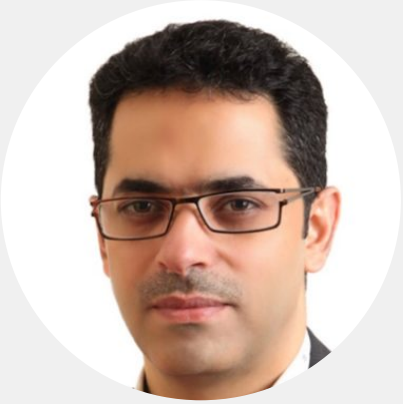
Mohamed Al Holibi – Regional Business Lead, Health Information Systems, Solventum



In banking, cash is king, but in healthcare, data is the true treasure

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Mohamed Al Holibi, Regional Business Lead for Health Information Systems at Solventum, shares insights into the evolving role of healthcare data and digital transformation in Saudi Arabia. In this interview, he discusses Solventum's commitment to supporting Vision 2030 through advanced AI-driven technologies, the implementation of Diagnosis-Related Groups (DRG) systems, and innovative solutions that enhance healthcare efficiency and patient outcomes. Al Holibi also highlights the challenges and opportunities in data integration, workforce development, and fostering strategic partnerships across the Kingdom's healthcare ecosystem.

Can you provide an overview of the portfolio and solution offerings that Solventum provides in the healthcare sector?

At Solventum, our portfolio is built around three main pillars. The first pillar revolves around establishing a common healthcare language, which often includes implementing DRG (Diagnosis-Related Groups) systems. These systems categorize patients into defined groups so healthcare providers can improve quality of care, manage costs, and streamline processes. To achieve this, we bring knowledge, consulting, and technology to our clients.

A critical part of this work involves helping clients prepare coders and certified staff, ensuring proper clinical documentation, and translating this documentation into accurate codes. These

codes reflect exactly what happened to the patient during their hospital stay, allowing providers to use them in payment schemes and quality metrics. Throughout this journey, we offer education programs, software solutions, and consulting support. Our approach is flexible depending on the needs of each country. For example, in the UAE we might use ICD-10-CM, CPT and IR-DRG codes, while in Saudi Arabia, we use coding frameworks from Australia localized to Saudi market codes (ICD-10-AM, Saudi Billing Systems “SBS” and AR-DRG). We always tailor our products and education programs to the local market.

The second pillar focuses on making documentation and coding as automated as possible. We aim to address clinical coders shortages and provide AI-driven technologies to capture and convert clinical documentation into codes seamlessly. This automation increases productivity and improves data accuracy.

The third pillar involves using data to measure performance, eliminate waste in healthcare, and develop incentive programs that promote better outcomes. For example, we analyze whether patients acquire extra conditions during their hospital stay, then create strategies to reduce those complications. By identifying these issues, we can improve patient outcomes and lower overall care costs.

We also extend our data-driven approach to population health. We use technology to categorize patients based on their overall health status, not just single visits. This stratification helps identify which populations are healthy, which need more focused care, and how programs can be designed to improve overall health and well-being. We track changes over time to see if interventions effectively reduce complications and costs. This approach supports population monitoring, capitated payment models, and strategic decision-making by government bodies and health systems.

How are Solventum’s solutions helping to generate healthcare data, and what technologies are being utilized in this process?

I believe that artificial intelligence will play a major role in the transformation of Saudi Arabia’s healthcare sector. The government is quite interested in using technology to reduce manpower pressures, which is crucial anytime there is a new change requiring a larger workforce. AI can help minimize, though not entirely remove, the need for additional staff.

We have created two main platforms to streamline data capture and documentation. The first involves an ambient device that listens to conversations in the clinic and then produces the final documentation automatically. Right now, physicians spend a lot of time entering data into systems instead of focusing on the patient. With our solution, the physician speaks normally during the consultation, and the AI-powered platform captures and summarizes the discussion in real time. It also detects missing clinical details—nudging the physician to fill-in important information for example, giving the specificity of a diabetic condition whether it is Type 1 or Type 2, or whether a heart failure is acute, systolic or unspecified. This solution reduces the time spent by the physician typing clinical notes, allowing them to dedicate more time delivering care to their patients.

The second solution uses natural language processing (NLP) combined with our rule engine to analyze clinical documentation and propose the appropriate codes. Clinical coders do not have to read the entire chart themselves; they simply review and approve or deny the AI's suggested codes. With this approach, manual efforts are reduced, while accuracy is improved as Coders focus on the clinical coding. The enhanced coding productivity and entire coding process is translated into case mix index boosts and optimized revenue capture.

Based on your expertise, what are the major trends and dynamics shaping the healthcare digitalization and IT sector in Saudi Arabia?

From my perspective, data is the driving force behind healthcare today. In banking, cash is king, but in healthcare, data is the true treasure. Every new conference or innovation in the sector begins with a focus on data—collecting it, interpreting it, and using it to improve patient outcomes and streamline operations.

In Saudi Arabia, I see three major trends. The first is re-digitization, which involves collecting all healthcare data in digital form. This also includes defining a unified "language of health," so every hospital and clinic speaks the same standard when documenting care. A few years ago, providers and insurers each had their own pricing systems, but now regulatory bodies such as the Saudi Health Council (SHC) are pushing towards adopting a more standardized approach for data collection and coding.

The second major trend is value-based healthcare and the introduction of new financial systems. We already see movement away from fee-for-service toward DRG payment models, including the Australian Refined Diagnosis Related Group (AR-DRG). In the private sector, for instance, we are helping organizations transition to DRG-based payments, starting with shadow billing as a

preparatory step. This model focuses on delivering better outcomes for patients rather than simply billing for services provided.

Overall, these trends underscore the importance of data as a foundation for transformation. By capturing healthcare information digitally, standardizing how it is used, and aligning payment systems with patient outcomes, Saudi Arabia is steadily moving toward a more efficient, patient-centered model of care.

Could you provide an overview of what DRG systems are and how they fit into Saudi Arabia's healthcare framework?

The financial objective of implementing DRG systems is to create more financial risk sharing between payers and healthcare providers. Essentially, DRGs categorize patients into defined groups which I often refer to as "products." By grouping patients this way, providers can apply specific quality and cost controls. The goal is to improve care quality while reducing overall healthcare costs.

Traditionally, fee-for-service models are volume-driven: the more procedures or services a provider offers, the more revenue they generate. This can lead to unnecessary services and procedures and an increase in total costs. DRGs, by contrast, introduce a bundled payment approach. This means a hospital or provider is reimbursed for each patient's case rather than for individual services, shifting the focus from volume to value, delivering efficient and effective care.

However, DRGs are just the initial step. Value-based care goes beyond the DRG payment system, particularly since DRGs apply primarily to inpatient settings. We also need to consider outpatient services and other areas of patient care. Over time, incentives can be built into the system to reduce complications and improve outcomes. For example, you could measure a hospital's complication rate over a year and tie a portion of its revenue to this metric. If the hospital achieves a better score, it receives additional payment, but if it scores lower, it risks losing part of its revenue.

This approach motivates providers to work toward lowering complications and raising the overall quality of care. Ultimately, this is the core idea behind value-based care: using financial incentives to encourage hospitals and physicians to deliver better outcomes at lower costs.

How do you define the KPIs that drive the success of Value-Based Healthcare initiatives?

We have multiple KPIs which are designed to measure performance and identify opportunities to reduce waste in the healthcare system. The goal is to shift the focus of payment schemes from volume-driven services to the actual value delivered to patients. This means rewarding outcomes and quality rather than the quantity of services provided.

We start by identifying key areas where inefficiencies and complications arise. For example, we track complications during patient care, pre-admission processes, emergency care, in-patient admissions, and ancillary services. By capturing data on these metrics, we can flag wasteful practices within the payment system and introduce financial incentives to encourage behaviour change.

These incentives create a framework where providers are motivated to improve outcomes and eliminate unnecessary procedures, ultimately reducing the total cost of care and enhancing patient well-being.

What are the primary challenges you have encountered in data collection, data quality, and the implementation of the DRG system in Saudi Arabia?

There is significant work underway in Saudi Arabia to move away from paper-based records. Only a few years ago, some Ministry of Health projects indicated that 40 percent of clinical information was electronic, while 60 percent remained on paper. Achieving digitization is the main priority, starting with electronic medical records (EMRs). However, a standard hospital information system typically requires an EMR vendor plus multiple third-party solutions to capture all the data produced in each department—laboratories, pharmacies, radiology units, operating theatres, and others. Every activity is connected to the patient’s file, and this comprehensive data is crucial for accurate cost modeling, coding, and patient care insights.

Hospitals also need the right staff and skills to support DRG implementation. This includes coders, clinical documentation, DRG, revenue-cycle and insurance specialists. Since DRGs depend on accurate data, if the data is missing or incomplete, the reimbursements will not be fair or correct.

We have collaborated with organizations like Saudi Health Council (SHC), Council of Health Insurance (CHI), Center of National Health Insurance (CNHI) to set guidelines, conduct workshops, and train both providers and payers on DRG requirements. We also engage in shadow billing to

help hospitals compare their current fee-for-service revenue with projected DRG-based revenue. This process highlights any potential revenue gaps and gives providers the opportunity to improve data quality and documentation. The goal is to achieve a smooth transition where revenues remain stable, and data integrity is assured when the new system is fully implemented.

How challenging is it to ensure effective data integration across different stakeholders, such as government entities, hospitals, and other organizations?

While this is a complex challenge, Saudi Arabia is making significant progress through the implementation of standardized frameworks. Regulators are working to enforce a unified “language of health” by defining the minimum data sets that hospitals must collect and providing a standardized dictionary for this data. This approach ensures that all systems collect and report data consistently by following clear guidelines.

However, while hospitals may report data according to these guidelines, there is still a risk that the information might not be entirely accurate or aligned with patient records. To address this, regulators have launched a coding audit program, particularly driven by the private market and overseen by CHI. This initiative aims to establish audit metrics to evaluate the quality and accuracy of reported data and ensure it meets established standards.

Our team at Solventum plays a role in supporting CHI by defining the audit mechanisms and criteria that can be used to verify data consistency and reliability. This process is crucial for building trust in the data and ensuring its integrity.

Another critical component of data integration is interoperability. Saudi Arabia is rolling out a platform called SEHHATY Platform, which allows hospitals to capture patient visit data and report it to a centralized system. This ensures that a patient’s health records are unified and accessible across the Kingdom. SEHHATY helps reduce the duplication of services and allows healthcare providers to view patient results regardless of which hospital they visit.

To what extent has Solventum formed partnerships within the Kingdom to support Saudi Arabia’s Vision 2030, particularly regarding digitalization and artificial intelligence (AI) goals?

One of our major partnerships is with the Ministry of Health for a project known as Data Abstracting and Reporting System (DARS). This system is designed to help all Ministry hospitals prepare and collect the minimum data sets required for the transformation toward value-based healthcare and the DRG system.

DARS is a hybrid model that accommodates both digital and non-digital hospitals. Even hospitals still using paper-based records can report data, while those with EMRs can integrate seamlessly. This platform connects nearly 300 hospitals, capturing demographic and coded data from each in-patient encounter visit based on the regulated minimum data set. By consolidating this data into a single system, we are helping the Ministry of Health build a comprehensive and accurate data set for future healthcare transformation under the Saudi 2030 Vision. This data is essential for assessing DRG readiness, improving data quality, and making informed decisions about the healthcare system.

In the private sector, our speech and coding technologies are being widely adopted. These solutions help private hospitals prepare for the shift to value-based healthcare by enhancing data capture and documentation accuracy. Our AI-driven tools streamline the coding process and support efficient reporting, ensuring that healthcare providers can meet the new standards required by Saudi Arabia’s digital transformation goals.

When recruiting talent for your team, what qualities and skills do you prioritize to ensure that the team can address the significant challenges and projects ahead?

We focus on two primary categories when acquiring talent: content expertise and technical proficiency. In terms of content expertise, we look for professionals who understand healthcare data and coding. This includes Clinical Documentation Improvement (CDI) specialists, coding specialists, physicians, data analysts, and health economists. These team members need a deep understanding of the language of healthcare, including DRG, coding systems, and clinical standards. Their role is to ensure that data content is accurate, actionable, and aligned with the needs of key stakeholders like healthcare providers, insurers, and regulatory bodies.

On the technical side, we prioritize technology engineers who focus on adoption, integration, and support of our solutions. These roles require skills in technology training, cloud infrastructure setup, data security, and cybersecurity. Given that many of our AI-powered applications are hosted on the cloud within the Kingdom, a strong understanding of data protection and cybersecurity protocols is essential. This field is constantly evolving, so we seek individuals who are adaptable and

committed to continuous learning to stay ahead of new developments.

Additionally, while our primary innovation hub for product development is based in the U.S., our Middle East team focuses on data protection, implementation, and rollout of solutions. This means we look for candidates who can bridge the gap between global product development and local implementation.

Solventum is still a relatively new entity having only spun off from 3M earlier this year. How would you like partners, clients, and the broader market to perceive Solventum within the healthcare ecosystem?

Solventum was formed by spinning off 3M's healthcare business, allowing us to focus exclusively on the healthcare and MedTech sectors. While 3M's healthcare business was part of a larger industrial company, this spin-off provides us with the opportunity to fully dedicate our efforts to healthcare innovationLast April, we officially became Solventum, which come from the words *Solve* and *Momentum*, reflecting our commitment to continuously solving our customers' challenges and driving forward progress forward in healthcare.

We carry forward 75 years of innovation in medical fields and 35 years of experience in healthcare data science, technology and health information systems. This legacy positions us as a trusted partner, offering solutions in areas like Medical Surgical, Purification, Dental Technologies, Health Information Systems, and more.

Overall, we want our partners, clients, and the broader market to see Solventum as a dedicated, innovative, and reliable player in the healthcare ecosystem. We aim to be recognized not only for our history of excellence but also for our forward-thinking approach and our ability to adapt to the evolving needs of the healthcare industry. At Solventum, every team member is driven by the mission to create a better, smarter, and safer healthcare that ultimately improves lives.

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