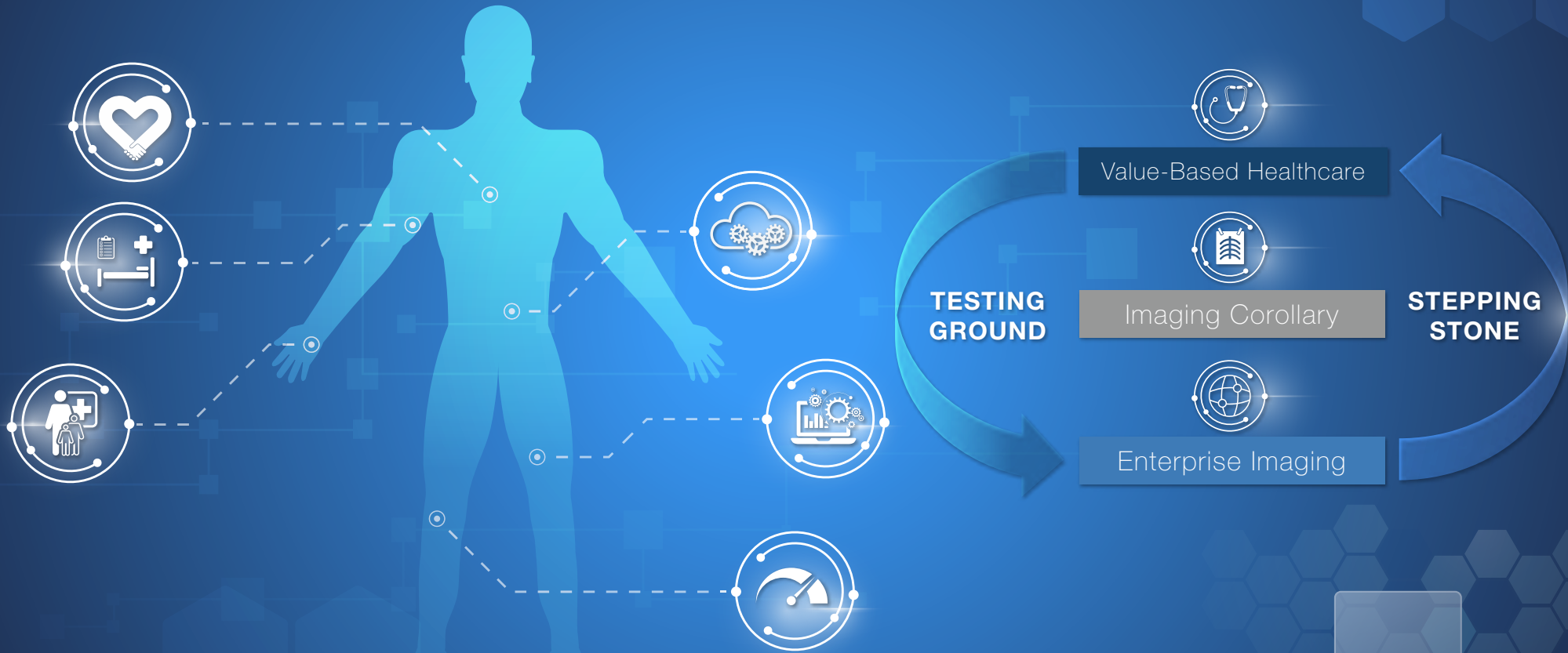


It's Not a Long-Shot Downstream

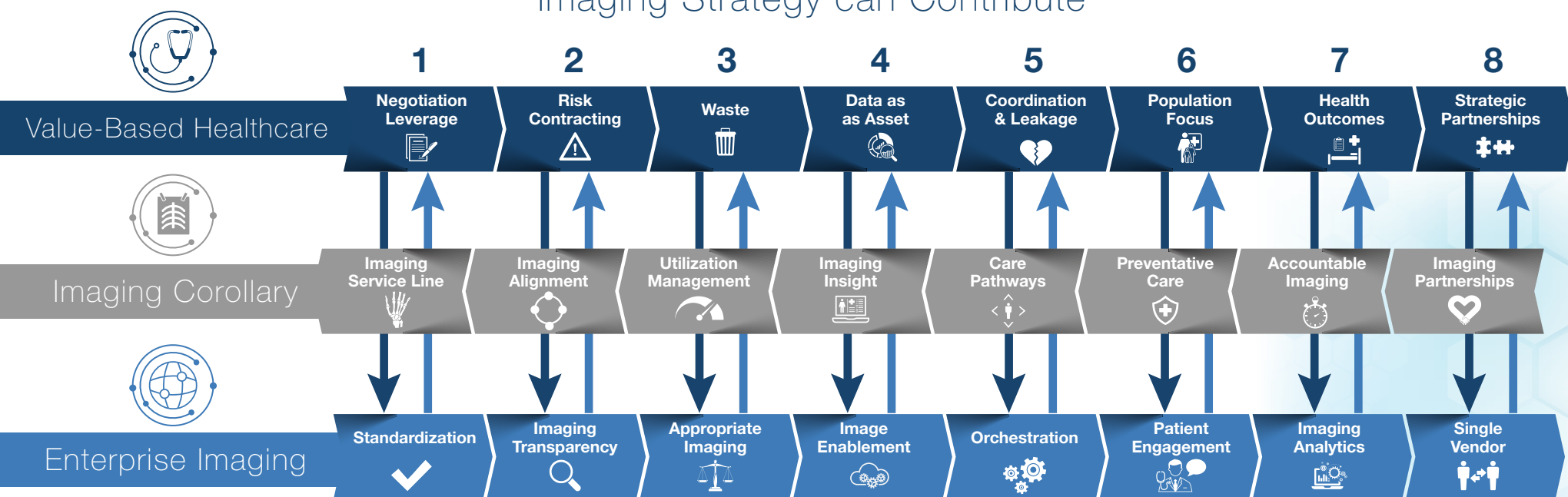
Your Enterprise Imaging Strategy Can Serve as an Anchor for Your Value-Based Care Initiatives



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8 Value-Based Care Initiatives, Their Medical Imaging Corollary, and How the Enterprise Imaging Strategy can Contribute



Introduction

It is nothing less of a transformation that U.S. healthcare organizations need, in order to align with value-based healthcare imperatives. When put into practice, however, such a fundamental transformation that affects every stakeholder in the healthcare value chain does not, and cannot, happen overnight. In reality, it comes in the form of a number of disparate initiatives, with the hope that these will create a synergistic inflection point and start to collectively meet the end-goal of a leaner, more affordable, and more effective healthcare system.

Forward thinkers in provider organizations often have to work against a culture of deeply rooted healthcare inertia. Their imaging service line can actually provide an ideal testing ground and stepping stone into value-based care initiatives. Indeed, imaging enterprises tend to be fairly entrepreneurial by nature, having learned to evolve quickly and with agility in a changing business and risk environment. This paper details how a well-designed enterprise imaging strategy can actively support and enhance eight different types of value-based-care initiatives. Many healthcare organizations are already implementing some of these initiatives today.



Value-Based Care Initiative: **Increase Leverage in Payer Negotiations**

The ongoing consolidation in the U.S. provider landscape is largely driven by the need for healthcare organizations to gain scale. Health systems, integrated delivery networks (IDNs), and accountable care organizations (ACOs) are constantly eyeing the next merger or acquisition that will expand their catchment area and pool of covered lives while generating synergies and economies of scale. In turn, these attributes become the epicenter of new negotiations with commercial payers, who are increasingly seeking to share financial risk with their provider partners around the health of the managed population.^[1]



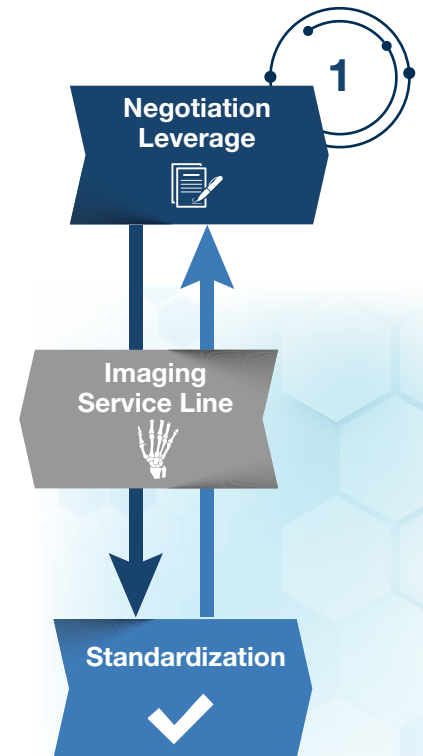
Imaging Corollary: **Consolidated Imaging Service Line**

As provider-payer pairs actively explore and engage in new contracting strategies, most of which tend to shy away from traditional fee-for-service payment models, the cost center perception of medical imaging services increases dramatically. Accustomed to being a cherished profit center, the imaging discipline must now suddenly shift its cost center perception to a new perception - that of a cost-saving center that, despite its high cost, effectively saves payers even higher downstream costs. This boosts the incentive for unifying disparate imaging departments and facilities into one cohesive imaging service line that can be positioned as an integrated, enterprise-wide, cost-saving asset.^[2]



Enterprise Imaging Contribution: **Standardized Service Level Expectations**

This consolidation effort standardizes imaging operations and service level expectations for timeliness, quality, and effectiveness across the various facilities comprising an imaging enterprise. Only then can an imaging enterprise leverage its new, larger scale to engage with provider organizations in a way that mitigates their risk, supports the structure of new payer contracts and aligns with their outcomes objectives. In this context, enterprise imaging informatics play the key role of enabling a single view of the imaging enterprise. This, in turn, provides analytics that measure the value of the imaging service line as part of overall care services, and demonstrate its contribution to institutional level outcomes.



[1] US Provider Trends in Value-based Healthcare", Frost & Sullivan, 2017, <http://www.frost.com/q297852272>

[2] Transformation of the United States Medical Imaging Industry", Frost & Sullivan, 2017 <https://www.frost.com/k1fc>



Value-Based Care Initiative: **Ready the Organization for Risk-Bearing Contracts**

The brute-force approach of cutting down fee-for-service reimbursement rates has been the preferred cost reduction mechanism of policymakers throughout the last decade. Since the Deficit Reduction Act (DRA) of 2005, almost every annual revision of payment rates brought about additional cuts to their technical, professional or global components. Perceived as rather arbitrary for being purely financially driven, these approaches are fortunately giving way to more clinically-oriented payment models with strong links to quality and value. These include but are not limited to, bundled payments for complete episodes of care, pay-for-performance with upside incentive, or capitation. These models may all have very different risk profiles.



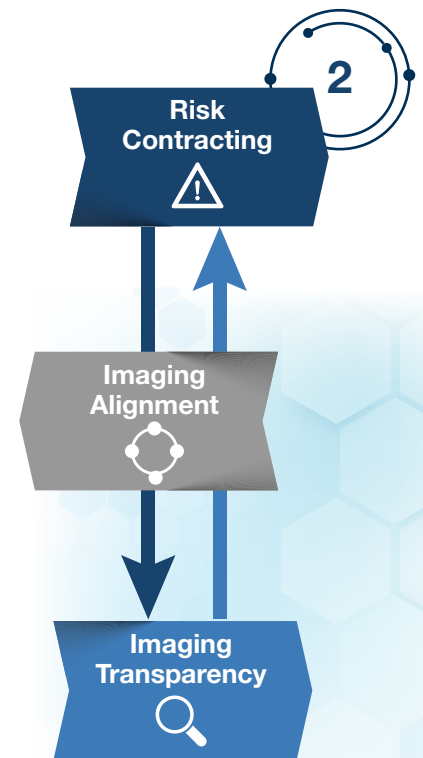
Imaging Corollary: **Align Shared-Risk Imaging Contracts**

Medical imaging has been one of the areas most targeted for reimbursement cuts. Policymakers have deemed these imaging reimbursement cuts 'successful', as they have indeed curbed increases in imaging spend by driving a decline in diagnostic imaging utilization.^[3] In fact, a recent imaging economics study^[4] estimated that Medicare Physician Fee Schedule spending on noninvasive diagnostic imaging (NDI), which peaked at \$11.9 billion in 2006, dwindled by 33 percent to \$8 billion in 2015. Another recent report^[4] estimates that payments to health systems from traditional fee-for-service (FFS) payment declined from 62 percent in 2015 to 43 percent in 2016. Although medical imaging is still a fee-for-service stronghold, non-traditional payments models are gaining traction there as well.



Enterprise Imaging Contribution: **Transparency and Control of Imaging's Risk Profile**

As value-based and shared-risk payor contracts continue to grow more popular in the market, they are translating into similar contracting practices at the imaging level, between provider organizations and their imaging providers. For example, the joint venture model for engaging with radiology groups is gaining traction in various regions. Radiology groups are increasingly willing to mirror the risk profile that their customers are absorbing to position as partners that help them mitigate that risk. An enterprise imaging strategy is crucial in this context. It can help capture key performance indicators (KPI's) in a much more holistic manner and in real-time. Imaging workloads, trendlines in activity, operational costs, all feed into various KPI's that are essential to risk profiling.



[3] <http://www.jefferson.edu/university/news/2017/04/17/overuse-of-imaging-declines-since-2008.html>

[4] The Recent Losses in Medicare Imaging Revenues Experienced by Radiologists, Cardiologists, and Other Physicians; David C. Levin, MD
[http://www.jacr.org/article/S1546-1440\(17\)30227-2/fulltext](http://www.jacr.org/article/S1546-1440(17)30227-2/fulltext)

[5] Health Care Payment Learning and Action Network (LAN): APM Measurement – Progress of Alternative Payment Models http://hcp-lan.org/workproducts/measurement_discussion%20article_2017.pdf



Value-Based Care Initiative: **Reduce Waste of Unnecessary Healthcare Services**

With the shift away from fee-for-service payment models, it's no longer a volume play of 'earning more by doing more' that financially rewards healthcare providers. It's their quest for value, quality, and efficiency that does so. Recent accounts of the financial impact of unnecessary utilization of healthcare services abound, with varying estimates of up to \$200 billion each year.^[6] Some of the factors contributing to this huge waste figure arise from redundant services, when there is limited care coordination among care team members, and unnecessary procedures resulting from a lack of IT integration among provider sites and clinical departments.



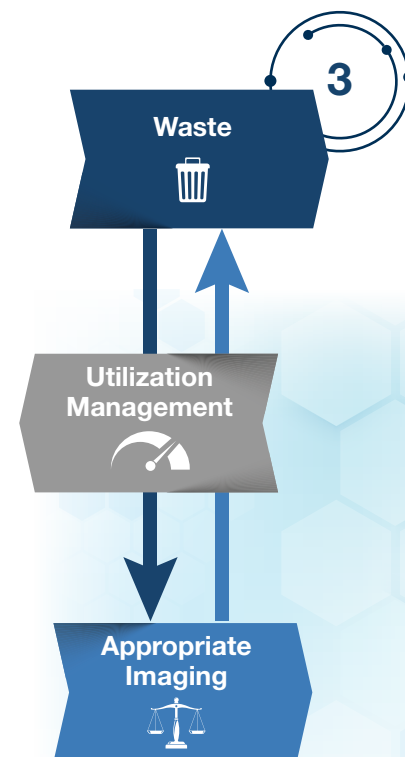
Imaging Corollary: **Utilization Management and Closed-Loop Ordering Workflows**

When it comes to medical imaging, it's the advanced, more expensive types of studies that are being hit the hardest by various cost-cutting and utilization management schemes. Radiology benefit management (RBM) firms have long been employed to help mitigate the payers' risk of over utilizing high-end procedures. They are proving to be effective tactical financial partners, but not strategic, clinical ones. With the gradual implementation of imaging clinical decision support (CDS) systems, it is now part of each imaging stakeholder's role - on both the study ordering and receiving ends - to select the clinically appropriate imaging procedure based on the specific patient's care history and context, as well as on evidence-based guidelines and the appropriate criteria. As the rationale runs, regardless of its high cost, the 'right' study will always contribute to overall cost reductions by saving even higher costs downstream.



Enterprise Imaging Contribution: **Appropriate Use and Reduction of Duplicate Imaging**

A number of research papers^[7,8] have been published in the last few years that establish a clear correlation between cross-enterprise image sharing capabilities or image-enabled health information exchanges (HIE), and a reduction in redundant imaging exams and associated costs. Enterprise imaging connectivity, if taken beyond the affinity domain of a given institution, can effectively reduce the rate of unnecessarily repeated imaging procedures, including during time-sensitive situations like that of a patient arriving to the emergency department. These avoidable repeats waste precious time and resources, and most often result from limited access to the patient's priors that are hosted in another affinity domain, and are, therefore, due to technical reasons such as a lack of inter-connectivity of various PACS and image archiving systems.



[6] <http://www.healthcarefinancenews.com/news/unnecessary-medical-tests-treatments-cost-200-billion-annually-cause-harm>

[7] Vest JR et al, "Image Sharing Technologies and Reduction of Imaging Utilization: A Systematic Review and Meta-analysis", Journal of the American College of Radiology, <https://www.ncbi.nlm.nih.gov/pubmed/26614882>

[8] Jung HY et al, "Use of Health Information Exchange and Repeat Imaging Costs", Journal of the American College of Radiology, <https://www.ncbi.nlm.nih.gov/pubmed/26614881>



Value-Based Care Initiative: **Capitalize on Data Assets for Clinical and Business Intelligence**

The perception of data by healthcare providers has changed dramatically over the last few years. For several decades, data represented sensitive patient information that providers' IT teams needed to be very diligent in securing and keeping safe. In other words, data was more of a liability called for by a regulatory need to address HIPAA compliance. However, amidst a rise in cybersecurity breaches over the last few years,^[9] healthcare organizations have come to realize the huge asset that a large, well-structured dataset can represent once fed into analytics and data mining applications. The desire to capitalize on the untapped value of data to increase clinical, operational, and business intelligence, while minimizing cybersecurity risks, is one driving factor for less silo'ed, more holistic and integrated healthcare content management strategies.



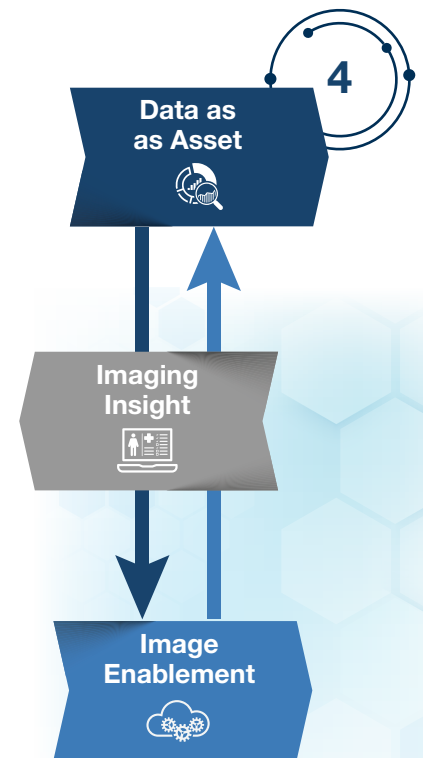
Imaging Corollary: **Drive More Insight and Informed Decisions from Image Data**

As the first clinical department to embark on its digitization journey nearly three decades ago, radiology has garnered considerable experience in managing large digital datasets. As a result, imaging departments have been the ideal proving ground for shared governance models between clinical departments and the central IT department. This collaborative approach is clearly standing out as a best practice for healthcare enterprises to effectively derive more value from their data. With the advent of Big Data analytics and Artificial Intelligence in healthcare, new governance models and healthcare content management strategies are needed. Imaging, specifically, has demonstrated that having access to relevant, complementary patient information in-context has a highly positive impact on the quality and insight of study interpretations.^[10]



Enterprise Imaging Contribution: **Longitudinal Image-Enabled Patient Records**

Progress in the imaging field has grown beyond traditional PACS archives and is now delving into new generation management platforms, such as multimedia vendor neutral archives (VNA) and hybrid cloud environments, which is gradually making the image enablement of healthcare enterprises a field reality. Fitting images and other multimedia patient data into longitudinal, patient-centric views is enabling easy and secure access for physicians and patients in all-encompassing portals, allowing much higher value to be derived from image studies throughout their lifecycle. The interoperability foundation of the newer platforms provides cost-effective ways for consolidating, federating, and ingesting more relevant patient information towards a comprehensive view of patient history and clinical context.



[9] CynergisTek, "Breach Report 2016: Protected Health Information (PHI)", <http://cynergistek.com/cynergistek-resources/breach-report-2016/>

[10] Christopher J. Roth et al, "Enterprise Imaging Governance: HIMSS-SIIM Collaborative White Paper", 2016
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5023526/>



Value-Based Care Initiative: **Coordinate Multi-Disciplinary Care and Reduce Out-of-Network Leakage**

The current paradigm of largely fragmented care services is the primary reason patients seek care from disparate providers in a disjointed manner. Without a clear care pathway involving coordinated care givers, patients are often led to navigate the array of care providers based on convenience and lower cost, rather than maintaining a sharp focus on the desired healthcare outcome. This lack of care coordination severely increases the risk of cost inefficiencies, redundancies, medical errors, and, ultimately, poorer outcomes. Considering that the majority of patient conditions require multi-disciplinary care teams, it has become obvious that health systems and integrated care networks need to improve care coordination as a first step to avoiding the leakage of patients outside the care network.



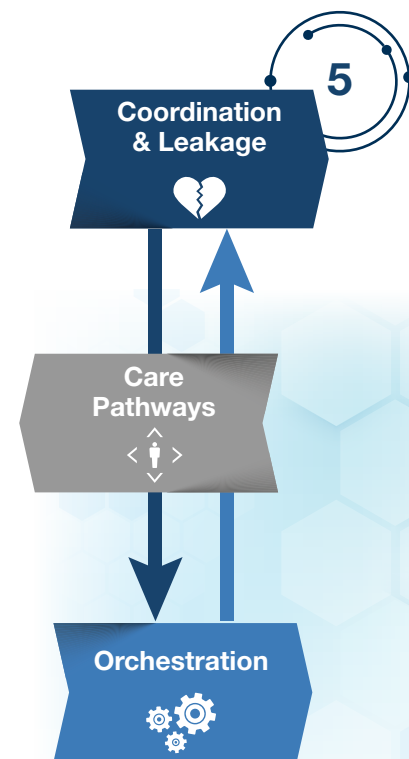
Imaging Corollary: **Accelerate Patient Care Pathways via Imaging Services**

For imaging services in large and distributed organizations, the care coordination imperative has two corollaries. The first stresses the importance of leveraging the widest possible range of sites of services for patients to choose from when they need an imaging study. Quite often, some of the available options can be missed when communicating with patients, an example of which might be a recently acquired imaging center operating under capacity. This unified view of the network capacity maximizes the chances of patients remaining within the care network, and can also secure more out-of-network referrals. The second corollary pertains to the perceived value of imaging services within the organization. When imaging services are provided rapidly, and their resulting insights are actionable, physicians are more likely to rely on these services to more quickly and efficiently help their patients navigate the care pathway.



Enterprise Imaging Contribution: **Orchestrate Imaging Services Across the Catchment Area**

Orchestrating the enterprise imaging workflow in a way that overarches the individual radiology information systems (RIS) and billing systems used by individual departments and facilities has become the IT best practice to follow. The novelty of the new generation of workflow orchestration solutions provides the ability to balance the offer and demand for imaging services within the organization based on the availability, workload, credentialing, or sub-specialization of imaging resources. Further, this allows turning to third-party teleradiology services only when the internal capacity cannot cope with a given peak in the demand, thereby allowing healthcare providers to reclaim some of the work currently being outsourced. By the same token, the dissemination of imaging information throughout the network serves to boost the quality and efficiency of physician engagement with the imaging service line.





Value-Based Care Initiative: **Cater to Population Health and Rising Consumer Mindset**

Population health management is a cornerstone in the efforts towards value-based care of accountable care organizations (ACO) and health systems. By far, the most costly to manage, are at-risk and chronic disease patients who require special attention. No matter how scattered high-risk patients are throughout the catchment area, it is necessary to engage proactively with these patient groups in a way that is tailored to their individual risk profile. As such, the rise of a consumer mindset in healthcare has been developing quickly over the last decade and needs to be turned into a lever for engaging patients more effectively in their own health, but also with their caregivers and their health system.



Imaging Corollary: **Preventative Care Paradigm and Point-of-Care Imaging**

The role of imaging services in population health efforts has yet to be clearly defined. However, the ability of imaging to detect the early signs of disease, non-invasively, keeps the discipline top-of-mind. This is true within and beyond the areas where it is already an established screening modality, such as in cases for breast and lung cancer prevention. The early detection and preventative care paradigm that imaging supports is a major force for reducing healthcare spending on expensive treatments and interventions that become necessary as disease states advance. Further, the rapid development of point-of-care imaging, such as portable ultrasound imaging devices, opens the way to new imaging-based approaches for screening, monitoring, and keeping patients out of the acute care settings when possible.



Enterprise Imaging Contribution: **Patient Engagement with Imaging Episodes**

Enterprise imaging enables a wide spectrum of new capabilities that can contribute positively to the growing population and consumer-oriented focus of healthcare organizations. For example, tele-imaging applications where patients can acquire and upload their own photographic images, such as of wounds, can avoid unnecessary visits to the emergency department. Similarly, technologies such as image-enabled patient portals play a large role in empowering patients by assisting them in maintaining control of their imaging care and helping them to remain in possession of their personal medical images, all while facilitating a better understanding of imaging findings. Enterprise imaging is also essential to support encounter-based imaging workflows, which require efficient, remote connectivity with incumbent image management systems.





Value-Based Care Initiative: Focus on Institutional Outcomes Objectives

The last few years have brought about major changes in the way health systems get measured and benchmarked for their performance and outcomes. Today, they are not only required to report on certain measures, but also face the risk of financial penalties from payers for failing to move the needle on these measures. This includes lowering the patient mortality rate in the organization, the complication rate, the 30-day readmissions rate, the cost for an episode of care, the time-to-service, and the average length-of-stay in the hospital. Another goal is to increase the organization's Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score. As a result, provider organizations have been embarking on various endeavors that, until recently, seemed far-fetched, such as readmission reduction plans and patient satisfaction outreach campaigns.



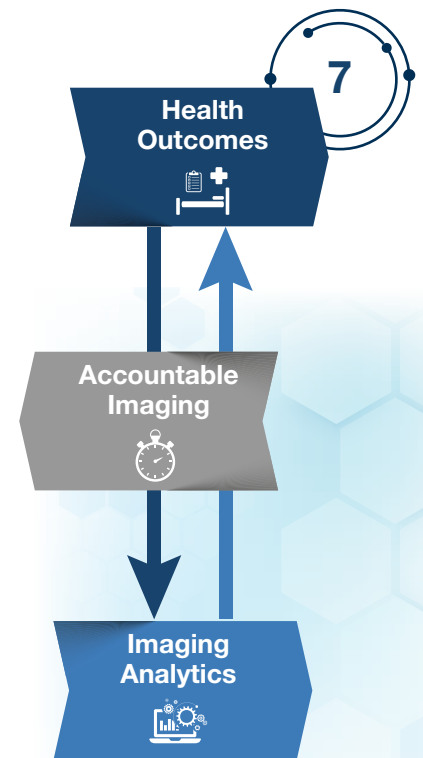
Imaging Corollary: Imaging Accountability to its Own Outcomes

The imaging community is actively working to identify, validate and standardize the specific outcomes and key performance indicators (KPI's) that imaging enterprises could, or should, be measuring and working to improve in a value-based care environment^{[5][6]}. Many metrics are already well-established in radiology, and, as a data-intensive and digitized discipline, it is already accustomed to process monitoring and optimization. However, most of the current metrics relate to productivity or performance, such as reported turnaround times, imaging equipment idle times, volume of unreported cases after a number of days, patient wait times to access imaging, and so on. While these remain relevant for the most part, moving forward they will need to be complemented by a new set of value- and quality- focused metrics.



Enterprise Imaging Contribution: Outcomes Analytics for Imaging

That's where the analytics capabilities, made possible by an interoperable health IT technology stack, come into play. New outcomes, metrics and KPIs pertaining to value-based imaging become measureable and actionable. For example, the rate of compliance of imaging orders with imaging appropriateness criteria; the volume of duplicate studies that could be avoided; the rate and time spent by radiologists consulting with their physician partners; the convenience of the time and location of imaging studies from a patient's perspective; the impact of length of stay of expedited imaging examinations; the time to availability of reports to referrers and patients; or the patient outcomes actually achieved after following imaging recommendations. While difficult to measure, these are the types of metrics that will help demonstrate, and ultimately improve, the contribution of imaging to value-based care.



[5] Sarwar et al, Metrics for Radiologists in the Era of Value-based Health Care Delivery, RSNA Radiographics, <http://pubs.rsna.org/doi/pdf/10.1148/rq.2015140221>, June 2015

[6] Boland et al, Report of the ACR's Economics Committee on Value-Based Payment Models, [http://www.jacr.org/article/S1546-1440\(16\)30807-9/abstract](http://www.jacr.org/article/S1546-1440(16)30807-9/abstract), Journal of the American College of Radiology, Jan. 2017



Value-Based Care Initiative: **Engage with Fewer, More Strategic Partners**

The focus of health providers on the outcomes that they derive from their investments, including new technology, inevitably elevates the levels of conversation that customers engage in with their vendors. By evaluating vendor solutions as part of value-based purchasing frameworks, provider organizations can assess the impact of these investments and their potential contribution to their institutional outcomes. As such, there has been a clear tendency towards consolidating vendor relationships into fewer, more strategic partners, while moving away from transactional, product-focused relationships and toward solutions-oriented collaborations. This is leading to higher-level, longer-term agreements where the success of the partnerships is more directly tied to actual outcomes.



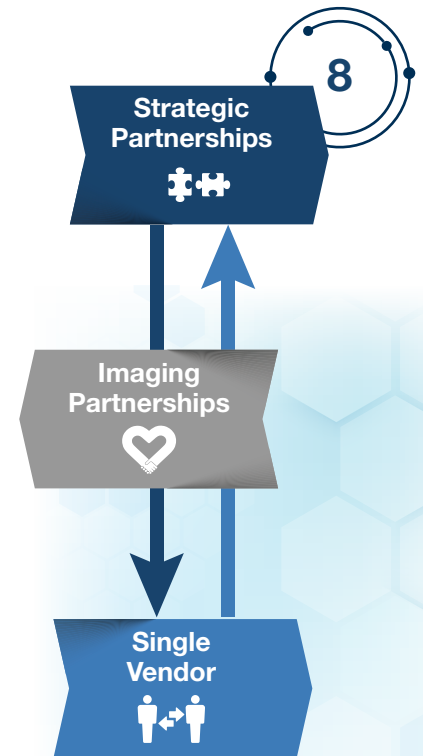
Imaging Corollary: **Strategic Partnerships in Imaging**

The same trend is occurring at the imaging level, which, as a very capital-intensive investment area, lends itself well to technology consolidation and holistic solutions. More than ever, imaging vendors are willing to partner with customers and are reorganizing their market strategies to implement a more consultative sales approach. By committing to certain milestones and outcomes, imaging vendors are essentially absorbing some of the risk that their customers have taken on. In order to set the stage for a win-win, long-term, productive partnership, customers and vendors must both agree on the way specific outcomes are measured and how they plan to move the needle on these outcomes.



Enterprise Imaging Contribution: **Added Value from a Single Vendor Approach**

Up until a year ago, the debate in the imaging informatics market was still raging about whether a best-of-breed, multi-vendor strategy or an integrated, single-vendor strategy made more sense. In the absence of a common definition and industry direction around enterprise imaging, each side could make valid arguments for one approach or the other. However, as the expectations from a state-of-the-art enterprise imaging strategy came into place, the pendulum has been shifting decisively towards single-source and single-vendor solutions. Indeed, recent case studies show that the actual value of the imaging IT stack for the enterprise is maximized when a preferred vendor is given the opportunity to integrate, customize, and optimize it, while delivering value-adding services and taking ownership of its outcomes.



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