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From transactional to transformational:
Achieving a revenue cycle of the future

Introduction

The US health care environment demands a radically reimagined revenue cycle organization, one that transcends the transactional, highly manual, and siloed operation that commonly defines today's revenue cycle. To capitalize on an increasingly data rich ecosystem and the evolution of patient expectations, as well as ensure financial strength in an environment of rapid care and reimbursement innovation and eroding margins, the revenue cycle of the future must:

Serve as the nexus of financial, operational, and clinical insights for the organization
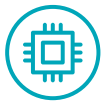
Provide a digital-centric, financially transparent, and personalized patient experience

Deliver a minimal cost to collect on par with the low levels seen in other industries like retail

The COVID-19 pandemic has only served to accelerate the financial, patient experience, and operational demands that have been building for years. The pandemic has put the spotlight on revenue cycle performance for US health care finance executives more acutely than any time since the foundation of managed care arrangements in the mid-20th century. With the unprecedented decline in service volume and net revenue in the short term, followed by exponential growth in volume while navigating staff reductions and furloughs, all while dealing with the economic uncertainty expected in the medium-to-long term, organizations must both improve collections yield on a smaller base of revenue and do so as efficiently as possible. Investing in the revenue cycle of the future is more critical than ever.

A revenue cycle of the future can both drive down costs through an optimized operating model—combining intelligent automation with targeted outsourcing—and improve revenue yield by enabling more effective collections activities driven by cognitive analytics and machine learning. It can also deliver a more seamless patient experience through more digital channels for patient-provider interaction and better continuity of care due to data interoperability and integration. As finance functions have been proactively in investing in digital, automation, and analytics assets, revenue cycle organizations have often been slow to evolve and defined by manual, resource-intensive, and reactive processes. These legacy revenue cycle processes produce long delays in revenue realization, do not generate maximum yield on claims, and deliver a fragmented, confusing experience to patients.

Investing in a revenue cycle of the future will both shore up the financial health of organizations in the wake of the pandemic and make them more resilient to the multitude of potential future disruptions that could affect the industry, from further socioeconomic instability to environmental disasters. A more automated revenue cycle is less vulnerable to workforce disruptions like those caused by COVID-19. A more intelligent revenue cycle can better generate revenue yield during times of financial stress. And a more digital revenue cycle can help patients better and more easily navigate different care options during times when traditional options are limited and patient vulnerability is heightened. But a revenue cycle cannot be viewed in a vacuum. Anticipating the broader future of health landscape over the next decade is critical to effectively planning for and investing in the revenue cycle of the future.
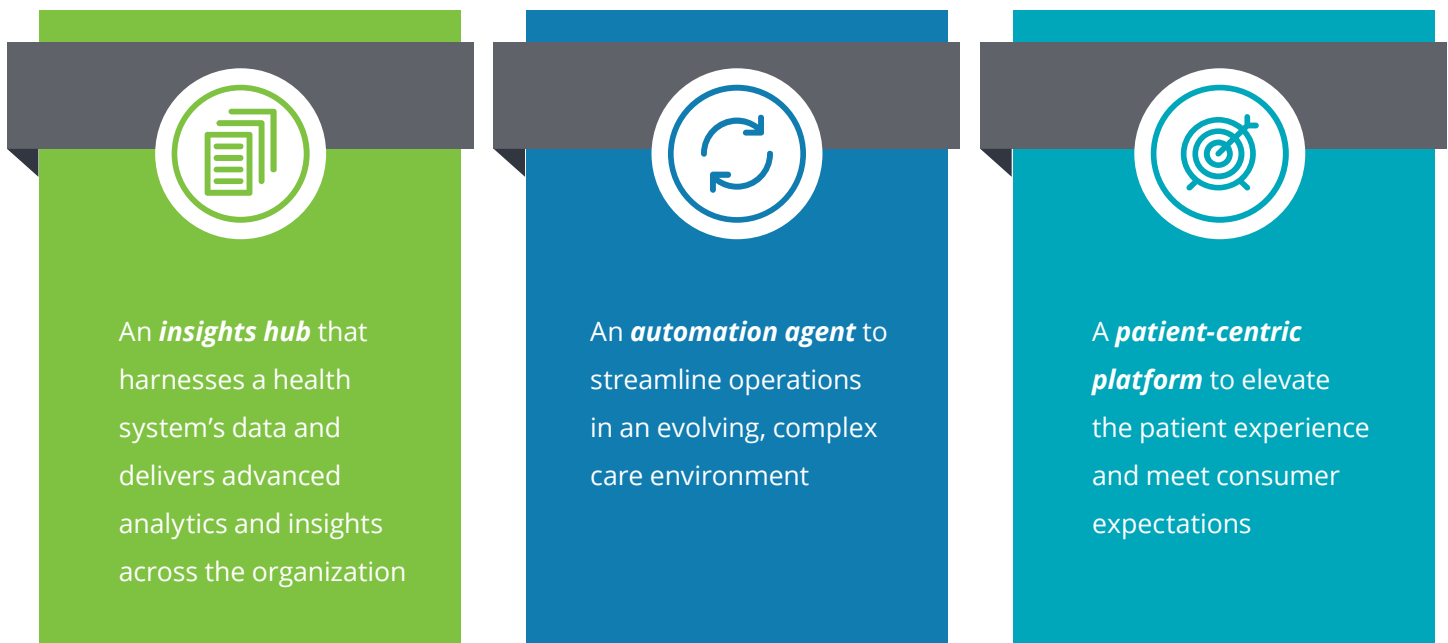
The future of health landscape

The key trends driving the future of health are interconnected and mutually reinforcing. They are defined by:

01. Transformations in the availability, interoperability, and deployment of data,
02. Innovation in care delivery and settings of care, and
03. Evolution of expectations for an increasingly empowered patient population[1].

Patients are increasingly willing and able to share their health data as the interoperability of data across providers and platforms expands[2]. Improved techniques for leveraging that data, in turn, are driving more rapid breakthroughs in population health and treatments. Along with these breakthroughs, settings of care are expanding, from retail clinics to telehealth visits, to improve access to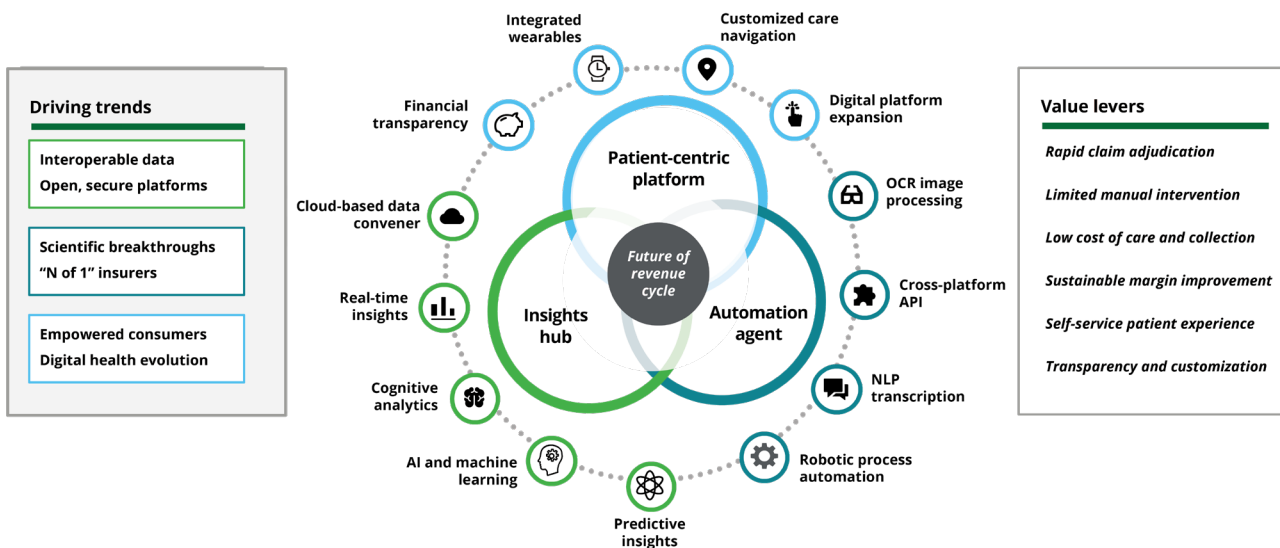 care and reduce costs. Finally, patients expect greater transparency and channels of engagement from health care providers. Organizations that not only react to, but push forward these trends will be well-positioned to succeed financially and deliver the highest quality of care.

The traditional revenue cycle is ill-prepared to respond to these trends. It has been narrowly focused on a limited set of financial data; been defined by inefficient, manual processes; and viewed patient interactions as mostly transactional. As the future of health landscape emerges over the next decade, the revenue cycle must be reimagined to play new and expanded roles that both respond to and drive the three key trends of that landscape while simultaneously helping shore up financial strength amid declining margins. The revenue cycle of the future will play three key roles, including:

An ***insights hub*** that harnesses a health system's data and delivers advanced analytics and insights across the organization

An ***automation agent*** to streamline operations in an evolving, complex care environment

A ***patient-centric platform*** to elevate the patient experience and meet consumer expectations

The future of revenue cycle

A leading revenue cycle will play three roles in the future of health as an insights hub, automation agent, and patient centric platform

Driving trends

Interoperable data
Open, secure platforms

Scientific breakthroughs
"N of 1" insurers

Empowered consumers
Digital health evolution

Integrated wearables
Customized care navigation
Financial transparency
Digital platform expansion
Cloud-based data convener
OCR image processing
Real-time insights
Cross-platform API
Cognitive analytics
NLP transcription
AI and machine learning
Robotic process automation
Predictive insights

Patient-centric platform
Insights hub
Automation agent
Future of revenue cycle

Value levers

Rapid claim adjudication

Limited manual intervention

Low cost of care and collection

Sustainable margin improvement

Self-service patient experience

Transparency and customization

Insights hub

At the nexus of a health system's financial and clinical data, revenue cycle organizations can serve as an insights hub that produces insights to optimize workflows, predict claim outcomes, and deliver intelligence on population health. Health systems have access to an ever-expanding universe of data not just from traditional sources like EMRs, but also patient-centric sources such as smartphones and wearables. As such, revenue cycle organizations must build capabilities to maximize the value driven by such a data-rich environment.

Through advanced analytics, the revenue cycle can serve as the main source of insights for operational and financial performance, as well as clinical insights. Cognitive machine learning and predictive models, in particular, are important for ingesting data across a multitude of systems and sources and generating actionable insights. They will allow organizations to craft intelligent, streamlined workflows with advanced prioritization and to rapidly identify and understand trends. These capabilities will be especially important to maximize reimbursement under value-based care reimbursement models given the complexity of reimbursement methodologies that include clinical and quality variables.

The revenue cycle as an insights hub is beginning to take shape for health systems exploring new frontiers for

data modeling and predictive analytics. A Midwest-based health system with more than $5B in operating revenue partnered with Deloitte to identify and build out cognitive machine learning uses cases that could be leveraged within the organization's existing centralized data environment. The effort enabled the health system to embed machine learning into their organization and generate predictive analytics that are being translated into actionable insights for both front-end and back-end revenue cycle operations. The capabilities have thus far generated cash acceleration of more than $16M and efficiency gains equivalent to more than 10 FTEs.

Case study: Revenue cycle as an insights hub

Engagement overview

- Deloitte data science and health care resources worked **to inventory the data sources available, develop a group of potential uses cases, then build out initial models** to confirm which models to proceed further with

- **Three predictive analytics models**—one in scheduling and two in insurance follow-up—**are being integrated into health system operations** to streamline strategic decision-making

Predictive analytics models

Insurance follow-up	**Preempt complexity** Predict whether an account will be "complex" to resolve and escalate to super user to preempt long collection cycle
	Expect future payment Predict whether an aged account will receive an insurance payment and isolate for either payment acceleration or write-off
Patient access	**Schedule lead time** Predict whether authorization will take more than five days to obtain and adjust ordering or scheduling behavior

Results

	Preempt complexity	Expect future payment	Schedule lead time
Value source	**Reducing total number of user touches** required and accelerating cash collected	**Accelerating cash collected** and **cleaning up backlog of net A/R**	**Reduction in patient access authorization denials** experienced across the organization
Benefit	**105,000+ touches (10–14 FTE)**	**$16.2M net cash acceleration** **$17.0M net A/R cleanup**	**In progress – Model targeting net revenue improvement**

Beyond core revenue cycle operations and workflows, the revenue cycle of the future can enable health system leadership to conduct more rapid and intelligent operational and clinical planning. By integrating clinical and claims data with data gathered from patient-centric sources (such as wearables), revenue cycle's advanced analytics capabilities can help leadership proactively identify trends in population health, like flu outbreaks, to inform resourcing deployments and contingency planning.

They can also identify frequent discrepancies between physician orders and billed services to support improved education around physician ordering and documentation. As an insights hub, the revenue cycle of the future can both maximize reimbursement and operational efficiency in a value-based environment and inform broader operational decisions for the organization.

Automation agent

The revenue cycle of the future can also serve as an automation agent to streamline operations in a complex care environment with a growing number of settings of care. The emergence of robotic process automation (RPA) and the digital worker has been one of the most disruptive technological breakthroughs in recent years. But despite some initial adoption of RPA capabilities in revenue cycle, back-office revenue cycle functions still remain oversaturated with manual activities, creating operational inefficiencies and inflating cost to collect. As automation technology advances, so must the adoption of its capabilities by revenue cycle functional areas. The revenue cycle of the future will be defined by automated claim and remittance processing with minimal staff intervention that

drives higher reimbursement through reduced user error and more targeted intervention by highly trained staff. Health systems across the nation are taking progressive steps toward automating revenue cycle operations. A West Coast–based health system with more than $10 billion in annual operating revenue partnered with Deloitte Consulting to identify high-value automation opportunities across the organization's operations and assist with the deployment of automated solutions. These efforts produced 12 automations across both the revenue cycle and supply chain business units that have generated efficiency gains equivalent to more than 11 FTEs.

Case study: Revenue cycle as an automation agent
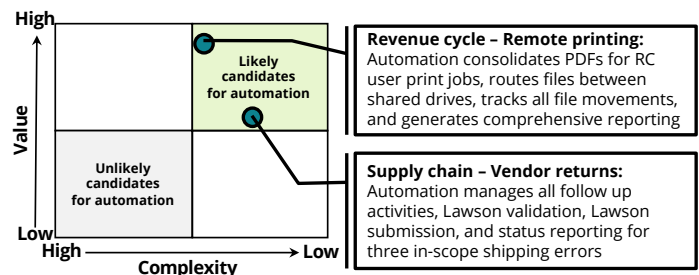
Engagement overview

- Health system's shared services organization sought to **reduce operating costs by 20% across all major business units**, with a primary focus on **achieving this goal via robotic process automation**

- Deloitte robotic and intelligent automation resources first worked **to identify and prioritize a pipeline of automation candidates**, then later returned to **implement an initial wave of automations**

- Initial deployment of **12 automations across two business units** generated an **annual time savings of 20,000+ hours representing 10+ FTEs** and provided increased levels of reporting transparency

Assessment and process selection

Deloitte worked across four business units to identify high-value, low-complexity automations for initial implementation.

Revenue cycle – Remote printing: Automation consolidates PDFs for RC user print jobs, routes files between shared drives, tracks all file movements, and generates comprehensive reporting

Supply chain – Vendor returns: Automation manages all follow up activities, Lawson validation, Lawson submission, and status reporting for three in-scope shipping errors

Results

	Remote printing	Vendor returns
Automation action	Automation **consolidates, routes, and tracks** packets of documentation within an **optimized folder structure** for printing and mailing.	Automation **conducts follow-up and formatting guidance** with vendor before **validating and submitting returns** into multiple Lawson screens.
Benefit[1]	10.3 FTE	1.0 FTE

Embracing automation is critically important for revenue cycle organizations in a value-based care environment with growing care delivery models and sites of care. While value-based care reimbursement models put pressure on revenue, they also can drive costs higher due to the increased variables involved in reimbursement. Expanding settings of care also adds costs to revenue cycle organizations through the need to manage reimbursement across more sites of care. Billing departments, for example, must now not only understand billing protocols

for hospital versus physician billing, but also protocols for nontraditional sites of care, such as telehealth and retail clinic visits. To maintain sustainable margins in this environment, health care providers must reduce manual touches and drive down their cost to collect. Perhaps the most impactful way this can be achieved is through the resource and efficiency savings of a fully automated revenue cycle. While this may require up-front investments, revenue cycle organizations cannot risk forgoing the long-term cost savings of an automated revenue cycle.

The Top 100 U.S. Health Systems and Potential Cost Savings

Each **percentage point reduction in cost-to-collect (CTC)**, based on net patient service revenue (NPSR), for the **top 100 U.S. health systems** has the potential to generate approximately **$5B in total cost savings** and **$50M average savings** per system

	Total	System Average
Revenue[1]	**$502B**	**$5B**
Cost-to-Collect (estimated)[2]	**$25B**	**$250M**
CTC w/ 1pp Reduction	**$20B**	**$200M**
Cost Savings per 1pp Reduction	**$5B**	**$50M**

1. Based on 2017 Medicare cost report
2. Cost-to-collect estimated at an average of 5% of NPSR based on Deloitte industry experience. Cost-to-collect includes both direct and indirect expenses, including salaries, benefits, and wages, vendor costs and purchased services, real estate and facility costs, software and application licensing fees and support costs, and IT operational expenses

Patient-centric platform

Finally, the revenue cycle can drive patient satisfaction through a patient-centric platform that provides a digital and seamless connection point between patients and providers, enables standardized data availability and self-service capabilities, and guides patients through their health care journey. A traditional health system, and a revenue cycle organization in particular, typically views the patient experience within the confines of a specific patient encounter delivered in a provider-dictated setting of care.

The revenue cycle of the future will take a more holistic view to become a patient-centric platform that creates a more empowered patient experience.

Health system leaders are increasingly focused on patient experience as a key priority in an effort to empower patients and provide seamless and efficient interactions. At a Southern US–based health system with more than $10 billion in annual operating revenue, strategic investments

were made to centralize and enhance its patient contact center. In partnership with Deloitte Consulting, the health system executed critical operating model changes and technology implementations to provide a unique and reliable experience for their patients.

Case study: Revenue cycle as a patient-centric platform
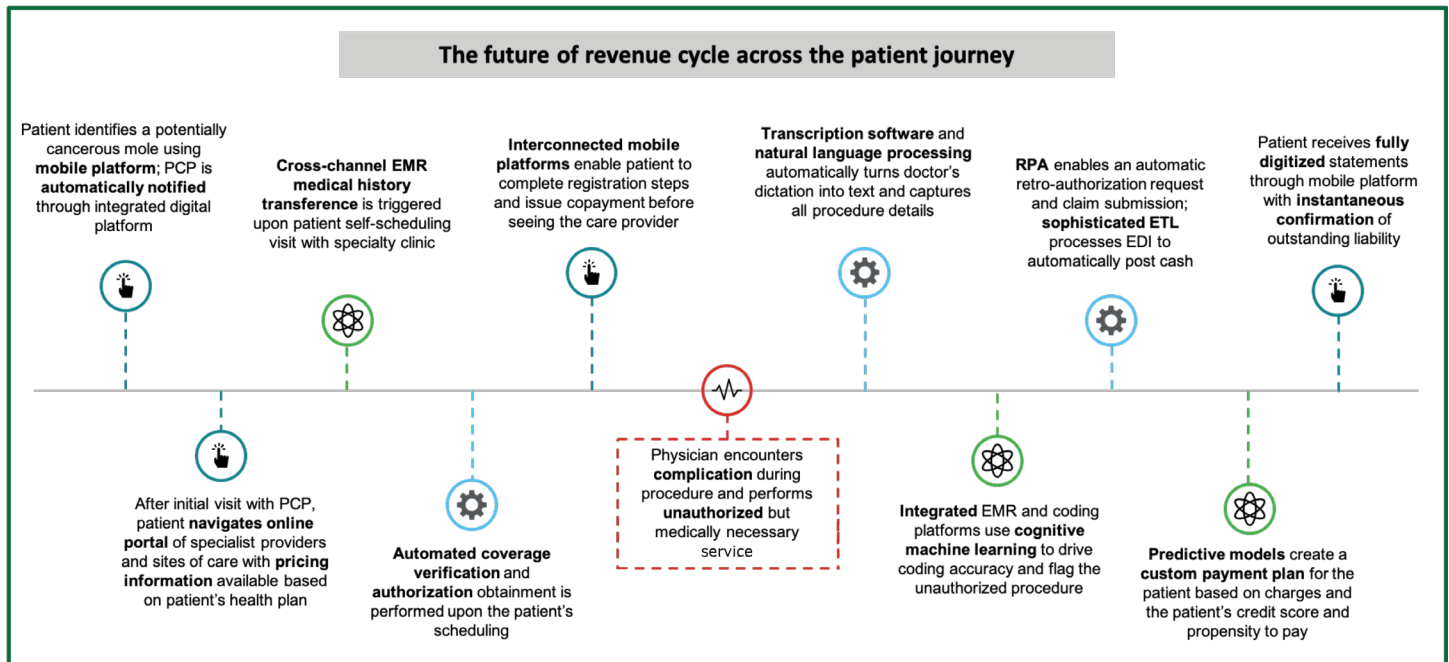
Engagement overview

- Unified a **fragmented patient engagement and contact center** operating model to deliver a more consistent and efficient patient experience

- Adopted technologies to enable mature and seamless contact center operations and **provide an elevated and personalized patient experience**

- **Standardized visit types** and scheduling parameters to create a consistent and accurate scheduling process for patients

Results

	Customer satisfaction	Technology enablement	Enhanced front end
Value source	**+96% customer satisfaction rate** with ease of contacting clinics served by contact center	Implemented technology to automatically prompt staff with patient details and create a personalized interaction	Provided patients with flexible, cross-clinic scheduling options and integrated preservice interactions

Revenue cycle organizations will become the hub of patient interactions and provide a multitude of digital interaction points before, during, and after receiving services. And these interaction points will be integrated and stitched together to feel seamless to the patient and not require redundant or burdensome efforts. Revenue cycle organizations will also serve as a care navigator by providing menus of options for sites of care and services that are customized to patient needs. As is commonplace outside of health care, the revenue cycle of the future will provide pricing and cost transparency to guide patient decision-making, both financially and clinically, and improve financing options and health outcomes for patients.

The future of revenue cycle across the patient journey

Patient identifies a potentially cancerous mole using **mobile platform**; PCP is **automatically notified** through integrated digital platform

Cross-channel EMR medical history transference is triggered upon patient self-scheduling visit with specialty clinic

Interconnected mobile platforms enable patient to complete registration steps and issue copayment before seeing the care provider

Transcription software and **natural language processing** automatically turns doctor's dictation into text and captures all procedure details

RPA enables an automatic retro-authorization request and claim submission; **sophisticated ETL** processes EDI to automatically post cash

Patient receives **fully digitized** statements through mobile platform with **instantaneous confirmation** of outstanding liability

After initial visit with PCP, patient **navigates online portal** of specialist providers and sites of care with **pricing information** available based on patient's health plan

Automated coverage verification and **authorization** obtainment is performed upon the patient's scheduling

Physician encounters **complication** during procedure and performs **unauthorized** but medically necessary service

Integrated EMR and coding platforms use **cognitive machine learning** to drive coding accuracy and flag the unauthorized procedure

Predictive models create a **custom payment plan** for the patient based on charges and the patient's credit score and propensity to pay

Integrated capabilities driving improved performance and outcomes

The three key roles that define the revenue cycle of the future are interconnected and mutually reinforcing. Both insights hub and automation agent capabilities are critical to maximize revenue yield and realize a cost to collect more in line with other sectors like retail (2% credit card transaction fees[3]), rather than the cost to collect of about 5% of net revenue that many health systems currently incur. The digital capabilities of a patient-centric platform combined with the advanced analytics of an insights hub will help patients financially navigate their care experience and reduce the price opaqueness that is too common in the current patient financial experience. These combined capabilities can help patients understand, for example, price differentials across different sites of care for the same service and how these different sites of care will affect their out-of-pocket liabilities. Automation agent capabilities can allow patients to navigate through options, understand pricing, and schedule services on demand through mobile platforms. With all of these capabilities, the revenue cycle of the future can deliver both a cost structure and patient experience more similar to consumer-centric industries like retail and delver both financial improvement and high patient satisfaction.

Achieving a Cost-to-Collect Like A Retailer

By achieving a cost-to-collect (CTC) on par with the retail industry (approximately 2% of revenue), the **top 100 U.S. health systems** have the potential to generate approximately **$15B in total cost savings** and **$150M average savings** per system

	Total	System Average
Revenue[1]	**$502B**	**$5B**
Cost-to-Collect (estimated)[2]	**$25B**	**$250M**
CTC of 2% NPSR	**$10B**	**$100M**
Cost Savings	**$15B**	**$150M**

1. Based on 2017 Medicare cost report
2. Cost-to-collect estimated at an average of 5% of NPSR based on Deloitte industry experience. Cost-to-collect includes both direct and indirect expenses, including salaries, benefits, and wages, vendor costs and purchased services, real estate and facility costs, software and application licensing fees and support costs, and IT operational expenses

How to build a revenue cycle of the future: The next 90 days to the next five years

The foundational work for achieving the full potential from your future revenue cycle can begin immediately with a comprehensive review of your current revenue cycle capabilities. The review should focus on opportunities for operating model optimization, process standardization, technology integration, and data and analytics maturity and should include the following activities:

Insights hub

- Build a comprehensive understanding of current inventory of data sources, analytics tools and applications, and analytics and reporting competencies and personnel

- Identify additional public and private databases, as well as unconventional data sources like wearables, that can provide a more holistic picture of your patient population and communities

- Analyze gaps in data sources, technology, and competencies, especially related to advanced analytics capabilities like machine learning and natural language processing

- Determine operating model for filling analytics competency gaps (for example, build internally versus outsource) and evaluate potential partners

Automation agent

- Document workflows and technical aspects of how data and information is transferred internally and externally to patients and payers

- Identify rules-based processes and areas of high-touch manual work that are candidates for RPA

- Document high-level business requirements, compliance regulations, and exception paths for automation candidates

- Establish a plan for governance for digital solution development and implementation

Patient-centric platform

- Document current operating model related to both pre- and post-service patient engagement and identify fragmentation and redundancies in the current model

- Map current channels and methods of engagement throughout the patient revenue cycle journey to identify opportunities for digital and/or streamlined engagement

- Document comprehensive inventory of technology applications involved in patient engagement, where current integration or redundancies exist, and inconsistencies in implementation or usage throughout the health system (such as inconsistent usage across physician clinics)

- Assess current ability of scheduling operations to present patients with different available care options during scheduling process, as well as the frequency and accuracy of preservice pricing estimates provided to patients

The next five years: Becoming a mature revenue cycle of the future

The output of this operational review will yield a portfolio of transformation opportunities to be designed, developed, tested, and implemented over a one-year window and will serve as foundational capabilities for a mature future of revenue cycle in a five-year time horizon. Initial, targeted investments are important not only to establish the technical and talent foundation, but also to build organizational momentum and demonstrate the value of pursuing a more comprehensive transformation.

The past decade has seen a dramatic evolution of data management capabilities with the growth of cloud-native solutions offered by hyperscalers in the marketplace. Platforms like Microsoft Azure and Amazon Web Services provide infrastructure, platform, and software-as-a-service that revenue cycle organizations can utilize to store, transform, and leverage a vast universe of data. Investments in an optimized, cloud-native enterprise data warehouse platform to convene a wide range of data sources, coupled with cognitive analytics and machine learning capabilities, are necessary for the revenue cycle to become a health system's insights hub. Enabled with these capabilities, a revenue cycle should establish a cognitive automation center of excellence (COE) to test algorithms and pilot automation use cases. In parallel with the deployment of these solutions, revenue cycle organizations can take the lead in establishing partnerships to link smartphone and wearable health data to health system applications. These partnerships will unlock a whole new universe of population health data for health systems that, when coupled with middle revenue cycle data (like CDI and coding), can drive patient wellness. By building upon the cognitive automation COE and expanded health data universe, the insights hub can achieve fully automated reporting and analytics and become an integral source of clinical insights over the next five years.

To transform into an automation agent, revenue cycle leadership should select an automation partner and prioritize approximately the top 20% of core, repetitive, back-office tasks for automation. RPA programs should be written, tested, and launched within the first year of the transformation process. Over the next five years, machine learning capabilities in the cognitive automation COE can be leveraged to enhance exception monitoring for automation and ensure that only the most difficult cases require human intervention. This will enable at least 80% of core revenue cycle operations to be automated.

Finally, initial patient-centric platform investments should focus on software capabilities in high patient-touch activities, including app-based self-service preregistration, pricing estimation, and registration capabilities to replace costly financial clearance calls, ease the ability to pay, and reduce the need for on-site interactions. But digitizing different patient touchpoints should not be done in isolation. Investments should be made in platforms and capabilities to link together disparate point solutions that can rapidly pile up across a health system. In particular, data from wearables and other devices can enable more ongoing engagement to proactively guide patients and foster wellness. The adoption of wearables will provide physicians with visibility into patients' postservice health behavior to monitor care outcomes, initiate virtual care visits, and predict future treatment needs. These solutions must be stitched together in a way that feels seamless to the patient, rather than disjointed and burdensome. Over the next five years, revenue cycle can build upon the unified digital experience, maturation of pricing capabilities, and continued growth in care delivery options to become a care navigator for the patient.

While the full suite of capabilities outlined above cannot be achieved overnight, the vision of a revenue cycle of the future depends on what strategic choices and investments finance and revenue cycle leaders make today. Merely incremental changes can lead to revolutionary experiences for those inside the revenue cycle and the patients they serve. A registrar, freed from basic check-in responsibilities, can transform into a valuable resource and source of reassurance for a patient who is confused about her insurance benefits or how to schedule a critical follow-up visit. And a patient, alerted through a provider mobile app that he's due for a critical screening, may discover a serious health issue before a more radical intervention is required. The revenue cycle of the future will evolve beyond a transactional agent to become a transformational one.

Endnotes

1 Neil Batra, David Betts, Steve Davis, "Forces of change: The future of health," Deloitte Insights, April 30, 2019, https://www2.deloitte.com/us/en/insights/industry/health-care/forces-of-change-health-care.html.

2 David Betts, Leslie Korenda, and Shane Giuliani, "Are consumers already living in the future of health? Key trends in agency, virtual health, remote monitoring, and data-sharing," Deloitte Insights, August 13, 2020, https://www2.deloitte.com/us/en/insights/industry/health-care/consumer-health-trends.html.

3 AnnaMaria Andriotis and Harriet Torry, "The Credit-Card Fees Merchants Hate, Banks Love, and Consumers Pay," Wall Street Journal, June 21, 2020, https://www.wsj.com/articles/the-credit-card-fees-merchants-hate-banks-love-and-consumers-pay-11592731800?mod=searchresults&page=1&pos=2.

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