a six-county demonstration project to see what would happen if it implemented a health home model of care for people with both bipolar disorder and Hepatitis C. The modeling helped the state verify its initial assumptions about the potential benefits and cost savings of this approach and it plans to move forward with a future implementation.

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To manage growing enrollment, West Virginia officials realized they needed data analysis and algorithms to ensure program integrity and prevent fraud, waste and abuse.





EXPANDING ANALYTICS BEYOND MEDICAID

The use of analytics in California and other states provides lessons for refining analytical processes across the Medicaid and HHS enterprise.

By shining a light on the interconnectedness of all Medicaid and HHS programs and the consequences of social determinants of health, analytics allow agencies to intervene before downstream health problems become significant. This helps agencies provide better services, engage program participants, and understand the regional or socioeconomic differences that explain how individuals and populations make health decisions — and interact with the safety net system as a whole. With this insight, agencies then can move from a reactive approach to a predictive, preventive and interventionist model that improves outcomes.

Administrators and providers recognize the potential of applying analytics and connecting all programs. In a recent Governing Institute survey of 285 high-ranking administrative and IT professionals in state Medicaid and HHS

agencies, more than 80 percent said analytics are critical to reducing health care costs and improving outcomes, tracking the root causes of health issues, identifying disease risk factors and devising preventive care strategies. Seventy-seven percent said analytics are critical to identifying fraud, which costs Medicaid and Medicare as much as \$98 billion annually, according to some estimates.⁵

Some states already are expanding their use of analytics across their Medicaid and HHS systems. Michigan developed CareConnect360 (CC360), a first-of-its-kind care management tool and web portal, which integrates physical and behavioral health-related information, along with other human services information.

CC360 was originally rolled out to the state's health plans that serve Medicaid beneficiaries. Most recently, the Department of Health and Human Services (DHHS) made CC360 available to foster care professionals to provide a complete view of a child's medical history and care needs. Case workers can now understand, analyze and monitor the medical care received by Michigan's 14,000 foster children — 95 percent of whom are covered by Medicaid — including treatment for chronic conditions, emergency department visits (repeated visits could indicate abuse), medications that health professionals prescribe, and whether they've received well-child visits and dental treatments. Staffers can identify gaps in care and inform new foster parents of a child's medical background when the child is placed.

Data to support the CC360 initiative is stored in and accessed from Michigan's powerful enterprise data warehouse, which provides data-sharing and analytic capabilities across state government.

Cynthia Green-Edwards, director of the DHHS Compliance Office, says DHHS plans to continue looking at other programs and services for potential integration into CC360. For example, the state eventually expects to link food stamp,

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- ◆ Reducing health care costs
- ◆ Improving outcomes
- ◆ Tracking the root causes of health issues
- ◆ Identifying disease risk factors
- ◆ Devising preventive care strategies

77% said analytics are critical to identifying fraud, which costs Medicaid and Medicare as much as \$98 billion annually.

cash assistance and other social services data to provide further insights into children and adults and their overall needs. "We're trying to get as many data sets as possible from inside and outside our department to help us determine program effectiveness and improve results," she says, which is part of the state's long-time commitment to using data sharing and analytics to solve problems.

Green-Edwards acknowledged that the most challenging part of the data-sharing process is determining what data can be shared, with whom, for what purpose and for how long. Thus, the state has implemented a rigorous governance process to consider these issues. Further, Michigan is committed to measuring the success of its efforts.

"You need to look hard at overall results," Green-Edwards says. "Are you using data and analytics merely to validate something you already know — or are you using them to identify new opportunities and areas of improvement?"

States need to understand the value of analytics before they can extol its virtues to other agencies and partners, Green-Edwards says. "That value is what builds trust and persuades others to share information."



BUILDING INTERNAL ANALYTIC CAPABILITIES

At a time when Medicaid and HHS are experiencing unprecedented change, how can states keep up? The answer lies not in the latest and greatest technology advancements, but rather in how technology is used to support the long-standing practice of analytics. While technology certainly provides greater access to data and the results of analysis, agencies still must apply sound analytic methods and processes to achieve defensible priorities and actions.

Just having the data isn't enough. In fact, the volumes of data that can be moved, stored and accessed today actually can make it more difficult to find insights and answers. This work requires a special skill combination of software programmer and modern-day statistician. California, Michigan, West Virginia and Connecticut are making great headway in applying analytics to Medicaid. These states are ahead of the curve in many ways. But advances in technology and analytics are happening so fast that many states struggle to train and hire staff to support this work. These pressures are driving more states to seek assistance from external firms in the form of analytic services.

Partnering with an analytic services provider can enable states to take advantage of analytics now and, at the same time, begin building their own internal skills and capacity. Analytic services combine analytic, actuarial, technology, data management and human capabilities to build insights that help states identify and solve challenges. It's not a one-size-fits-all solution, but rather a customized analytic process that involves defining the problem, collecting and enriching the data, doing an analysis, presenting

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the results and implementing the data in a way that drives measurable outcomes.

Analytic services can take different forms depending on each agency's challenges, but they should have the capability to be reused and reconfigured to meet the differing and ever-changing needs of state programs — whether it be program and payment reform or selecting members for different disease-specific programs and determining what measures to use to monitor improvements in quality and outcomes.

In addition to delivering an immediate set of analytic capabilities, the service provider should be capable of transferring analytic skills to state staff, allowing agencies to gradually take on more of these tasks internally. Building analytic capabilities is key for states to develop more patient-centric services and data-driven operations. However, implementing these capabilities across the enterprise requires the right tools, processes and partner, as well as effective training and change management.

Before agencies can employ analytic services to improve their operations, they need to understand the specific types of analytics: descriptive, predictive and prescriptive. The key distinction

between descriptive, predictive and prescriptive analytics is that they exemplify different levels of analytic capability and are used for specific purposes. Solely leaning on descriptive analytics leads to a more reactive approach to care delivery, while the latter two allow agencies to be more proactive in improving quality and reducing costs.

Descriptive analytics are about aggregating and sorting data and can include standard and ad hoc reports and root cause analysis to identify the problem. Agencies with advanced analytic capabilities leverage predictive and prescriptive analysis to derive insights from their data and employ better decision-making. With this approach, data does more than just help agencies determine what may happen. It can tell them what to do⁶ and what policy transformations or clinical interventions will improve outcomes.

This is particularly important for high-risk patients that have the greatest impact on health care costs. Prescriptive analytics can impact everything from lowering hospital readmission rates to devising treatment plans that reduce the long-term costs of care. For high-risk patients with congestive heart failure, for example, this could mean looking at more than 1,000 variables within the data, including information about each patient's treatment and co-morbidities, and then analyzing

these data sets to group patients into clusters. Agencies then can assess the different outcomes for each cluster and the respective pathways through care that achieved these outcomes, with the end goal of identifying the optimal care pathway for a particular patient or risk profile.⁷

Predictive and prescriptive analytics can answer several questions that lead to better decision-making, like whether patient education at discharge lowers readmission rates, how coordinated care between hospitals and acute care facilities affects outcomes or how specific drug protocols reduce the likelihood of costlier surgical interventions.⁸

Predictive analytics show correlations of potential cause and effect. They can also provide states with statistical modeling capabilities to forecast different scenarios and potential outcomes. Prescriptive analytics then are used to prove causality in cause and effect relationships and provide models and alternatives that allow an agency to choose the best course of action depending on business priorities and objectives.

Because these models grow more adept over time at recognizing patterns of behavior, they lead to more precision-based medicine within the health care system — the ultimate game-changer from a risk assessment, clinical and financial standpoint.

Understanding the Terms

Descriptive analytics:

A preliminary stage of analytics processing that creates a summary of historical data to yield useful information and possibly prepare the data for further analysis. Descriptive analytics are about aggregating and sorting data and can include standard and ad hoc reports and root cause analysis to identify a problem.

Predictive analytics:

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Prescriptive analytics:

Prescriptive analytics are used to prove causality in cause and effect relationships and provide models and alternatives that allow an agency to choose the best course of action depending on priorities and objectives. Because these models grow more adept over time at recognizing patterns of behavior, they lead to more precision-based medicine within the health care system.



Differential diagnosis
1000000



DETERMINING ANALYTIC MATURITY

The American Public Human Services Association's (APHSA) "Roadmap to Capacity Building in Analytics"⁹ has laid the groundwork for states to assess where they stand and how to establish their analytics operations.

However, the road to building greater analytics capability and capacity often isn't linear. Many capabilities need to come together to build an effective overall analytics program. Success requires a multi-dimensional approach that considers technology, human, clinical and process capabilities. Today, most states' capabilities aren't aligned: They may have a platform, but lack the skillset in house to interpret the data, or they may have intermediate data analyst skills, but lack automated tools to interpret the data.

Growing analytic maturity is one of the most important investments an agency can make, but it also is one of the most overlooked as agencies seek to solve problems now. That's why it's critical for states to have a flexible roadmap, one that reflects where capabilities are mature, where they are lacking and how agencies can build a path to align these capabilities and become more impactful.

The levels of analytic maturity are categorized based on how an agency defines its challenges, prepares data, conducts analysis, implements a plan of action, and presents and monitors data.

The levels of analytic maturity are categorized based on how an agency defines its challenges, prepares data, conducts analysis, implements a plan of action, and presents and monitors data. As you can see on the following pages, overall analytic maturity varies based on a subset of capabilities within an organization. For example, an organization may be at Level 2 from a presentation and analysis standpoint, relying on advanced spreadsheet formulas and visualization functions to interpret data and Powerpoint presentations to convey information across its enterprise. But at the same time the organization understands the challenges it faces and has data analysts, data scientists and other skilled staff in place to address these challenges (Level 3). In this case, moving the technology further along the maturity model could improve staff efficiency. As an agency reaches higher levels of analytic maturity, things like predictive modeling, real-time performance monitoring and prescriptive analytics come into play, and the organization's capabilities become more aligned, leading to greater automation and integration that can solve issues across departments.

However, analytic maturity is about more than just technology and automation. Today, most states likely are at a Level 1 or 2 and need to build platforms, train their staff and refine their processes to create an analytics mature culture. But even more importantly, they must restructure their organization to build internal analytics capability and capacity. Part of the solution will involve working with an external partner to anticipate the skillset needed for the future, but agencies also must leverage people skilled in analytic methodologies while helping existing staff and leadership understand the value that analytics brings.



Optum has built on APHSA's work to create a maturity model that helps agencies move their analytics process forward, no matter where they lie on this continuum. The model involves a six-step analytics process across five varying levels of analytic maturity:

1 When defining problems, we:

LEVEL 1 – SUSTAIN:

Don't know there is a problem until after it happens.

LEVEL 2 – INFORM:

Are aware of problem as it occurs.

LEVEL 3 – TRANSFORM:

Know there could be a problem and can take steps to address it.

LEVEL 4 – REFORM:

Are actively predicting problems and corrective action needed.

LEVEL 5 – GOVERN:

Are able to clearly define the problem across the enterprise, and the problem definition clearly identifies the data that is required.

2 When preparing data, we:

LEVEL 1 – SUSTAIN:

Have "beginner" skillsets and basic knowledge of data and spreadsheet tools. Advanced analytics are completed by contractors.

LEVEL 2 – INFORM:

Have intermediate data analyst skills and a working knowledge of data, graphing and presentation tools.

LEVEL 3 – TRANSFORM:

Have an Enterprise Data Warehouse (EDW) with an adaptable data model that acts as a single source of truth for enterprise data.

LEVEL 4 – REFORM:

Maintain the accuracy and value of the data and apply the right statistical method to the problem.

LEVEL 5 – GOVERN:

Have an active data governance program in place.

3 When conducting analysis, we:

LEVEL 1 – SUSTAIN:

Conduct no proactive analysis.

LEVEL 2 – INFORM:

Utilize advanced spreadsheet formulas and visualization functions to perform computations and analysis.

LEVEL 3 – TRANSFORM:

Can take corrective action to prevent performance and financial thresholds from being broken.

LEVEL 4 – REFORM:

Know our organization and staff are ready to address issues and have established processes and owners in place.

LEVEL 5 – GOVERN:

Keep clinical and agency data in the EDW and easily accessible.



4 In our action plan:

LEVEL 1 – SUSTAIN:

Required action is not intuitive or obvious from the analysis.

LEVEL 2 – INFORM:

Required action is derived from single processes and contained within a single program, group or system.

LEVEL 3 – TRANSFORM:

Specific tasks and work plans identify what needs to be done and when.

LEVEL 4 – REFORM:

We can solve issues across agency departments.

LEVEL 5 – GOVERN:

We can solve issues across state and federal agencies.

5 Our presentations:

LEVEL 1 – SUSTAIN:

Are in PowerPoint, Excel or other documents.

LEVEL 2 – INFORM:

Are still limited to PowerPoint and Excel, but now show more of the analytics process, including formulas, etc.

LEVEL 3 – TRANSFORM:

Use advanced analytic visualization tools to present process, methods, models and outcomes to tell the story.

LEVEL 4 – REFORM:

Are made to agency leadership and clearly and concisely present the problem, analysis, alternatives and recommendation.

LEVEL 5 – GOVERN:

Cover all impacted stakeholders and include clear messaging. Updates and opportunities are automated.

6 When monitoring, we:

LEVEL 1 – SUSTAIN:

Have no good way to monitor and measure effectiveness of changes.

LEVEL 2 – INFORM:

Can identify anticipated changes, but cannot predict quality or quantity.

LEVEL 3 – TRANSFORM:

Can build predictive models and measures to monitor progress.

LEVEL 4 – REFORM:

Can build and rely on prescriptive models.

LEVEL 5 – GOVERN:

Monitor performance measures in real time.



BREAKING DOWN BARRIERS: OVERCOMING KEY CHALLENGES

Analytics must be a central part of a modern Medicaid and HHS enterprise. Providing quality health care to larger — and often less healthy and higher risk — groups of people is costly and puts added strain on a state's health care system. Inefficiencies within the system increase the cost of care, and these costs often are passed on in the form of higher premiums and added expenses for program payers, and ultimately, taxpayers.

As Medicaid and HHS agencies try to deliver as much efficiency and quality from their programs as possible, leveraging analytic services is a clear way to achieve this goal in a shorter period of time. But organizations first must be prepared for these challenges as part of their analytics transformation.

Budgets and funding

Developing analytic capabilities can be time-intensive and expensive, depending on several variables:

- ◆ Amount of data to be integrated
- ◆ Amount of external data to be purchased
- ◆ Age and compatibility of existing systems
- ◆ Type of output (e.g., reports, dashboards, predictive models) and analytics tools desired
- ◆ Availability of data analytics expertise (data scientist, data architect, statistician, etc.)
- ◆ Ongoing staff training
- ◆ Desired performance/responsiveness
- ◆ Frequency of data refresh
- ◆ Data integration, data sharing and data governance

However, significant federal resources are available for state analytic initiatives. In addition to the 90 percent financial match from CMS, other federal agencies encourage technology modernization with additional funding. The Administration for Children and Families (ACF) and the Food and Nutrition Service (FNS) extended the Circular A-87 Exception — the cost allocation waiver for developing shared eligibility and enrollment systems — through 2018. This means states no longer must allocate the costs for integrated systems across multiple departments — a barrier for some programs — to be eligible for federal matching funds.¹⁰ States, especially those at a Level 1 or 2, must take advantage of this ripe funding environment to develop their analytic maturity.



Data management and governance

Analytic insights are only as good as the raw data from which they emerge, and the statistical method and analysis that is applied. Data management and governance techniques help ensure the quality, accuracy, consistency, availability and security of data.

Data governance is an essential business process that requires a thoughtfully developed framework for interacting with data to guarantee confidentiality, quality and integrity — and to meet requirements for financial reporting, security, privacy and regulatory compliance. A data governance framework must apply appropriate oversight without creating a bureaucracy that turns the analytical process into a daunting and complex challenge.

To comply with state and federal privacy and security mandates, states must have a governance structure that guides the integrity and security of Medicaid and HHS data. A governing body or committee can help define priorities, procedures and plans to ensure data is collected, managed and used appropriately.

Data management is more of a technology and operations issue. When integrating data from a variety of sources, acquisition, ingestion, cleansing, enriching and provisioning the data are critical.

Based on the agency's governance structure, each data set must have the proper security controls to manage user access rights and meet federal and state privacy mandates.

Workforce expertise and talent

Technology and data alone will never provide the analytics an agency needs to achieve its objectives. The human component of analytic services is critical to achieving an agency's short- and long-term capabilities.

The best data analysts and scientists have training and experience in multiple areas, including statistics, computer science and machine learning. Many organizations, including CMS, have chief data officers to coordinate and oversee data collection, dissemination and sharing efforts, as well as to develop frameworks for using data to improve health care.

Agencies can restructure their organizations in the same way to develop an analytically mature culture. The maturity model outlines the steps for building this capacity. It may begin with hiring data analysts or data program scientists, or retraining existing technical staff on tools that more closely align with business needs. In some cases, an agency may leverage a partner that provides the technology platform and works hand-in-hand with them on organizational transformation.

The process of building analytic capabilities is about gaining insight and understanding what business problem you're trying to solve — and this can't be achieved if the technology services and program goals don't come together.

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CHECKLIST: BEST PRACTICES FOR BUILDING INTERNAL ANALYTIC CAPABILITY

✓ Understand Your Existing Capacity and Capabilities

Identify the problem and frame the right question before selecting the data and analytic methods: What are the critical business challenges that you need analytic services to solve? Where are the operational and capability gaps and areas for improvement within your organization — and are these gaps mainly technological or process and staff capacity related? Asking and framing the right question is the single most important step in the analytics process. Everything flows from this. If this is wrong, it is likely that the work, method and results will be wrong as well.

✓ Leverage a Partner

Third-party vendors signed on for short-term engagements can help agencies get their efforts off the ground, but engagements with an outside vendor work best when they're more of a partnership and less transactional. For organizations at the beginning stages of analytic maturity, building an analytic culture can take several years. It's critical to work with a partner who does more than just provide a technology solution — they should understand your organization's specific needs and challenges. The focus shouldn't just be about tools, but more about tactics and long-term knowledge-building.



Overall, develop a data-driven vision for statewide programs that becomes an integral part of your organization's mission and your staff's everyday work.

 **Monitor Resource Allocation**

Budget constraints often force agencies to remain stagnant. However, analytics help organizations identify high-cost drivers, assess if they've made the right resource investments and proactively implement changes — whether it's directing more resources to underfunded preventive care programs that lower utilization rates or launching pilot projects in high-risk pools that represent a small portion of the care population but the largest share of the costs.

Sometimes, the answer isn't more money, it's shifting funds to areas where spending has the greatest impact. Analytics give agencies a justifiable business case to do so.

 **Develop a Sustainable Analytic Culture**

Cultivate your analytic culture, specifically the technology, processes and people within your organization. Identify where you are within the maturity model and define your ideal future state — is it building predictive models to measure and monitor progress, or is it using prescriptive analytics to make clinical and policy decisions? Also develop a process for data governance and continuous program improvement that involves input from key stakeholders and data modeling to enhance care quality and lower costs.



REINVENTING PROGRAMS THROUGH ANALYTIC SERVICES

With an increased focus on transparency, paying for value and improving program outcomes, analytics aren't optional add-ons to states' IT infrastructures — they are non-negotiable for better program delivery.

As Niall Brennan, the first chief data officer for CMS, noted: "As [CMS moves] from a relative passive purchaser of fee-for-service care to value-based care with an emphasis on holding providers accountable to various performance thresholds and measuring quality much more aggressively, it's just absolutely critical that we have all our data ducks in a row."¹¹

Brennan's advice also applies to state Medicaid and HHS organizations. Driven by the shift to value-based care, states are realigning their Medicaid programs to provide measurable results via analytic services. However, there's a misconception that this is a technology problem. It's so much more than that — it's about aligning an organization's operational, technological, process and human capabilities to extend the promise of value-based health care beyond Medicaid to achieve Triple Aim objectives

“As [CMS moves] from a relative passive purchaser of fee-for-service care to value-based care with an emphasis on holding providers accountable to various performance thresholds and measuring quality much more aggressively, it's just absolutely critical that we have all our data ducks in a row.”

Niall Brennan, Former Chief Data Officer, CMS

statewide. States are leveraging analytic services to augment their current capabilities and build new capabilities across their organizations. These services enable agencies to provide value quickly while they build their analytic maturity.

To meet today's program challenges, agencies must build an analytically mature culture. This begins with understanding where you are today and where you want to be in the future, and putting the right tools, resources and people in place to get there.

ENDNOTES

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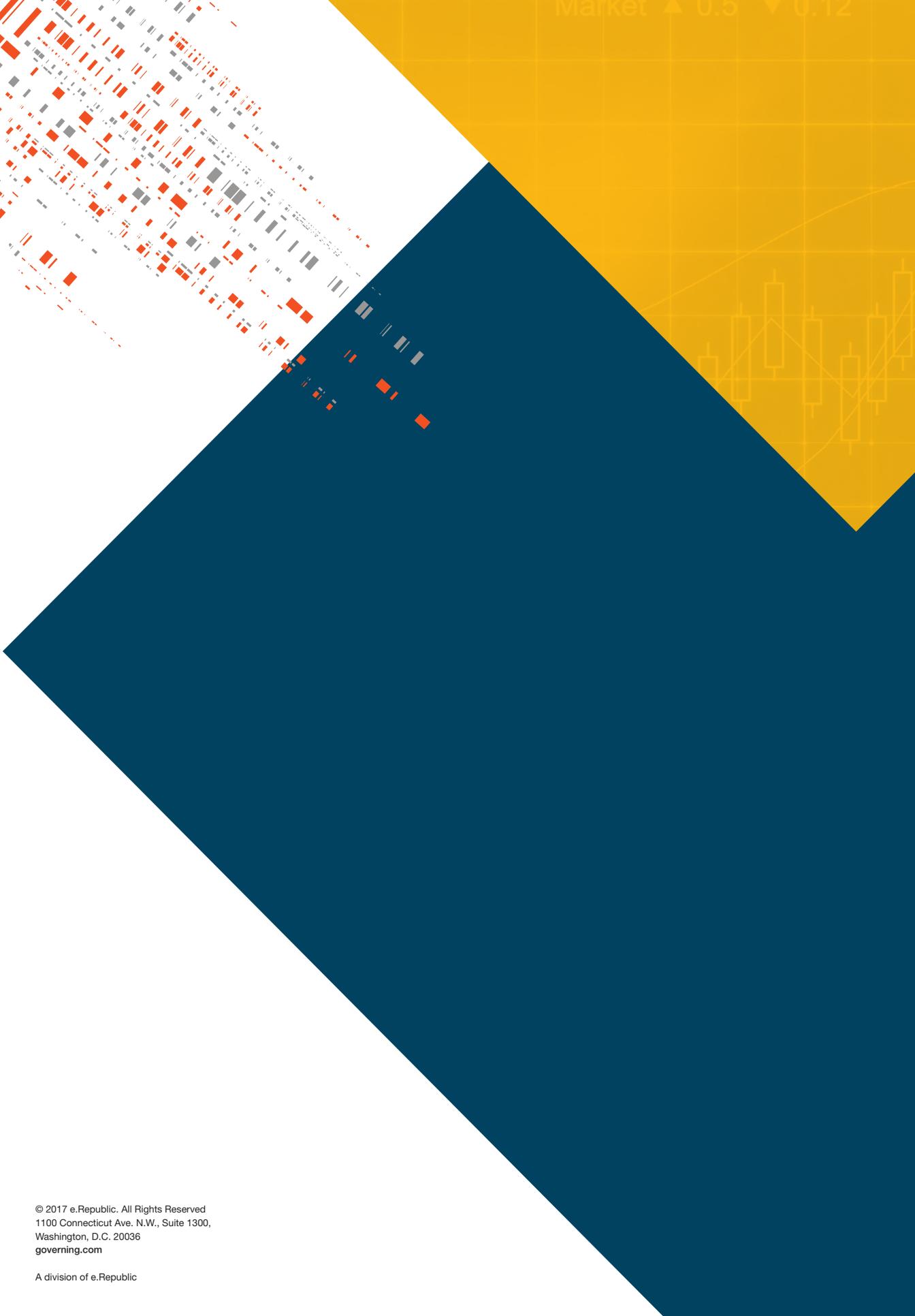
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