

نحن نهتم
We Care



Case Study 10: PHYSICIAN ESTABLISHMENT

Applying the WISN model to optimize workforce planning



JHAH's five-year Clinical Services Plan
Transformation Project 2A

Project Champion
Dr. Ahmed Jameel



مركز جونز هوبكنز
أرامكو الطبي
Johns Hopkins
Aramco Healthcare



Case Study 10: PHYSICIAN ESTABLISHMENT

Applying the WISN model to optimize workforce planning

Project Details



The Objective

- To optimize Chief Of Staff physician costs as a proportion of revenue, while maintaining access, quality and safety standards.

The Priorities

- Analyze the physician establishment using an objective methodology based on patient demand and activities.
- Review and implement new operating and care processes as required.

The Timeline

- **Project kick-off:** January 2023.
- **Project closure:** May 2024.

The Project Team

Champion:

- Dr. Ahmed Jameel

Sponsor:

- Dr. J.J. de Gorter

Manager:

- Dr. Nabeel Faify

Team members:

- Dalal Abdulazeem
- Fajer Abu Flassa
- Sana Amoudi
- Dr. Abdullah Garni
- Somaya Hajri
- Rawan Al Jehairan
- Dalal Mohaisen
- Ahmed Zahrani
- Lamia Zayer
- Wissam Zein

For more information

ahmed.jameel@jhah.com

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).

The Physician Establishment project was included as Objective #2A in the CSP.

Project Background



In early 2023, the total number of physicians employed in the Chief Of Staff departments at JHAH was just over 480. This number was not the result of any objective or rigorous analysis, and was mainly the consequence of heated budget discussions over many years.

As the CSP program gathered momentum, it was agreed that a transparent and robust approach to setting the overall physician headcount, and how it was spread among the different specialty departments and services, would be of great value. This exercise would also support the continuing evolution at JHAH from consultant delivered, to consultant led, services – enabling each physician to work at the top of his or her licence, and the skills of the entire workforce to be deployed to greatest impact.

Project Delivery



The project team's first priority was to agree on a methodological approach that would command credibility and be appropriate to the challenge.

After considering a number of alternatives, the team was attracted to the World Health Organization's Workload Indicators of Staffing Need (WISN) model¹. Originally developed in 1998, and substantially revised in 2008 on the basis of experience, the model aims to "effect a fair and optimal distribution of staff at health facilities". It is based on a health worker's workload, with activity (time) standards applied for each workload component. Many applications of WISN have focused on the design of national or regional public healthcare systems. In determining how the WISN model could be applied for an individual provider such as JHAH, five phases of analysis were prioritized:

- Understanding the organization and the operating environment (*population-based estimating*).
- Analyzing the current workforce (*benchmarking*).
- Determining future staffing (*needs-based assessment*).
- Identifying gaps in staffing needs (*demand-based assessment*).
- Monitoring and evaluate staffing plans and solutions (*training output estimating*).

The second task was to agree the scope of the workforce review. In the first wave, the following services were prioritized:

- Anaesthesia Department.
- Cardiology Department.
- Emergency Department.
- Medicine Department.
- Specialized Therapies Department.
- Surgery Department.
- Women and Child Department.

(Note: the establishment numbers for Primary Care, Diagnostics and Operational Medicine were not included in the analysis since their workforce challenges were being addressed elsewhere within the CSP.)

An analytical model was then designed to quantify the impact of all key variables that might influence the size

and shape of the workforce establishment. The full list of variables is too exhaustive to include here, but the main categories included:

- The current levels of patient demand.
- How demand is expected to change (especially during the next three to five years) due to patient demographics, other provider options in the eastern region, and JHAH's strategic areas of focus.
- A full list of all roles within the workforce establishment, with their job family classification and seniority.
- The core health services activities for each category of staff.
- The additional and support activities for each category of staff (such as documentation, staff meetings, management responsibilities).
- Unit time allocation for each activity (in multiples of ten minutes).
- Hospital operating hours.
- The time available per person as per their templates, adjusted for holidays, shorter working hours (Ramadan), leave, sick leave, training, emergencies.
- General assumptions.

Data from each service within scope was then inputted into the model, enabling a picture of the 'required workforce' to be generated.

The assumptions underpinning the analysis, alongside the correlations and the draft recommendations, were then tested internally and independently validated by an expert in healthcare operations from Greybeard Healthcare.

In some instances, the analysis confirmed that the existing establishment was appropriate to the patterns of demand. In other cases, adjustments were required. Examples of specific steps taken as a result of the analysis conclusions were:

- The redeployment of existing resources.
- The retraining of certain staff members to equip them with the skills required over the coming years.
- Changes to the mix of skills and experience levels within teams to match patient demand.
- The introduction of new key performance indicators (KPIs) at a catalyst to change.

As the project gathered momentum, one of the most important and illuminating exercises was to spend meaningful time with each Departmental Chair, to discuss



the implications of the analysis, and to work through the options which arose. An important principle during this period of stakeholder engagement was that, while the ultimate goal was not negotiable, the Chairs should – indeed, must – have significant influence and authority about how the goal is to be achieved.

As the workforce size was being optimized, the project team recognized this was an essential step to maximize the time spent with patients by physicians, but it could not be the end of the reforms. Other measures were necessary to fulfil the ‘patient-facing time’ potential. As a result, these sets of reforms were enacted in parallel:

Productivity

Each physician’s time was being managed through templates, controlled by JHAH’s team of Clinical Administrators. In late 2023, the templates were overhauled to increase flexibility, to shift responsibility for administrative duties from physicians to other staff, and to ensure representation on committees was proportionate and not an excessive burden.

Figure One: Physician template (example)

Sunday			Monday			Tuesday			Wednesday			Thursday		
Start Time: 07:00			Start Time: 07:00			Start Time: 07:00			Start Time: 07:00			Start Time: 07:00		
Stop Time: 16:00			Stop Time: 16:00			Stop Time: 16:00			Stop Time: 16:00			Stop Time: 16:00		
7:00 AM	INPATIENT ROUNDS		7:00 AM	INPATIENT ROUNDS		7:00 AM	INPATIENT ROUNDS		7:00 AM			7:00 AM	INPATIENT ROUNDS	
7:10 AM			7:10 AM			7:10 AM			7:10 AM			7:10 AM		
7:20 AM			7:20 AM			7:20 AM			7:20 AM			7:20 AM		
7:30 AM			7:30 AM			7:30 AM			7:30 AM			7:30 AM		
7:40 AM			7:40 AM			7:40 AM			7:40 AM			7:40 AM		
7:50 AM	FU vid/tel	Surgical	7:50 AM	Dressing/FU	OPPA	7:50 AM	Flexible Time		7:50 AM			7:50 AM	FU vid/tel	Surgical
8:00 AM	NC/FU	Surgical	8:00 AM			8:00 AM			8:00 AM			8:00 AM	NC/FU	Surgical
8:10 AM			8:10 AM			8:10 AM			8:10 AM			8:10 AM		
8:20 AM	NC/FU	Surgical	8:20 AM	Dressing/FU	OPPA	8:20 AM			8:20 AM			8:20 AM	NC/FU	Surgical
8:30 AM			8:30 AM			8:30 AM			8:30 AM			8:30 AM		
8:40 AM	NC/FU	Surgical	8:40 AM	Dressing/FU	OPPA	8:40 AM			8:40 AM			8:40 AM	NC/FU	Surgical
8:50 AM			8:50 AM			8:50 AM			8:50 AM			8:50 AM		
9:00 AM	NC/FU	Surgical	9:00 AM			9:00 AM			9:00 AM			9:00 AM	NC/FU	Surgical
9:10 AM			9:10 AM	Dressing/FU	OPPA	9:10 AM			9:10 AM			9:10 AM		
9:20 AM	NC/FU	Surgical	9:20 AM			9:20 AM			9:20 AM			9:20 AM	NC/FU	Surgical
9:30 AM			9:30 AM	Dressing/FU	OPPA	9:30 AM			9:30 AM			9:30 AM		
9:40 AM	NC/FU	Surgical	9:40 AM			9:40 AM			9:40 AM			9:40 AM	NC/FU	Surgical
9:50 AM			9:50 AM	Dressing/FU	OPPA	9:50 AM			9:50 AM			9:50 AM		
10:00 AM	NC/FU	Surgical	10:00 AM			10:00 AM			10:00 AM			10:00 AM	NC/FU	Surgical
10:10 AM			10:10 AM	Dressing/FU	OPPA	10:10 AM	Lunch break		10:10 AM	Operating Room		10:10 AM		
10:20 AM	NC/FU	Surgical	10:20 AM			10:20 AM			10:20 AM			10:20 AM	NC/FU	Surgical
10:30 AM			10:30 AM			10:30 AM			10:30 AM			10:30 AM		
10:40 AM	NC/FU	Surgical	10:40 AM	Dressing/FU	OPPA	10:40 AM			10:40 AM			10:40 AM	NC/FU	Surgical
10:50 AM			10:50 AM			10:50 AM			10:50 AM			10:50 AM		
11:00 AM	NC/FU	Surgical	11:00 AM			11:00 AM			11:00 AM			11:00 AM	NC/FU	Surgical
11:10 AM			11:10 AM	Lunch break		11:10 AM			11:10 AM			11:10 AM		
11:20 AM	Lunch break		11:20 AM			11:20 AM			11:20 AM			11:20 AM	Lunch break	
11:30 AM			11:30 AM			11:30 AM			11:30 AM			11:30 AM		
11:40 AM			11:40 AM			11:40 AM			11:40 AM			11:40 AM		
11:50 AM			11:50 AM			11:50 AM			11:50 AM			11:50 AM		
12:00 PM			12:00 PM			12:00 PM			12:00 PM			12:00 PM		
12:10 PM			12:10 PM	FU vid/tel	Surgical	12:10 PM			12:10 PM			12:10 PM	FU vid/tel	Surgical
12:20 PM	FU vid/tel	Surgical	12:20 PM			12:20 PM			12:20 PM			12:20 PM		
12:30 PM			12:30 PM	NC/FU	Surgical	12:30 PM			12:30 PM			12:30 PM	NC/FU	Surgical
12:40 PM	NC/FU	Surgical	12:40 PM			12:40 PM			12:40 PM			12:40 PM		
12:50 PM			12:50 PM	NC/FU	Surgical	12:50 PM			12:50 PM			12:50 PM	NC/FU	Surgical
1:00 PM	NC/FU	Surgical	1:00 PM			1:00 PM			1:00 PM			1:00 PM	NC/FU	Surgical
1:10 PM			1:10 PM	NC/FU	Surgical	1:10 PM			1:10 PM			1:10 PM		
1:20 PM	NC/FU	Surgical	1:20 PM			1:20 PM			1:20 PM			1:20 PM	NC/FU	Surgical
1:30 PM			1:30 PM	NC/FU	Surgical	1:30 PM			1:30 PM			1:30 PM		
1:40 PM	NC/FU	Surgical	1:40 PM			1:40 PM			1:40 PM			1:40 PM	NC/FU	Surgical
1:50 PM			1:50 PM	NC/FU	Surgical	1:50 PM			1:50 PM			1:50 PM		
2:00 PM	NC/FU	Surgical	2:00 PM			2:00 PM			2:00 PM			2:00 PM	NC/FU	Surgical
2:10 PM			2:10 PM	NC/FU	Surgical	2:10 PM			2:10 PM			2:10 PM		
2:20 PM	NC/FU	Surgical	2:20 PM			2:20 PM			2:20 PM			2:20 PM	NC/FU	Surgical
2:30 PM			2:30 PM	NC/FU	Surgical	2:30 PM			2:30 PM			2:30 PM		
2:40 PM	NC/FU	Surgical	2:40 PM			2:40 PM			2:40 PM			2:40 PM	NC/FU	Surgical
2:50 PM			2:50 PM	NC/FU	Surgical	2:50 PM			2:50 PM			2:50 PM		
3:00 PM	NC/FU	Surgical	3:00 PM			3:00 PM			3:00 PM			3:00 PM	NC/FU	Surgical
3:10 PM			3:10 PM	NC/FU	Surgical	3:10 PM			3:10 PM			3:10 PM		
3:20 PM	NC/FU	Surgical	3:20 PM			3:20 PM			3:20 PM			3:20 PM	NC/FU	Surgical
3:30 PM			3:30 PM	FU vid/tel	Surgical	3:30 PM			3:30 PM			3:30 PM		
3:40 PM	FU vid/tel	Surgical	3:40 PM			3:40 PM			3:40 PM			3:40 PM	FU vid/tel	Surgical
3:50 PM			3:50 PM	Chart Review		3:50 PM			3:50 PM			3:50 PM		

Key

NC: New Case

FU: Follow Up

OPPA: Out Patient Procedure Area

Note: Template includes analysis for all slots to show the number that are open (bookable), private (restricted) and whether it can be safely overbooked (capacity and demand management).

The result was to personalize each template around the role and responsibilities of the individual physician.

An example of a typical physician template is shown in Figure One.

Actions to reduce the rate of patient no-shows and late cancellations

The no-show rate in some clinics was in the five to ten percent range; of course, no-shows mean unproductive time and ultimately disadvantages those patients who are waiting patiently for an appointment. The team conducted focus groups with patients to understand what was behind the no-show phenomenon (Was it other commitments? Were appointments being forgotten? Were transport problems to blame?); shortly afterwards, various new processes were introduced – including SMS and email reminders, and targeted interventions with any patients classified as ‘persistent no-show-ers’.

Referrals and discharges

A third obstacle to the effective use of physician time was the incidence of inappropriate referrals. In late 2023, 26 referral pathways were designed and built into Epic, to bring greater consistency to referrals and ensure key information was captured and communicated by the referring physician. These reforms are explored in more detail in an accompanying case study (Case Study 07: Referrals).

The Outcome

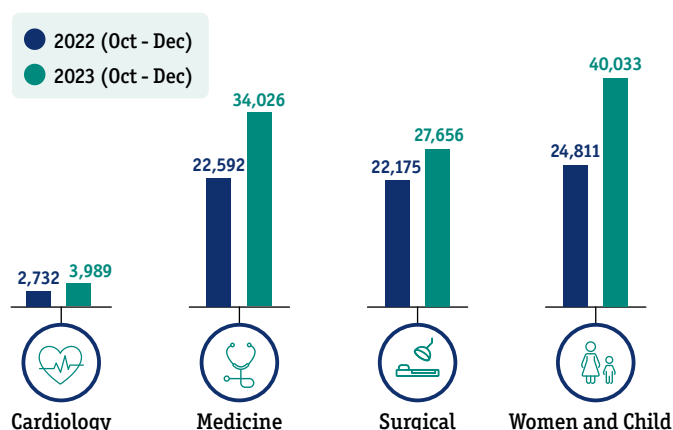


Three months after the changes had been rolled out, a post-implementation review was undertaken to evaluate the impact of the reforms on patient access and physician time. A number of improvements were highlighted:

- Cardiology: Slots per physician up 32 percent (to 399); completed visits up 43 percent (to 3,789).
- Medicine: Slots per physician up 29 percent (to 500); completed visits up 24 percent (to 31,391).
- Surgical: Slots per physician up 20 percent (to 513); completed visits up 14 percent (to 26,890).
- Women and child: Slots per physician up 34 percent (to 1,818); completed visits up 65 percent (to 33,234).

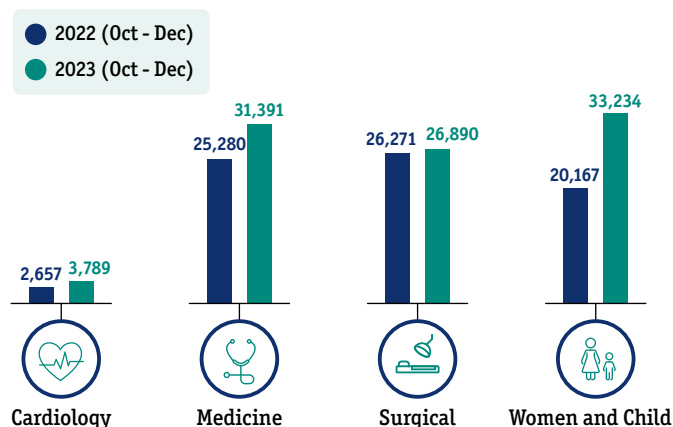
(Note: data relates to a three month period).

Figure Two: Bookable slots



In addition to the operational measures of productivity, complementary metrics being reported in the project dashboard included: physician costs as a proportion of the overall cost base; the number of non-consultants as a proportion of all physicians; and the proportion of consultants who had been Western boarded.

Figure Three: Completed visits



As Champion of the initiative, Dr. Jameel presented these results to a Committee comprising stakeholders from the hospital as well as from its primary customer. One theme of the discussion was to ensure that impressive operational results were not being achieved by compromises elsewhere within the patient offer or experience. Dr. Jameel explained how the changes were being rolled out with careful risk mitigation at every stage, and with early alerts should any unintended consequences arise.



Lessons Learned



The core lesson from the exercise was that an objective methodology is a valuable tool in removing emotion and anecdotes from important workforce decisions.

Reflecting on the experience, Dr. Jameel comments: “The physician workforce plan had many benefits. It improved our recruitment decisions, ensuring consultants are working at the top of their licence. It enables us to make more attractive offers to skilled and experienced professionals, while at the same time optimizing our costs. Importantly, it has fostered a spirit of collaboration, wherein we change our business so that it aligns with the newly emerging healthcare landscape.”

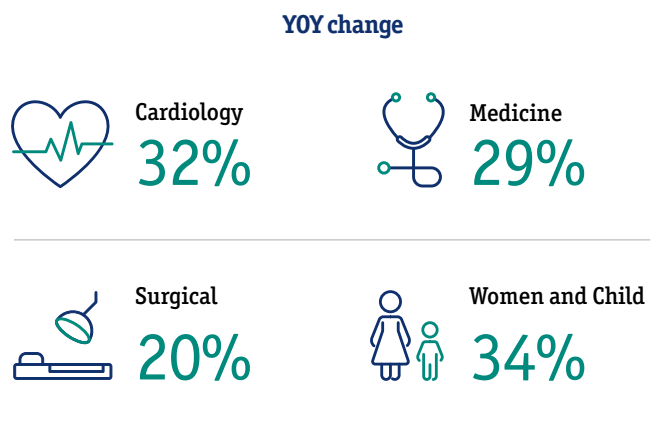
Looking ahead, Dr. Jameel is insistent that workforce modelling should not be a one-off exercise, after which the organization retreats into the comfort of previous practices. On the contrary, it should be embedded in JHAH’s continuing workforce decisions.

In practical terms, this means:

- Awareness and skills development: So that all JHAH administrators are comfortable with the modeling work required.
- Annual refreshes: Aligned with the budget process.
- Linking the analysis with decision making: With the data as a vital tool for optimizing the hospital’s future scope and scale.

A better designed workforce model is only relevant if it delivers for patients. For this reason, Dr. Jameel is at pains to emphasize – especially as the project reached its final stages – that any changes must deliver in terms of healthcare outcomes and patient satisfaction. During the wrap-up session, he thanked the members of project team for their support, and remarked: “JHAH does not have unlimited resources. That’s why the major benefit of this work is that we can confidently recruit, train and retain professionals to match the needs of our patients. It means our workforce is designed not around our historic legacy, but around the future priorities.”

Figure Four: Provider productivity (slots per physician)



Notes:

1. For more information about WISN, please refer to the World Health Organization’s WISN Operating Manual. www.who.org/workforce-2024.



About the Project Champion and Project Manager



Dr. Ahmed Jameel

Dr. Jameel is Chair of the Medicine Department and Chair of the Credential and Privilege Committee at Johns Hopkins Aramco Healthcare.

He was educated at King Faisal University (Saudi Arabia) and his residency was with the Endocrinology & Metabolism Department at Dalhousie University (Canada).

Previous roles have included Chief of Internal Medicine Division at the Saudi Aramco Medical Services Organization (SAMSO), Chief of Specialty Medicine Division (SAMSO), Medical Director (SAMSO), and General Internal Medicine Consultant and Hospitalist (JHAH).



Dr. Nabeel Al Faify

Dr. Al Faify is the Lead Clinical Administrators at Johns Hopkins Aramco Healthcare.

He was educated at the Kind Saud University, Riyadh, KSA (Bachelor's Degree in Radiological Technology), University of Surrey, Guilford, UK (Master's Degree in Medical Physics), and University of Phoenix, Phoenix, USA (Degree of Doctor of Health Administration).

Before joining JHAH, he was a Senior Medical Physicist at the Saudi Aramco Medical Services Organization.

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



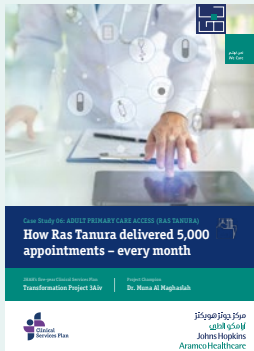
Case Study #04: OPERATING ROOMS

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



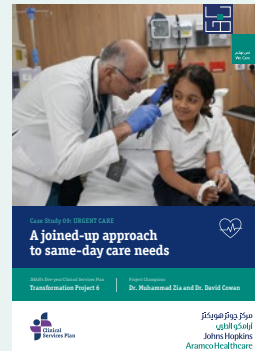
Case Study #07: REFERRALS

Twenty-six referral
pathways under the
microscope



Case Study #08: CATH LAB

Tackling the
bed crunch



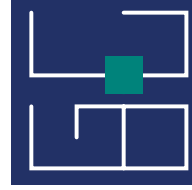
Case Study #09: URGENT CARE

A joined-up approach
to same-day care needs

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

© Johns Hopkins Aramco Healthcare, 2024

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.



نحن نهتم
We Care



 800-305-4444 | www.jhah.com

مرکز جونز هوبكنز
أرامكو الطبي
Johns Hopkins
Aramco Healthcare