Clinical Services Plan: Case Study 18

Risk Management

Experiences in identifying and mitigating risks during healthcare transformation

JHAH's five-year Clinical Services Plan

Transformation Program Specialist Support

Champions

Iyad Eid and Dr. Alber Paules

نحن نهتم
We Care

May 2025

Clinical Services Plan

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Johns Hopkins Aramco Healthcare

Case Study 18: Risk Management

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Project details

The objective

The Clinical Services Plan (CSP) is an ambitious five-year clinical services transformation program with five overarching clinical goals and 16 objectives that will ensure every patient receives the highest quality healthcare.

The objective of the specialized risk management support is to ensure the CSP leaders understand the fundamental principles of risk management within healthcare organizations, and are able to apply key risk management approaches, techniques and tools in order that risks are identified and appropriately controlled.

The risk types

- Strategic risks
- Clinical risks (patient safety, quality of care)
- Operational risks
- Legal and compliance risks
- Financial risks
- Environmental hazards risks
- Infrastructure and facility risks
- Human capital risks

The timeline

- **Project kick-off:** January 2023

The project team

Sponsor:

- Dr. Saeed Yami, Chief Quality and Patient Safety Officer

Champions:

- Iyad Eid, Director, Risk Management & Patient Safety Division
- Dr. Alber Paules, Senior Quality Assurance Analyst

Team members:

- The Risk Management division team members

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About the Clinical Services Plan

Johns Hopkins Aramco Healthcare (JHAH) serves more than 140,000 Aramco employees, their relatives and retirees with a comprehensive range of inpatient and outpatient services. JHAH has carried forward the legacy set by Saudi Aramco of healthcare for all, putting caring for its community at the heart of everything it does.

In 2023, JHAH launched its five-year Clinical Services Plan (CSP). The CSP was developed in response to changing patient expectations and the realization that JHAH must evolve if it is to survive and thrive. The Plan's vision is that JHAH will become the Kingdom's first choice for outstanding integrated healthcare.

The CSP contains 16 strategic objectives to deliver against five goals (service excellence, access, people, sustainability and reliability), and is supported by four delivery principles (accountability, pace, pragmatism and outcomes).

A structured approach to risk management

Risk management is a necessary practice within any modern organization. But in a healthcare setting, where a failure to mitigate risks can have catastrophic consequences for patients, staff, facilities or equipment, the significance is magnified.

This was highlighted in a compelling article by Dr. Ashley Shaw, Divisional Director at Addenbrooke's Hospital in the United Kingdom, who wrote on healthmanagement.org: "Healthcare provision (involves) numerous interactions with outside agencies and, of course, ill patients, many of which are unplanned and involve several healthcare professionals," and concluded "Given the sheer number and variety of risks to the organisation, it is imperative that there is an agreed, uniform system in which different types of risks may be graded and catalogued, in order that they be ... prioritised." [1]

Examples of risks that are particular to a healthcare service include:

- Infant abduction
- Patient misidentification
- Wrong surgery or wrong-site surgery
- Infections
- Mislabeled specimens
- Medication errors (LASA – "looks-alike, sounds-alike")
- Equipment malfunction
- Retained foreign objects
- Tubing misconnection
- Patient falls.

For Johns Hopkins Medicine (JHM), one of the joint venture partners involved in JHAH, risk assessment involves four vital questions:

- What can go wrong?
- How bad will it be?
- How often may it happen?
- Is there a need for action?

Addressing these questions requires a rigorous, transparent, structured approach, because "it is not usually possible to eliminate all risks." Rigorous assessment means that focus can be directed at "the risks that really matter", rather than ones which have been highlighted for arbitrary or anecdotal reasons. For JHM, these decisions cannot be made on the basis of vague hunches; they demand specificity. Indeed, the JHM definition of risk uses the term 'specific' no fewer than three times in a single sentence. For JHM, risk is: "the probability that a *specific adverse event will occur in a specific time period or as a result of a specific situation.*"[2] The outcome from application of this structured process is a robust Risk Register which can be used for planning and governance purposes at multiple levels: board, c-suite, departmental, functional, team and individual.

Dr. Saeed Yami, JHAH's Chief Quality and Patient Safety Officer, provided further context for how risk processes are adapted for use at JHAH. He said: "At JHAH, the Risk Register has developed over time with the benefit of contributions from many external and internal risk professionals. Its disciplines are now applied at three key stages: risk identification, risk assessment, and risk control."

Risk identification

This is the process of documenting any risks that could keep an organization or program from reaching its goals. It allows the organization to prepare for potential harmful events and minimize their impact before they occur. It involves not just determining the possible risks, but also documenting and sharing them with stakeholders. Retrospective and prospective approaches are used to ensure no risks have been left unidentified (see Figure One).

Risk analysis

This is a process used to understand the nature, sources and causes of the risks that have been identified while also estimating the level of risk. In addition, it involves the study of impacts and consequences, as well as the controls already in operation.

Figure One: Risk identification approach

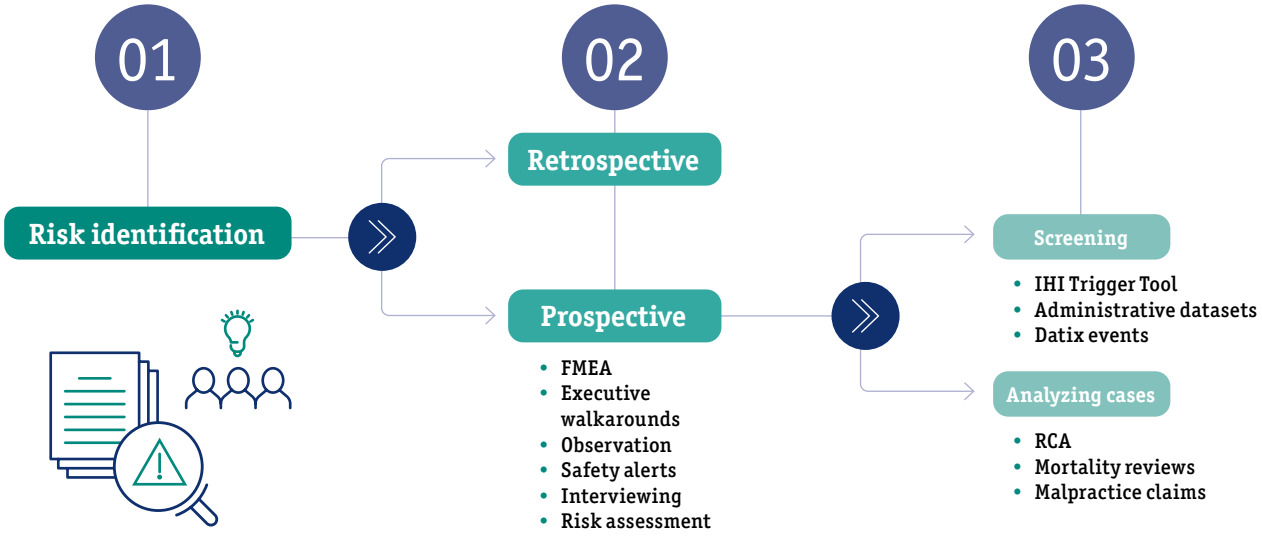


Figure Two. JHAH Risk Register rating definitions

Likelihood

Risk Score (likelihood)						
	Likelihood	01	02	03	04	05
Descriptor	Description	Rare	Unlikely	Possible	Likely	Almost certain
Frequency: General description	Frequency	This will probably never happen/ recur.	Do not expect it to happen/recur but it is possible it may do so. • Expected to occur at least annually	Might happen or recur occasionally. • Expected to occur at least monthly	Will probably happen/recur, but it is not a persisting issue/ circumstances. • Expected to occur at least weekly	Will undoubtedly happen/recur, possibly frequently. • Expected to occur at least daily
Probability: will the risk occur or not?	Probability. Will it happen/not?	<0.1 percent	0.1-1 percent	1-10 percent	10-50 percent	>50%

Impact

Risk Score (consequences)					
Consequences	01	02	03	04	05
Description	Negligible	Minor	Moderate	Major	Catastrophic
Impact on the safety of patients, staff or public (physical/ psychological harm)	Minimal injury requiring no/minimal intervention. Requiring time off work required.	Minor injury/ illness requiring minor intervention. Requiring time off work from <3 days. Increase in length of hospital stay by 1-3 days.	Moderate injury requiring professional intervention. Requiring time off work for 4-14 days. Increase in length of hospital stay by 4-15 days. Agency reportable incident. An event that impacts on a small number of patients.	Major injury leading to long-term incapacity/disability. Requiring time off for >14 days. Increase in length of hospital stay by >15 days. Mismanagement of patient care with long-term effects.	Incident leading to death. Multiple permanent injuries/ irreversible health effects. An event that impacts a large number of patients.

Summary grid

Consequences (initial)					
Likelihood of recurrence (initial)	01 Negligible	02 Minor	03 Moderate	04 Major	05 Catastrophic
Almost certain	○	○	○	○	○
Likely	○	○	○	○	○
Possible	○	○	◉	○	○
Unlikely	○	○	○	○	○
Rare	○	○	○	○	○

At JHAH, a risk score is attributed to each individual risk on the basis of an assessment of both likelihood and impact.

Likelihood is assessed through consideration of frequency and probability, with a rating ascribed ranging from one (rare) to five (almost certain). Likewise, impact is assessed on a similar scale, ranging from one (negligible) to five (catastrophic). Both these rating definitions are set out in more detail in Figure Two, alongside the 5x5 summary grid which categorizes every risk into one of 25 cells, from 'rare/negligible' in the lower left corner, to 'almost certain/catastrophic' in the upper right.

Actions can then be designed and assigned commensurate with the placement of each risk on the grid:

- **Green cells (low risk):** risk rating 1-3. Action: maintain existing controls
- **Yellow cells (medium risk):** risk rating 4-6. Action: review existing controls
- **Amber cells (high risk):** risk rating 8-12. Action: improve existing controls
- **Red cells (extreme risk):** risk rating 15-25. Action: improve existing controls immediately.

(JHAH would like to acknowledge RLDatix Company for copyright of this approach)

Risk control

The final stage involves risk modification, and requires the selection and implementation of one or more treatment options. Broadly, there are four types of controls than can be exercised:

- **Preventive (risk termination):** To eliminate the source of hazard
- **Corrective (risk treatment):** To reduce exposure to the hazard
- **Directive (risk transfer):** To transfer the risk to a third party
- **Detective (risk tolerance):** To monitor through surveillance.

Designing a logical process is a necessary first step to achieving an appropriate organizational attitude towards risk – but it is not, of itself, sufficient. If physicians are left to apply the process locally as they see fit, the result would inevitably be – however well intentioned – inconsistency from department to department. For this reason, JHAH has chosen to underpin each stage of risk management with enterprise-wide software, and selected the respected Datix solution. This software was purposely designed for hospital settings, so that leaders are able to "identify risk, enhance operational efficiency and compliance and build a consistent, transparent culture of safety." The Datix tool generates the information which is used to populate and maintain the Risk Register – and, essentially, to provide reports which can be relied upon by accountable executives and committees whenever interventions are being considered.

Shaping a risk-aware culture

At JHAH, managing risk is more than a compliance requirement — it is a vital enabler of safe, innovative, and patient-centered healthcare delivery. Under the leadership of Iyad Eid, Director of the Risk Management and Patient Safety Division, JHAH has built a culture where risk awareness is deeply embedded in the organization's operations and transformation efforts.

"For healthcare organizations, robust processes are essential — but what truly makes the difference is the knowledge, attitude, and behavior of people," says Mr. Eid. "A hospital is fundamentally a service business, and even the best-designed process cannot operate in isolation. It requires people who are engaged, informed, and committed."

- **Collaboration:** "Collaboration is the foundation of effective risk management," Mr. Eid emphasizes. "If the Risk Department operates in isolation — simply issuing directives from the sidelines — meaningful change is unlikely." Instead, Risk Management experts at JHAH are embedded within project teams as active participants, attending meetings, contributing to discussions, and providing expert guidance to support informed decision-making. This approach fosters shared ownership of challenges and solutions, ensuring that risk considerations are addressed early and constructively. As a result, escalation of issues to higher management has become the exception rather than the rule, with project teams typically able to reach outcomes that balance business objectives with compliance and patient safety requirements.
- **Coaching:** The Risk Management Division is prepared to invest time and effort at the outset of any project, supporting all project team members to achieve a workable level of knowledge about the risk processes. "Sometimes this involves a team briefing; on other occasions, we will mentor individual or work with pairs to crack a thorny dilemma that has emerged," says Mr Eid. All the methodologies and tools are widely available, and continually updated to reflect latest best practice.

- **Risk as an enabler, not a barrier:** Critically, this cultural shift has transformed perceptions of risk management within JHAH. "For me, the respect now shown for the role of risk experts is the greatest testament to their value," says Mr. Eid. He notes that in many less mature healthcare settings, Risk teams are often stereotyped as the department that says 'no' — seen as an obstacle to progress. "This is emphatically not how Risk is seen at JHAH," he explains. "On the contrary, when risks are properly identified, assessed, and controlled, the organization can move forward faster and with greater confidence than would otherwise be possible."

Mr. Eid and his team actively share success stories where their involvement has contributed to the safe delivery of complex initiatives. These examples help debunk myths and demonstrate that a rigorous approach to risk management is not a constraint — but a catalyst for transformation, supporting clinical and operational leaders in achieving their goals.

Reflecting on JHAH's five-year Clinical Services Plan (CSP) — now at its midpoint — Mr. Eid sees clear evidence of the organization's risk-aware culture in practice. The CSP has driven the launch of new clinical services and the modernization of existing ones, all without exposing the organization to undue risk.

He recounts numerous instances where, once risks were clearly identified and a control strategy agreed upon — whether through termination, treatment, transfer, or tolerance — project leaders were able to move forward with confidence to deliver ambitious change.

"The real proof of success is when project champions contact me directly, asking for one of my experts to be assigned to their initiative," Mr. Eid reflects. "That's when I know our contribution is truly valued — not because we block progress, but because we enable it".

Embedding risk principles within the program

In embedding risk principles within the CSP, Dr. JJ de Gorter, the c-suite sponsor of the program, focused on three priorities:

- That the decisions about how risk should be mitigated are made by the operational leaders accountable for delivery, with risk experts playing the role of expert advisers.
- That each project champion should follow the same framework when deciding how to respond to any given risk, and this framework is built around the four options: Tolerate, Treat, Transfer or Terminate.
- That project risks need to be regularly reviewed since they evolve over time – existing risks might lessen but new ones can emerge. This requires a dynamic approach, not one that is permanently fixed around the risk identified at project initiation.

Dr. de Gorter commented: "These three principles have enabled us to move faster and in more targeted ways, using our resources to best effect. The key is for operational and risk colleagues to respect each other's roles, and seek agreement on the most appropriate actions wherever this is possible. It is also important to be aware that, sometimes, the greatest risk can be doing nothing at all; it is important the risk log doesn't contain an unintended in-built bias in favor of the status quo."

Dr. Alber Paules, one of JHAH's most experienced quality assurance experts, and a key member of Mr Eid's team, was assigned as the single point of contact for all risk management issues across the breadth of the CSP.

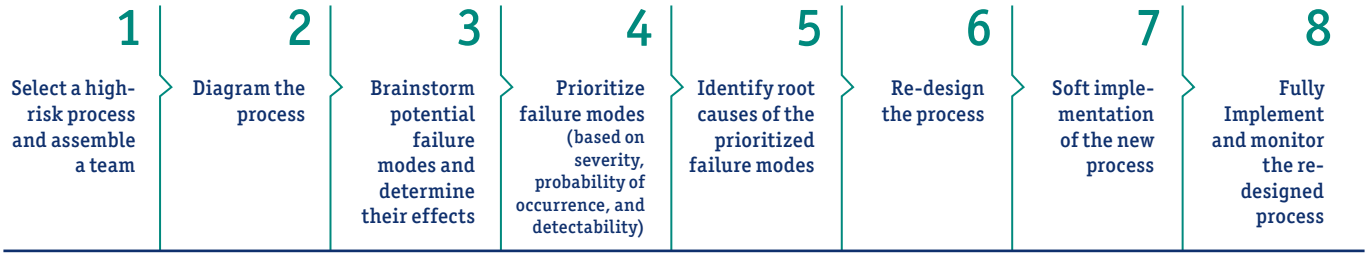
Shortly after being nominated to this role, Dr. Paules led a two-hour risk workshop for all the CSP project champions. Dr. Paules was conscious that the champions all had different levels of knowledge and experience of risk management issues; yet there was a base level of understanding which every champion should reach. The workshop, held in July 2023, catered for all learning styles, using classroom-style presentation, as well as breakout group discussions.

One of the most revelatory moments of the workshop was when Dr. Paules described risk consequences as being like an iceberg. The direct (visible) consequences might be alarming in themselves; but actually the greatest damage can be hidden beneath the surface. This concept was illuminated with some real-life examples, including the FMEA initiative done for the biopsy cases at interventional radiology (IR); and the risk assessment initiative done prior to the renovation of the heating, ventilation and air conditioning (HVAC) systems in the main Operating Room (OR) area. In each case, Dr. Paules explained how the core risk principles outlined earlier in this case study could be combined to design process or service options and model their impact (see Figure Three).

Figure Three: Failure Mode Effects Analysis (FEMA) methodology

Failure (F)	This describes the times when a system, or part of the system, performs in a way that is not intended or desirable. For example, failure of patients to show up as scheduled, or lab results not available on time.
Mode (M)	This describes the manner in which something can fail.
Effects (E)	This describes the results or consequences of a failure mode.
Analysis (A)	This describes the detailed examination of the process elements/steps, in terms of impact/frequency.

FEMA steps



During the following months, risk analysis helped identify and mitigate a variety of risks which, if left unadressed, could have meant inappropriate risk exposure leading to reputational damage. Instead, each of the service launches were designed to maximize the patient's benefit commensurate with the risk being tolerated.

Urgent Care Unit

An Urgent Care Unit (for Category 4 and 5 ATS-triaged cases) had been under consideration at JHAH for almost ten years. Within the framework of the CSP, it finally gathered momentum. As a member of the project team, Dr. Paules worked with his colleagues to identify 18 risks, including the inability to recruit the required number of qualified staff; a lack of designated parking spaces for the UCU patients and families; and an overload on the pharmacy causing delays in the dispensing of discharge medications. As the team wrestled with how to quantify these risks, Dr. Paules advocated the benefit of learning from the experiences of others, and helped to prepare for a full-day visit by the entire project team to the King Faisal Specialist Hospital and Research Center (KFSHRC) in Riyadh. This provided a remarkable opportunity to explore the technical, clinical and operational aspects of managing an Emergency Department (ED) and UCU in parallel, to achieve a more streamlined experience for the vast majority of presenting patients. "Sharing experiences with others provided a fast track to agreeing practical solutions," said Dr. Paules. "It meant we could stop talking about theoretical scenarios, and base our decisions in practical, observed reality."
(please refer to Case Study #09 for more information)

Teleconsultations 24/7

When JHAH launched a 24/7 teleconsultation service, Dr. Alber facilitated the project team in applying the FMEA principles, which highlighted a potential concern around patient identification. Dr. Paules remarked, "Without any face-to-face contact, there is the possibility that ineligible friends and family could use the details of an eligible medical recipient to get advice and information. This carries numerous risks – possibly the main one being that the eligible patient's records could be permanently updated with someone else's ailments." As a result of this

assessment, the patient identification processes were tightened. "There were a number of options for how this could be achieved. Obviously, we didn't want to make it excessively complicated or people would be deterred from using the service. The trick was to find the right balance."
(please refer to Case Study #15 for more information)

Super October

Super October was an enterprise-wide initiative to complete 1,000 procedures in JHAH's OR in a single month for the first time on record. Such a step change in activity would deliver extraordinary benefits to patients – in particular, through reducing waiting times for patients who might otherwise suffer extended periods in discomfort or pain. However, since the OR service had not been configured to operate at such scale, risks could appear at almost every step of the process; for example:

- If there are insufficient beds to accommodate both surgical patients and emergencies
- If stepdown beds are required but unavailable
- If key medical staff are unavailable through illness, burnout or for any other reason
- If activity is disrupted by patients who arrive late, or are no-shows
- If supplies are unavailable in the quantities required
- If the Workstations on Wheels (WOWs) are overwhelmed, leading to documentation being delayed, missing or incomplete.

A standalone Risk Register was created in which each of these risks (and plenty of additional ones) were listed, with its own risk rating, the risk control action required, and the name of the risk owner. Throughout the three months prior to October, and during the month itself, the project team met on a weekly basis; a review of the Risk Register was a standing agenda item at each meeting.
(please refer to Case Study #13 for more information)

Looking ahead

As the Clinical Services Plan enters the second half of its implementation, the project teams will be focusing on a series of measures to further enhance how risks are identified, assessed and mitigated. Three of the most significant, which build upon the experiences to date, are the use of: *Conditions Precedent, dealing with ambiguity and external benchmarking.*

- **Conditions Precedent:** For three of the most impactful new service launches during 2023 and 2024, a schedule of Conditions Precedent was created; these were the items which needed to be addressed in order for 'Go/ No Go' decisions to be confirmed. Completion of the risk analysis, and assessment of the conclusions in light of JHAH's risk appetite, were high on the Conditions Precedent lists.
- **Dealing with ambiguity:** Project risks are inherently more complex that the risks faced by ongoing operations. With operational risks, there is a wealth of historic data that can be tracked, with red flags highlighting any adverse trends that could lead to unwelcome risk exposure. Projects, by their nature, tend to concentrate on issues for which historic data is limited or non-existent (because new things are being done, or existing things are being done differently). This requires the exercise of professional judgment alongside objective statistical modelling.
- **External benchmarking:** Accessing the experiences of other comparable facilities through benchmarking can be an insightful solution to uncertainties. With healthcare accounting for more than 10 percent of global GDP, it is rare that any hospital considers a strategy which has never been attempted by any other provider anywhere in the world. In addition, the leading healthcare operators have public interest obligations that are equal to, or supersede, their shareholder obligations – meaning they see value in sharing their experiences with peers for the widest possible benefit.

Finally, the Risk Department will be working closely with the CSP Program Management Office (PMO) to implement the same level of risk discipline at the program-wide level, not just within individual projects. In early 2025, the PMO agreed a framework for this approach with the CSP Steering Committee chaired by JHAH's chief executive. Six program-wide risks are already being actively managed: a delay in benefits realization; alignment with and dependency on other JHAH strategies; inadequate stakeholder engagement; inadequate staff engagement; and the inability to deliver projects within an organization that is built around continuing operations. For each of these, mitigation actions have been identified and mitigation responsibility assigned.

Risk management as a strategic partner

Reflecting on the journey of embedding risk awareness into JHAH's operations, Mr. Eid sees clear evidence of the organization's progress toward a mature and proactive risk culture.

"Risk management has come of age," Mr. Eid concludes. "It has earned its place alongside other essential hospital support services such as Finance, Human Resources, Legal, Facilities, and Information Technology — all of which are indispensable to the safe and effective operation of a healthcare organization."

Looking ahead, Mr. Eid emphasizes the Risk Management Division's commitment to remaining a trusted partner in JHAH's continued transformation journey.

"We look forward to continuing to support JHAH's vital transformation — not from the sidelines, but as equal partners, working hand-in-hand with our clinical colleagues to enable safe, innovative, and patient-centered care."

Notes

1. Dr. Ashley Shaw, 'Use of a Risk Register, Managing Risk in Complex Healthcare Organisations: Use of a Risk Register', healthmanagement.org, volume 12 issue 4, 13 Nov 2012.
2. Paula Moore RN, MS, LNC, 'Risk Assessment Made Easy', Johns Hopkins Medicine, March 2015.

About the Risk Management team

From left to right:

Dr. Alber Paules, Senior ERM and Patient Safety Professional
Mr. Ibrahim Asaad, Senior ERM and Patient Safety Professional
Ms. Martine O'Brien, Associate ERM and Patient Safety Professional
Mr. Rabie Kilan, ERM and Patient Safety Specialist
Ms. Shahad Alelaiw, Associate ERM and Patient Safety Professional
Ms. Lamis ElSayed, ERM and Patient Safety Professional
Ms. Azhaar AlMuzein, ERM and Patient Safety Consultant
Ms. Salma Matrook, ERM and Patient Safety Specialist
Ms. Rabab Bajahmom, Senior ERM and Patient Safety Specialist
Mr. Iyad Eid, Director, Risk Management Division
Dr. Saeed Yami, Chief, Quality and Patient Safety Department
Ms. Taghreed Mathal, ERM and Patient Safety Consultant
Ms. Clare Fletcher, Senior ERM and Patient Safety Professional
Mr. Ali Abandi, Quality and Data Analytics Specialist

Note: ERM = Enterprise Risk Management

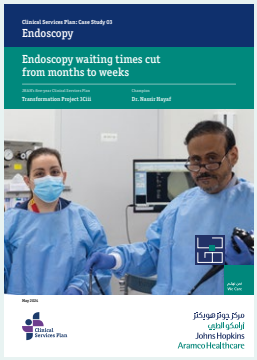
Also available

Case Study #01: Horizon Scan

Scanning the horizon for healthcare innovations

Case Study #02: The Back Referral Program

Enhancing access to JHAH for non-registered Saudi Aramco EMRs



Case Study #03: Endoscopy

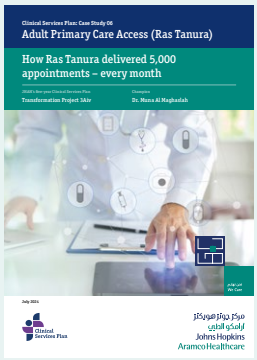
Endoscopy waiting times cut from months to weeks

Case Study #04: Operating Rooms

Faster access to surgery

Case Study #05: Adult Primary Care Access (Dhahran)

The doctor will see you now



Case Study #06: Adult Primary Care Access (Ras Tanura)

How Ras Tanura delivered 5,000 appointments – every month

Case Study #07: Referrals

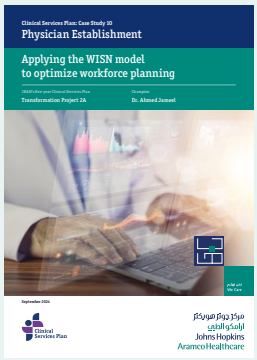
Twenty-six referral pathways under the microscope

Case Study #08: Cath Lab

Tackling the bed crunch

Case Study #09: Urgent Care

A joined-up approach to same-day care needs



Case Study #10: Physician Establishment

Applying the WISN model to optimize workforce planning

Note: Additional CSP case studies are constantly under development. Please email or call your JHAH contact for information on future editions.

This case study is one in a series that showcases stories from implementation of the JHAH Clinical Services Plan (CSP). The JHAH Board approved the CSP in June 2022. It is an ambitious multiyear program to enhance and modernize a wide range of clinical activities. For more information about the CSP or any projects included in the program, contact the CSP Program Management Office: pmo@jhah.com.

Case Study #11: Program Management

Delivering a five-year clinical transformation program

Case Study #12: Hospital At Home

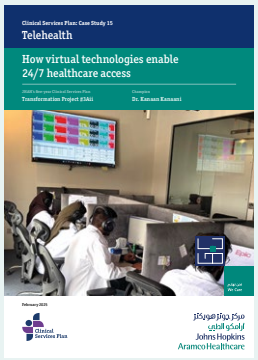
Recovery in the comfort of the patient's home

Case Study #13: Super October

Meeting the challenge of 1,000 procedures in one month

Case Study #14: Healthcare Marketing

Multi-channel engagement to turbocharge healthcare transformation



Case Study #15: Telehealth

How virtual technologies enable 24/7 healthcare access

Case Study #16: Physician Leadership Development

Enhancing leadership capability to deliver a complex transformation

Case Study #17: Musculoskeletal Services

Advancing patient care and innovation

Case Study #18: Risk Management

Experiences in identifying and mitigating risks during healthcare transformation

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