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Avoiding AI “Pilot-itis”

7 High-Impact Initiatives That Can Drive Value for Healthcare Providers

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Avoiding AI “Pilot-itis”



7 High-Impact Initiatives That Can Drive Value for Healthcare Providers

From increased clinician burnout and financial instability to delays in elective and preventative care, the pandemic created a perfect storm of conditions that have strained the healthcare system in lasting ways. This storm continues unabated and is unleashing new challenges and exacerbating old ones.

Artificial intelligence (AI) technology is uniquely positioned to help repair the damage, offering tools that enable health systems to predict future healthcare challenges, automate critical workflows, and optimize expenditures and cash flow.

Health systems clearly recognize AI’s potential: In 2020, 83% of hospitals in an Optum AI survey^[1] reported having an AI strategy in place, with another 15% planning to develop one. Further, 59% expect their AI initiatives to yield tangible cost savings within three years—a 90% increase since 2018.

The cost savings are already beginning to compound. We’re seeing this to be true among our own healthcare customers at H2O.ai. A trusted AI partner to more than 20,000 organizations around the world, the H2O AI Cloud platform enables businesses, government entities, nonprofits and academic institutions to make, operate and innovate with AI to accelerate responsible innovation and push the boundaries of what is possible with artificial intelligence. Among our healthcare customers, we are seeing healthcare providers and managed care organizations (MCOs) realize substantial increases in operational and human efficiencies in addition to lower time-to-value for digital transformation initiatives.

Many programs, however, develop a case of pilot-itis. That is, they never advance beyond the pilot phase, failing to become fully fledged initiatives. While some suffer from being IT or tech-led versus business-led, most struggle with adoption and scalability. More commonly, hospitals walk past the kinds of high-value and achievable AI initiatives that can create a flywheel of AI adoption. Instead, they end up attempting very ambitious use cases that often require significant clinical validation and adoption by end users.^[2]

The reality is, AI and machine learning are among the most accessible and scalable technologies available for healthcare, and there are innumerable ways to unlock value with AI across every department within a health system. In fact, we’ve identified seven industry-tested and accomplishable AI initiatives designed to help executives demonstrate swift, measurable results. In this white paper, we reveal how to leverage these initiatives to achieve success with production-grade AI.

1 | Population Health

Nearly one-third of Americans over 50 delayed medical care during the start of the COVID-19 pandemic.[3]

Since then, the statistics only grew worse. A survey conducted in January 2021 found that among those postponing care are patients with chronic conditions in high-risk categories: 29% of people with diabetes and 30% of patients with heart disease said they had missed at least one appointment and fully 45% of patients who self-report as having “fair” or “poor” mental health said they delayed their care as well.

Healthcare providers are now tasked with engaging and getting these populations back on track.

In population health, patients, care coordinators, and clinicians are harnessing AI to:[4]



Identify patients at greatest risk

Leveraging AI across structured and unstructured data from electronic health records, clinical notes, and public and community datasets, AI can be used to search for patients who exhibit specific markers or risk factors.



Develop targeted, data-backed outreach programs

Once patients are identified for intervention, AI can help design a program that offers the highest probability of patient response that also assists clinicians in predicting chronic or acute disease progression. AI can detect, for example, whether an intelligent chatbot, email, a phone call from a nurse, or a text message would be the best form of outreach for driving an individual patient's engagement.



Facilitate sustained patient engagement

LAI-powered automations can serve up educational content or text message reminders to keep patients on track with self-care regimens, improving outcomes by enlisting patients as active participants in their own care.

STRATEGIES FOR SUCCESS

Start small, then scale up

With so many potentially treatable health conditions demanding our clinical attention, it's tempting to tackle everything at once. Instead, for a more effective approach, begin with one chronic condition— diabetes or a specific post-acute care, for example—and build the complete workflow tree for one vertical. Once optimized, this type of program is easily scalable to other conditions.[5]

Enlist a multifunctional team

Successful AI programs create a single-trusted data point that reaches across numerous departments and functions. Physicians are needed to help identify appropriate target risk factors while nurses will likely be the primary field users and should provide regular input on workflow optimization. UX experts should be involved to remove friction in automated patient outreach and CMIOs can provide input on EHR-based workflows. To avoid rework and costly miscalculations, make sure every relevant department is represented within the design team.

Set measurable, reportable KPIs

When users and key stakeholders fail to see value during the pilot phase, they often abandon the technology. Avoid “pilot-itis” at the outset by setting measurable targets that are meaningful to the organization. Make them specific—to reduce the number of hospitalizations linked to diabetes, for example, or to increase appointments scheduled for preventative care. Report the results promptly and frequently.[6]



2 | Strategic Workforce Planning



Clinician—physician and nurse—burnout is at an all-time high and has become much more pronounced during this pandemic. The nursing churn rate currently stands at nearly 19%, and it increased by almost 3% in 2020 alone. With the average cost to replace a bed nurse totaling just over \$40,000, a single hospital may lose as much as \$6 million a year due to nursing turnover.[7]

Those figures don't include the impact nursing shortages have on patient throughput. Without adequate staffing, hospital beds are going unused[8] with the resulting cost to hospitals estimated to be as much as \$1,500 per bed, per day.[9]

With targeted programs for training and retention, AI can turn the tide on nursing turnover, physician burnout, clinician acquisition, and numerous talent management challenges.[10]

- AI can be used to create a flight-risk model that identifies nurses and staff who may be ready for a change of duties or responsibilities. Analyzing turnover data, AI workflows can identify characteristics of employees most likely to be feeling restless or dissatisfied, then search for employees who meet the criteria.
- AI automated communication tools can effortlessly collect job satisfaction feedback from employees and these responses can be used to develop effective retention efforts.
- AI can help hospitals take advantage of under-utilized training programs, matching staff to appropriate opportunities for growth and development.

STRATEGIES FOR SUCCESS

Emphasize the business case

Employee satisfaction is important, but sometimes it's not enough to secure C-level buy-in over other initiatives that may seemingly have more obvious impacts on the bottom line. Overcome this challenge by calculating the actual financial toll employee turnover and care quality exact on an annual basis, and present a concrete business case to reduce the deficit with AI.[11]

Enlist multilevel participation in cross-functional program design

Don't assume senior leadership knows why employee churn happens or how to fix it. If they don't, AI initiatives may be built on incorrect assumptions. Avoid this challenge by enlisting a broad cross-section of employees to provide input in program design from the very beginning.

Anchor from the top—and make sure it's the right top

All technology initiatives depend upon support from upper-level management to achieve full organizational adoption. Talent management, however, requires a more nuanced approach. The wrong senior-level champion could be accused of force-feeding an AI solution to a resistant workforce. Choose project leaders carefully to ensure they can inspire team members and generate enthusiastic support.^[12]

3 | Revenue Cycle and Finance

AI's transformative revenue potential can be felt most directly in finance and revenue cycle management.

Here's just one illustrative use case: A Change Healthcare report revealed that not only that denials are up 23% since 2016, but, astoundingly, that 86% of all claims denials are potentially avoidable.^[13] AI can be leveraged in multiple ways to improve healthcare revenue cycle operations, reduce denials, and maximize reimbursement, including:



- Predicting service line and market financial performance including patient volume and cash flow
- Analyzing claims inventory, finding the most frequent denial causes, and searching for inappropriate downcoding
- Catching easily correctable data-input errors, an AI strategy that can potentially recover millions in lost reimbursement
- Proactively identifying waste, fraud, and abuse
- Presenting next best actions to protect institutions, their employees, and the patients they serve

STRATEGIES FOR SUCCESS

Manage data mapping

Since billing, coding, and revenue cycle management functions are often outsourced to different vendor partners, AI initiatives may need to involve all of these third parties. Prepare for success by ensuring data fields are synchronized and consistent.

Improve the workflow [14]

AI can easily identify revenue recovery opportunities, but that's only half the battle. The critical step is to make these findings actionable by building workflows that, for example, queue up claims that can be corrected and resubmitted. Make it easy for patient financial services (PFS) teams to act on revenue recovery opportunities, otherwise these types of AI initiatives will do little more than generate accounting data.

Emphasize automation and efficiency [15]

In the area of finance and accounting, AI can accomplish in minutes what otherwise might take a PFS representative hours or even days to complete. In 2023, there is no reason not to leverage AI to streamline and optimize hospital revenue cycle management.

4 | Precision Medicine

AI delivers the critical component that elevates treatment protocols to true precision medicine, that is, "delivering the right care to the right patient at the right time."^[16] By leveraging OMICS, phenotypic, and environmental data, advanced AI-powered diagnosis and tools allow clinicians to tailor treatment protocols to the individual patient.

Researchers and clinicians in academic medical centers (AMCs) and in care delivery settings of integrated delivery networks (IDNs) are using AI to analyze the exact genetic makeup of a disease alongside a patient's phenotype data, family history, physical condition, lifestyle, and social determinants of health (SDOH). Assessed cumulatively, and then measured against insights gleaned from billions of treatment data points from around the world, physicians are able to identify the precise treatment plan that will be most effective for a specific patient.^[17]

STRATEGIES FOR SUCCESS

Plan for interoperability

Effective AI precision medicine initiatives draw data from multiple sources—phenotypic and genotypic, structured and unstructured (medical images, clinical notes, etc.), and from within health systems and community based, with internal data being augmented by externally-enriched data. It's essential to select an AI solution that's capable of building a precision medicine ecosystem that is compatible with any type of data while also future-proofing cloud options.

Provide clinical training

Primary care offices are often the primary patient access points for precision medicine, and clinicians generally need training and workflow optimization to encourage full utilization. Remove friction for physicians and their staff so that there are no obvious barriers to program adoption with AI in the mix.

Look for data deficiencies

Precision medicine is designed to combat a one-size-fits-all mentality in medical care. However, it may actually perpetuate disparities in medical care if the comparison data does not represent the individual vis a vis the reference cohort. Look for ways to expand the database to include the broadest possible dataset, and examine how precision medicine can also leverage population and social markers during the delivery of personalized care.^[18]



5

Service Demand Optimization

No-show patients cost the U.S. healthcare system about \$150 billion a year and individual physicians an average of \$200 per unused time slot.[19] This challenge is further compounded in specialty care.

AI can find patients most likely to miss their appointments so that health systems can mitigate the damage. The AI toolbox for mitigation includes setting up intelligent referral management, automated appointment reminders, chatbot enablement for easy rescheduling, targeted educational messaging to help patients understand the importance of regular checkups, and more.

By reducing no-show rates, individual facilities have saved as much as \$1 million a year.[20]

STRATEGIES FOR SUCCESS

Expanded data set

There are several factors that influence no shows, and they often include non-obvious SDOH factors like issues with transit or securing time off from work. Often environmental factors, such as the weather and traffic, play a critical role. For healthcare services that are always oversubscribed, it's important the AI model has access to as much data as possible to more accurately predict how much demand can be served with the resources available.

Incorporate intelligent and multilingual communication

Patient communication technologies have progressed beyond "text 'C' to confirm." If possible, opt for closed-loop automated AI technology that allows patients to reschedule without having to call the office. Given over 350 languages are spoken in the U.S., and census data shows that one in 10 U.S. adults struggles to communicate in English,[21] AI-powered text messaging can bridge the communication gap and make care considerably safer if it has the functionality to support patients in their native languages.

Provide end-user training

Users in clinical operations settings are often the main patient access points for referrals, appointments, admissions, and post-discharge follow ups. As with our suggestion for the precision medicine AI initiative mentioned earlier, we recommend training all users and fitting the AI into workflow optimization to encourage full buy-in and utilization. This will help remove friction for physicians and their staff, ensuring there are no obvious barriers to program adoption with AI in the mix.

6 | Supply Chain Optimization

Nurses have longed for automated tools to improve inefficient—and sometimes dangerous—supply chain processes.[22] Nearly 90% of nurses say they sometimes must leave procedures to search for supplies, and 61% of them say that having to do so has created risks to patient safety.

AI-powered initiatives, such as expiration-date tracking, automated inventory management, predictive ordering, and more, can improve supply chain efficiency in numerous ways. From there, these supply chain improvements in turn result in downline efficiencies that improve bed availability, room management, patient throughput, and, ultimately, care delivery as nurses have more time to spend at the patient bedside.[23]

STRATEGIES FOR SUCCESS

Streamline workflows—don't rebuild them

Make sure new automated product management technologies don't inadvertently increase the workload for nurses by adding extra manual steps. Enlist nursing supervisors in any AI program's design to ensure new automated workflows blend seamlessly with existing ones.

Make it manageable

If not managed properly, hospital supply chain AI initiatives can easily become overly ambitious and exceedingly complicated. Health systems will see more dramatic success by first expanding vertically rather than horizontally. Instead of building one tracking system that manages all product categories, start with one supply category and build out the complete workflow from tracking, to ordering, to approvals. From there, it's easy to scale up across more categories.

Track patient-care metrics

AI-powered supply chain optimization is not only a huge financial win for health systems, it's also a big step toward achieving nurses' ultimate goal, improving patient care. Track, publicize, and celebrate metrics that demonstrate outcomes, such as improved time at bedside and reduced patient wait times in the ED.

7

Clinical Care Excellence

While earlier we explained that clinical use cases can take more effort to prove value, there are few use cases that can deliver quick wins. Most modern EMRs now provide a starter pack of use cases. Health systems have the opportunity to begin with these out-of-box models and fine tune them using their own datasets and context as well as best-in-class AI platforms. The following use cases offer a great starting point:



- Predict patients at risk for hospital readmission
- Predict patients at risk for adverse events, such as sepsis in the hospital
- Predict and monitor inpatient care through a deterioration index
- Identify undiagnosed SDOH factors
- Develop robust hierarchical condition category (HCC) scores that consider broader dataset and provide robust cost of care prediction influencing clinical pathway selection

STRATEGIES FOR SUCCESS

Focus on interpretability and explainability

Leaders must focus their AI in clinical and care delivery settings on interpretability and explainability in addition to ensuring the highest possible accuracy and performance of AI models. Trust in the results, algorithms, and data is a prerequisite to achieve buy-in and scale successes across health systems. Bring clinical leaders along and ensure their buy-in before using any models in direct patient care.

Impact the workflow

Focus on last-mile adoption by choosing projects that not only improve patient care, but also improve care delivery. Take extra efforts in integrating model output in the clinical workflow without having to switch systems and ensure humans are kept in the loop before care decisions are made.

Set clinical, quality, and financial metrics

Ensure monitoring of model impact—either on clinical quality, patient experience, or cost of care. Pay attention to model degradation and ongoing feedback from end users. And, as with all other use cases, don't forget to celebrate successes.

Conclusion

With so many potential ways to enhance care delivery, it's no surprise that AI is expected to save the U.S. healthcare industry \$150 billion annually by 2026.[24]

The COVID-19 pandemic disrupted many of the old care delivery methods and processes. In the wake of the disruption, however, the industry is now poised for exponential growth through the deployment of AI technology.

About H2O.ai

The H2O.ai logo consists of the text "H2O.ai" in a bold, black, sans-serif font, centered within a solid yellow square.

H2O.ai is the leading AI Cloud company, on a mission to democratize AI.

As a company, it distills the technical prowess of 30 Kaggle Masters into straightforward AI cloud tools that solve powerful problems. Goldman Sachs, NVIDIA, and Wells Fargo are not only customers and partners, but strategic investors in the company.

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- Deepesh Chandra's perspectives are his personal opinions and do not represent or reflect on Bon Secours Mercy Health.

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