Listening to Women, Improving Care: A Patient-Centered Approach to Value-Based Maternity Care at Dallah Hospital Al Nakheel in Saudi Arabia

Dr. Lewis P. M. Green[1], Dr. Salah AlFaqih[2,3], Dr. Saeed Ibrahim[2], Dr. Ahmed Bahloul[3], Dr. Hani Ibrahim[2], Dr. Lamia Khalil[3], Dr. Niveen Ashraf[3], Dr. Wafaa Abdelkarim[3], Dr. Alaa Almatari[3], Maria F. L. Marcelo[3]

[1]International Consortium for Health Outcomes Measurement, London UK
[2]Dallah Health, Saudi Arabia
[3]Dallah Hospital Al Nakheel, Saudi Arabia

1. Background

In April 2016, Saudi Arabia's Royal Highness Crown Prince Mohammed bin Salman set out an ambitious vision for the kingdom (Saudi Vision 2030) a major part of which was to transform the Kingdom's healthcare system. Central to this vision was the widespread and genuine adoption of value-based healthcare (VBHC) and population health management across healthcare organizations. In the years that followed, several models of care were identified by the Ministry of Health as priority areas, providing clarity on where efforts should focus to achieve the most immediate and meaningful impact. Thus, laying the groundwork for this new approach to care in the region.

Dallah Health serves more than three million patients annually. Across the Dallah network, there is a strong drive to enhance quality, efficiency, and excellence in service delivery. Recognizing the opportunity to align this ambition with national priorities, Dallah Health's flagship hospital; Dallah Hospital Al Nakheel has placed particular emphasis on the national priority area of Safe Birth. For this purpose, Dallah Hospital's leadership engaged both internal and external stakeholders with the objective of embedding the fundamentals of the ICHOM Pregnancy and Childbirth Set into their care pathways.

At its core, VBHC aims to improve value by achieving better outcomes for patients. Healthcare delivery is inherently complex, and successful implementation of VBHC requires flexibility. There is no one-size-fits-all model. Appreciating this, Dallah Hospital Al Nakheel launched a pilot program that combined the framework of the ICHOM Pregnancy and Childbirth Set, the

expertise of external partners, and the insight and commitment of its own staff to deliver improved value for the pregnant women and newborn babies in its care.

2. Implementation

ICHOM Sets are designed to act as a foundational framework for measuring and using patient-reported outcomes (Figure 1). Implementing this framework in diverse cultural, economic, and linguistic contexts requires consideration of several core factors. At Dallah Hospital Al Nakheel, their approach to addressing these factors centered on three key concepts: effective education, meaningful engagement, and timely adaptation.

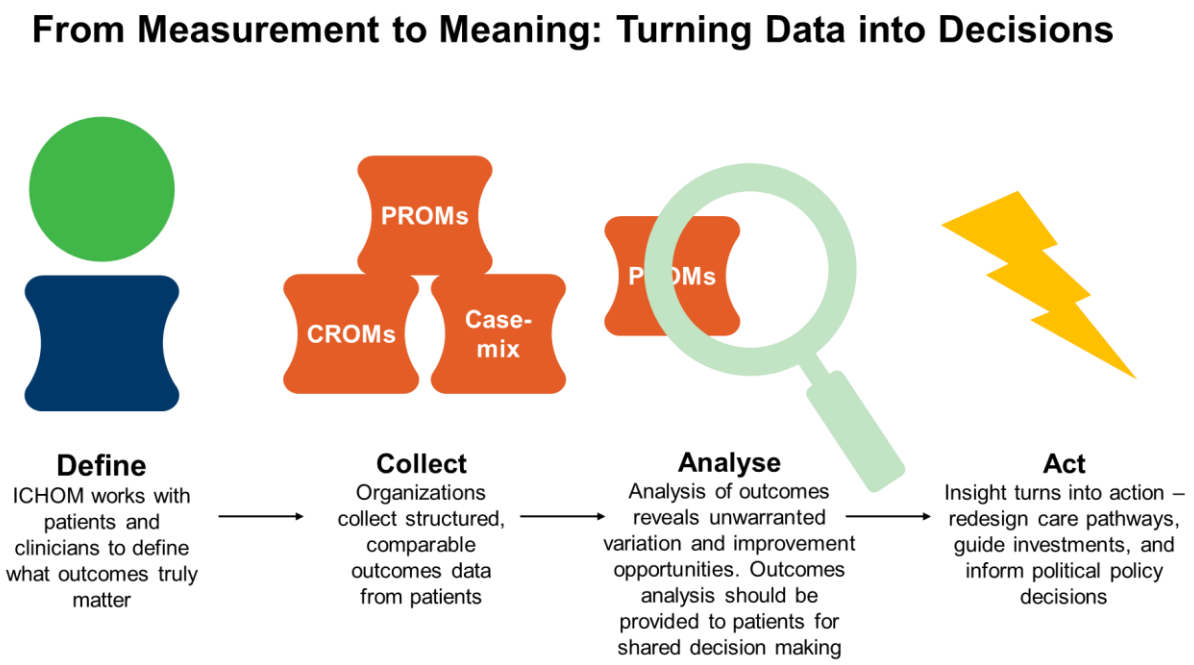

Figure 1: Illustration of the ICHOM outcomes measurement framework, showing how patient data (PROMs, CROMs and case-mix variables) is collected, examined and transformed into actionable insights to improve care.

Dallah Hospital Al Nakheel began their Pregnancy and Childbirth Set (Figure 2) implementation with a pilot project. This approach allowed for the creation of the necessary implementation framework in a way that would be accomplishable and scalable. The women included in Dallah's pilot were 18 to 45 years old and resided in Riyadh or nearby areas. At enrollment, they were under 24 weeks gestation and pre-gestationally healthy, with no prior medical history of comorbidities such as diabetes, sickle cell disease, mental illness, or cardiovascular disease. For many, this was their first sustained interaction with secondary healthcare professionals, making it unlikely they had previously encountered concepts such as patient-reported outcome measures (PROMs), clinician-reported outcome measures, or case-mix variables. Pregnancy and childbirth are times of major personal and familial change,

so the Dallah team began with a multifaceted education effort. In the first instance education was focused on helping women understand the essential aspects of pregnancy and childbirth. From there, clinicians could shift to explaining what PROMs were, why they were being asked questions on topics such as social support or urinary incontinence, who would have access to their information, and how it would be used. As a result, women were more informed about their whole care processes, which helped strengthen an essential variable in healthcare—trust.

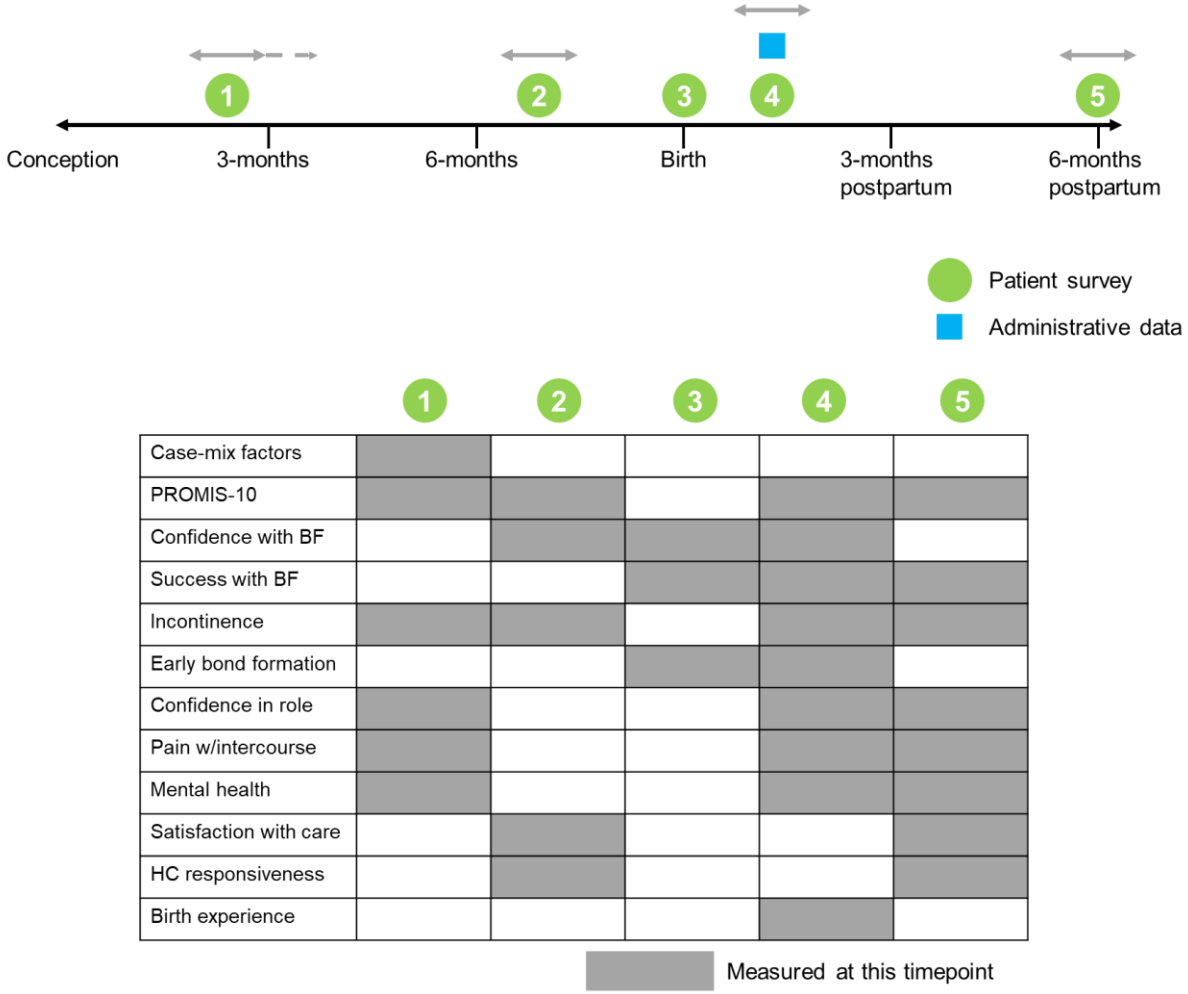

Figure 2: Timeline for Set data collection

BF: Breastfeeding, HC: Healthcare

Equally critical to building trust was the relationship each woman had with her clinical team. Dallah Hospital's obstetrics department is staffed entirely by female clinicians, immediately addressing key cultural considerations. Each woman remains under the care of the same consultant throughout her pregnancy and childbirth and has direct access for questions or clarification. As one clinician explained, "At Dallah, as we do all our patients, we give them VIP treatment, and while that may be more work at times, we see it as essential for building the relationship." When some women began completing the PROM surveys their response

rates were low or the survey would be incomplete. This may be attributed to the fact that use of PROM surveys was a new element to patient care in the country. As women progressed through their care pathways and developed close, sisterly relationships with their clinicians their participation in the PROM surveys increased significantly.

Like most early-stage value-based healthcare pilots, Dallah's first iteration was not optimum. Some PROM surveys were incomplete or missing, limiting the usability of outcomes data for care improvement. Response rates improved as education and trust deepened, but also through timely adaptation. Before the pilot began, Dallah engaged an external partner to translate all ten PROM surveys into Arabic that was validated to be easily understood by women living in Saudi Arabia, which was an essential step for success. Once underway, the team increased early physician contact, refined survey delivery methods via WhatsApp for better convenience in the community rather than SMS and email, optimized survey timings, and ensured consistent clinician follow-up. These adaptations collectively led to more accurate and complete data collection, better reflecting the true outcomes of the women in their care.

Alongside these human and procedural factors, Dallah Hospital recognized the importance of robust technological infrastructure. Fragmented data systems often prevent teams from analyzing and acting on patient-reported outcomes. To avoid this, Dallah partnered with a third-party platform to collect and analyze data efficiently. The platform enabled outcomes to be viewed at the aggregate, clinician, and individual patient levels, ensuring that the information gathered could be translated into meaningful insights for improving care.

3. Outcomes

With robust implementation in place, the Dallah Hospital team began using the outcomes data they were collecting to improve patient care. The following examples illustrate how outcomes that required further support were identified, their potential drivers analyzed, and specific steps taken to address them.

3.1 Social support during pregnancy

Analysis of the Single Item Measure of Social Support (SIMSS) PROM survey revealed 82% of participating women had responses of 1-3 on the 10-point scale (Figure 3), indicating they experience a lack of social support during their pregnancy This was an early cause for concern for the clinical team that prompted further investigation. Many of the women enrolled in the pilot lived in Riyadh city, but were originally from other regions, meaning they were often separated from immediate family and familiar support networks. This lack of close social

contact was felt acutely in a culture where family ties are central. To help bridge this gap, Dallah Hospital strengthened its wraparound care approach by ensuring that caregivers, particularly physicians, maintained close and regular contact with each woman. This consistent communication helped women feel supported throughout their pregnancy. Other PROM surveys also identified the need for follow-up investigations at baseline. We have chosen to focus on the SIMSS here as it represents the largest proportion of women.

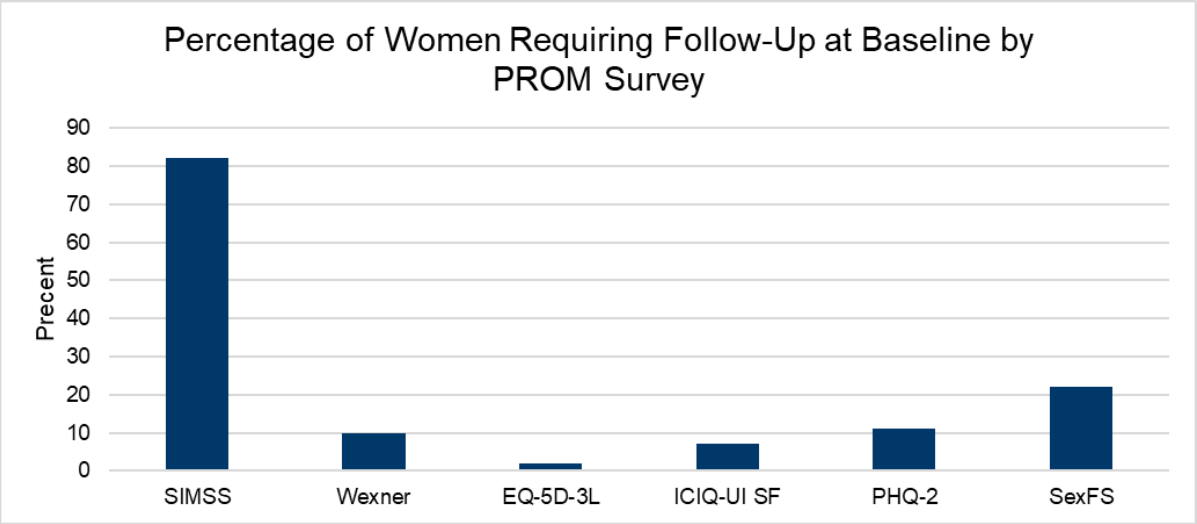

Figure 3: Proportion of women at the baseline PROM collection point who were flagged as requiring follow-up support, grouped by PROM measure. PROMs included the Single Item Measure of Social Supports (SIMSS), Wexner Fecal Incontinence, EQ-5D-3L Health-Related Quality of Life, International Consultation on Incontinence Questionnaire–Urinary Incontinence Short Form (ICIQ-UI SF), Patient Health Questionnaire-2 (PHQ-2), and PROMIS Sexual Function and Satisfaction (SexFS). n = 50 for all PROM surveys.

3.2 Urinary and fecal incontinence in the third trimester

In the third trimester, a score of 10-21 on the 21-point International Consultation on Incontinence Questionnaire–Urinary Incontinence Short Form (ICIQ-UI SF) and a score of 10-20 on the 20 point Wexner fecal Incontinence was used to identify the need for further support. These responses were noted in 7% and 13% of participants, respectively (Figure 4). Many women expressed heightened concern regarding even minor symptoms of incontinence, reflecting the importance of physical cleanliness and purity in performing prayers. These elevated scores may also have been influenced by other factors such as flatulence, use of tampons or pads, vaginal discharge misinterpreted as fecal incontinence, or side effects of progesterone suppositories. To address these issues, the obstetric team provided reassurance and education, explaining the physiological causes of these symptoms and

offering tailored advice on management strategies. Lifestyle modifications such as increased dietary fiber intake were encouraged. Lastly, women with ongoing concerns were referred to Dallah's dedicated urogynecologist for specialist support.

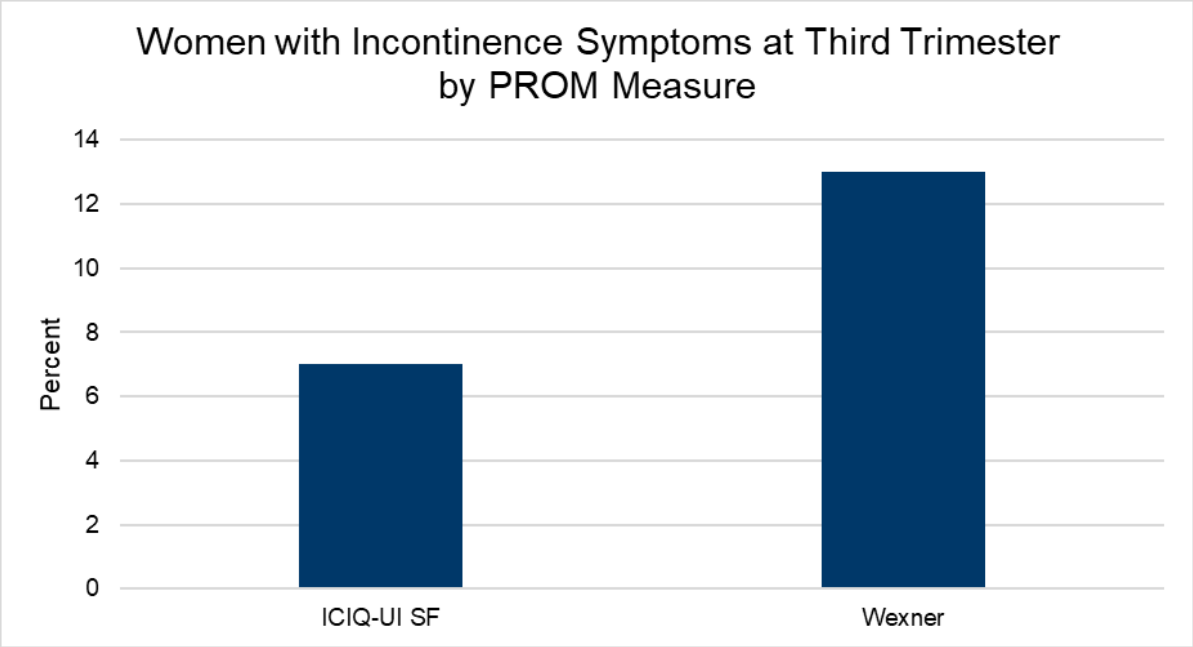

Figure 4: Proportion of women during the third trimester who reported urinary or fecal incontinence symptoms based on two PROM measures: the International Consultation on Incontinence Questionnaire–Urinary Incontinence Short Form (ICIQ-UI SF) and the Wexner Fecal Incontinence scale. n = 50 for all PROM surveys.

3.3 Breastfeeding self-efficacy post-delivery

Following childbirth, women at Dallah Hospital had access to a breastfeeding clinic, health educators, and ongoing physician support. With these resources, breastfeeding uptake was expected to be 100%, yet the Breastfeeding Self-Efficacy Scale–Short Form showed 53% of new mothers were not initiating breastfeeding (Figure 5). The Dallah team identified this as a "major concern" and conducted further investigations. Factors identified as possible contributors to lower self-efficacy included future employment responsibilities that limited time for breastfeeding and concerns about potential changes in breast contour. However, no definitive cause could be ascertained. To better understand the trend, a multidisciplinary team has been working to expand education and support initiatives, emphasizing the health benefits of breastfeeding for both mother and child while addressing misconceptions. This initiative has increased the breastfeeding rate to 65% by November 2025. This example highlights how PROM surveys can identify challenges that are complex in their cause and require unique approaches to solve.

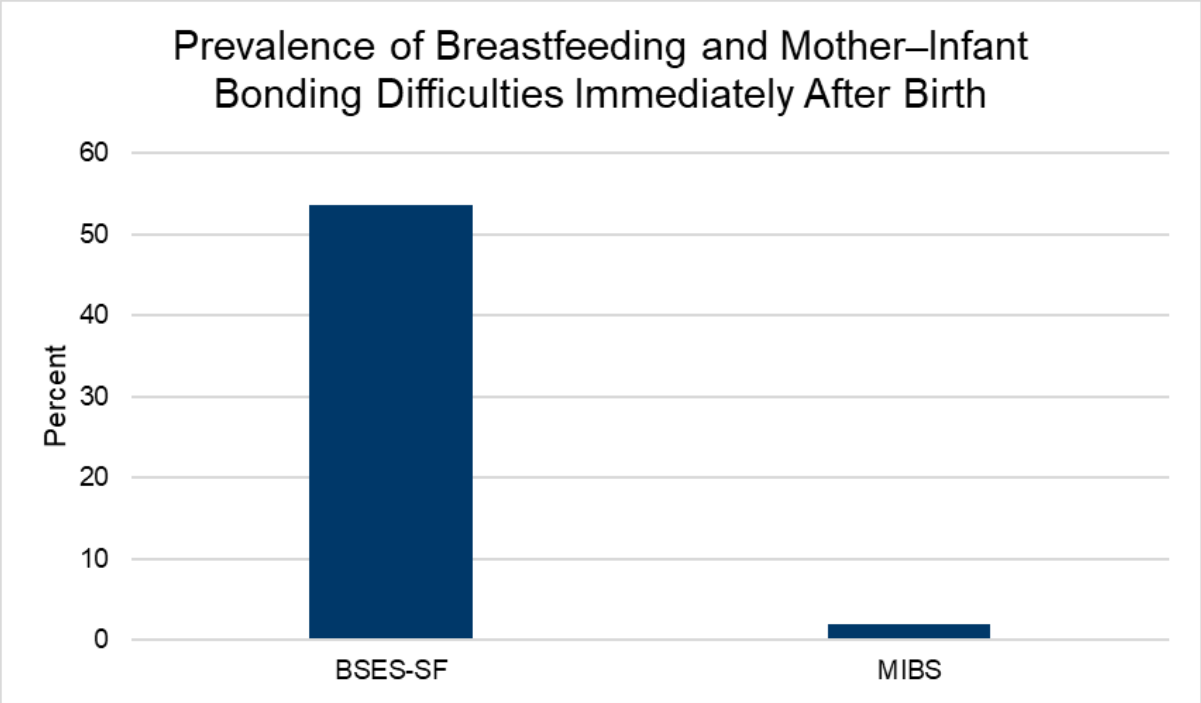

Figure 5: Proportion of mothers immediately after birth who screened positive for breastfeeding self-efficacy concerns or mother–infant bonding difficulties. Assessments were conducted using the Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF) and the Mother-to-Infant Bonding Scale (MIBS). n = 50 for all PROM surveys.

4. Conclusions

The background section outlined how there can be no one-size-fits-all approach to implementing value-based healthcare. Dallah Hospital Al Nakheel exemplifies this principle. In collaboration with external stakeholders, the hospital has shown how the framework of an ICHOM Set can be combined with local knowledge and expertise to create an implementation that aligns with Saudi Arabia's healthcare vision and its cultural and linguistic nuances.

Through this work, Dallah Hospital has embarked on a journey in which pregnant women in their care are not only achieving better outcomes in pregnancy and childbirth, but also experiencing more personalized and compassionate healthcare. As Dr. Lamia Khalil, the head of the Obstetrics-Gynecology and IVF department at Dallah hospital, clearly stated; "Implementing value-based healthcare in our department has transformed not only how we deliver care, but how we learn from our patients every single day." Further highlighting the importance of acting upon the real-time analysis of the PROM surveys. In examples such as this one, it is possible to conduct economic analyses to measure the value of these improvements. Yet, such analyses may not be enough to capture the deeply personal,

intangible benefits that accompany genuine patient-centered care. For those, it is best to ask the patients themselves.

As such, we leave you with the voices of the women cared for by Dallah Hospital Al Nakheel.

Patient quote 1: “It was an amazing experience. I benefited a lot from the continuous devoted monitoring, and the best thing ever was the urging to breastfeeding immediately after delivery in the hospital and they followed this up with me more than 6 months after giving birth”.

Patient quote 2: “After a lot of miscarriages in my life even with Assisted Reproductive Technology with no babies at all in 10-year marriage, I became very anxious all the time of miscarriage and losing the baby once again. When I got pregnant this time, Dallah team from Ob-Gyn department was in close contact with me, sending me frequent questionnaires, following up on my answers via phone, providing the psychological support I need, booking me the required appointments with top-notch doctors in the obstetrics department”

Patient quote 3: “My normal delivery was a very nice encounter especially with intact perineum vaginal delivery, and with neither complications for myself or my baby nor psychological issues. This led to smooth breastfeeding and enabled me to be taking care of my baby”.

5. Acknowledgements

Dallah Hospital Al Nakheel extends their sincere thanks and appreciation to Bupa Arabia for their valuable support and collaboration throughout this project. We are very grateful for their cooperation and commitment in making this project a success.