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Research Article

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KPJ Perdana Post-Natal Remote Care Tele-Follow-Up Program:A Prospective Observational Study on Early Post-Discharge Maternal and Neonatal Outcomes

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ABSTRACT

Background: The early post-natal period is a vulnerable phase for both mothers and newborns, marked by significant physiological adaptations and risk of complications such as neonatal jaundice, feeding difficulties, hypoglycaemia, infection, and maternal post-partum morbidity. Early hospital discharge, while beneficial in reducing healthcare costs and promoting family bonding, necessitates reliable post-discharge follow-up mechanisms. The Malaysian Ministry of Health (Kementerian Kesihatan Malaysia, KKM) has long demonstrated effective community-based post-natal follow-up through public health services. In response to increasing demand for post-natal care and evolving patient expectations, KPJ Perdana Specialist Hospital implemented a post-natal remote care tele-follow-up program to enhance continuity of care following hospital discharge.

Objective: To evaluate the feasibility, safety, and clinical outcomes of a structured tele-follow-up program for mothers and newborns within the first 1–5 days after discharge from KPJ Perdana Specialist Hospital.

Methods: This prospective observational study included selected mothers and newborns delivered at KPJ Perdana Specialist Hospital between October 2024 and March 2025. Eligible infants included those born via normal vaginal delivery or lower-segment caesarean section (LSCS) and discharged within 72 hours of birth. Newborns requiring assisted ventilation or referral to tertiary centres were excluded. Tele-follow-up consultations were conducted via video calls by Staff Registered Nurses (SRNs) using standardized clinical checklists, with consultant paediatrician oversight.

Results: Fifty-one parents consented to participate. Mean maternal age was 32 years (range 21–43). Mean gestational age was 38.2 weeks, and mean birth weight was 3.16 kg. Clinical jaundice was identified in 60% of infants, with 2% requiring admission for phototherapy. Breastfeeding rates were high (98% exclusive breastfeeding). No major maternal complications were reported. Three families were uncontactable.

Conclusion: The KPJ Perdana Post-Natal Remote Care Tele-Follow-Up Program demonstrated feasibility, high parental engagement, and effective early identification of neonatal and maternal concerns. The program offers a safe, patient-centred model that complements existing post-natal care frameworks and supports preventive and predictive healthcare delivery.

Keywords: Post-Natal Care, Telemedicine, Neonatal Follow-Up, Breastfeeding Support, Neonatal Jaundice, Remote Nursing Care

Introduction

The post-natal period, defined as the first six weeks following childbirth, represents a critical phase in maternal and neonatal health. Physiological, psychological, and social adjustments occur rapidly during this time, and timely detection of complications is essential to prevent morbidity and mortality. Neonates are particularly vulnerable to conditions such as neonatal jaundice, hypoglycaemia, feeding difficulties, infection, and failure to thrive, while mothers may experience wound complications, breastfeeding difficulties, post-partum haemorrhage, infection, or emotional disturbances including post-partum blues and depression [1].

Globally, trends toward early discharge after childbirth have intensified, driven by healthcare cost containment, patient preference, and improved obstetric and neonatal outcomes.

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However, early discharge necessitates robust post-discharge follow-up systems to ensure continuity of care. Inadequate follow-up has been associated with increased emergency visits, delayed recognition of neonatal jaundice, poor breastfeeding outcomes, and maternal anxiety [2].

In Malaysia, KKM has established a well-structured post-natal follow-up program delivered through community nurses and health clinics. These services have demonstrated effectiveness in reducing neonatal complications and improving maternal confidence. Private healthcare institutions, however, face unique challenges in replicating such services due to workforce constraints, geographical limitations, and differing care delivery models [3,4].

Telemedicine and remote care technologies have emerged as viable solutions to bridge gaps in post-discharge care. The COVID-19 pandemic further accelerated the adoption of telehealth services worldwide, demonstrating their safety, acceptability, and clinical effectiveness across various disciplines, including maternal and child health. Tele-follow-up programs offer the potential to deliver timely professional support, reduce unnecessary physical visits, enhance parental confidence, and strengthen patient-provider relationships [5].

In response to these developments, KPJ Perdana Specialist Hospital implemented a structured Post-Natal Remote Care Tele-Follow-Up Program aimed at supporting mothers and newborns during the immediate post-discharge period [6-8]. This article describes the program design, implementation, and clinical outcomes, providing evidence for the feasibility and effectiveness of tele-based post-natal follow-up in a private hospital setting in Malaysia [9,10].

Objectives

The primary objective of this study was to facilitate remote post-discharge follow-up for mothers and newborns discharged from KPJ Perdana Specialist Hospital within the first 1–5 days after leaving the hospital.

Secondary Objectives Included

1. Identifying common neonatal issues such as jaundice, feeding difficulties, hypoglycaemia, and early signs of sepsis.
2. Monitoring maternal health, including wound healing, lactation issues, and emotional well-being.
3. Reducing unnecessary visits to health centres and emergency departments.
4. Enhancing parental confidence and satisfaction with post-natal care.
5. Strengthening patient-provider relationships and reinforcing KPJ's commitment to preventive and predictive healthcare.

Methods

Study Design

This was a prospective observational study conducted as part of a quality improvement initiative at KPJ Perdana Specialist Hospital.

Study Population

The study included selected mothers and newborns born and discharged from KPJ Perdana Specialist Hospital between October 2024 and March 2025.

Inclusion Criteria

Newborns delivered via normal vaginal delivery or LSCS.
Discharged home within 72 hours of delivery.
Mothers who consented verbally to participate in tele-follow-up.

Exclusion Criteria

Newborns requiring assisted ventilation.
Newborns transferred to tertiary hospitals for further management.
Families without access to video call facilities.

Initial In-Hospital Assessment

Following Delivery and Stabilization:
Newborns were weighed and measured.
Standard vital signs were recorded.
Blood glucose monitoring via heel prick was performed for infants at risk of hypoglycaemia.
Breastfeeding initiation and counselling were provided by nursing staff within two hours of delivery.
Neonatal screening was conducted by a consultant paediatrician prior to discharge.

Mothers and newborns deemed clinically stable were introduced to the tele-follow-up program. A clear explanation of the process was provided, and verbal consent was obtained prior to discharge.

Consultation Format

All follow-up consultations were conducted via scheduled video calls at mutually agreed times. Each session followed a structured checklist to ensure comprehensive assessment.

Follow-Up Schedule

Day 1 post-discharge: Initial tele-consultation conducted by a Staff Registered Nurse (SRN).
Days 2–3 post-discharge: Daily virtual check-ins to monitor ongoing maternal and neonatal well-being.
Additional follow-ups were arranged as clinically indicated.

Personnel Involved

Staff Registered Nurse (SRN) Home Nurse: Conducted assessments using a standardized clinical checklist.

Consultant Paediatrician: Reviewed concerns escalated by SRNs and provided medical advice or recommendations for in-person review when necessary.

Clinical Checklist

The SRN assessed: Baby's weight trends (where available), feeding patterns, and urine/stool output.

Signs of neonatal jaundice and other clinical concerns.
Maternal general health, wound status, lochia, breastfeeding issues, and emotional well-being.

Parental questions and concerns regarding newborn and maternal care.

Conclusion of Each Session
At the end of each consultation:
Findings were summarized.
Recommendations were provided.
The next follow-up session was scheduled.
Escalation plans were discussed if warning signs developed.

Results
Participant Characteristics
A total of 51 parents gave consent to participate in the study.
Mean maternal age: 32 years (range 21–43; median 33 years)
Mean gestational age: 38.2 weeks (range 36–40; median 38 weeks)
Mean birth weight: 3.16 kg (range 1.62–4.02 kg; median 3.2 kg)
Mode of delivery:
Normal vaginal delivery: 39
LSCS: 12
Neonatal sex:
Male: 25
Female: 26

Three families were uncontactable or did not respond to scheduled calls.

Timing of Follow-Up Calls
Median day of call: Day 2 post-discharge
Mean day of call: Day 1.5
Range: Day 3–5 post-discharge

Neonatal Outcomes
General well-being: All parents reported that their babies were clinically well at home from discharge until the day of contact.

Feeding patterns:
Fully breastfed: 98%
Mixed feeding: 1%
Bottle-fed: 1%

Sleep pattern: All infants exhibited intermittent sleep with feeding intervals of 1–2 hours, consistent with normal neonatal behaviour.

Stool pattern:
Meconium: 10%
Yellow-green stools: 90%
All patterns were appropriate for age.

Skin conditions: Mild neonatal skin findings such as milia and erythema were reported, requiring no intervention.

Neonatal jaundice:
Clinical jaundice detected: 60%
Blood tests performed within the first week of life where indicated.
Admission for phototherapy required: 2%

Maternal Outcomes
General well-being: All mothers reported feeling generally well.

Breastfeeding issues:
Minor issues were reported, including:
Latching difficulties
Perceived low milk flow
Breast engorgement
These were managed with counselling and reassurance.

Wound and lochia: No significant wound complications or abnormal lochia were reported.

Emotional well-being: Mothers expressed reassurance and reduced anxiety following tele-consultations.

Discussion
This study demonstrates that a structured post-natal tele-follow-up program is feasible, safe, and well-accepted in a private hospital setting. The high participation rate and positive clinical outcomes highlight the potential of telemedicine to complement traditional post-natal care services.

The high exclusive breastfeeding rate (98%) observed in this cohort is notable and may reflect early lactation support, timely counselling, and reassurance provided through remote follow-up. Breastfeeding difficulties are a common cause of maternal anxiety and early cessation; thus, accessible professional support during the early post-natal period is crucial.

Neonatal jaundice remains one of the most common reasons for post-natal readmission. In this study, clinical jaundice was identified in 60% of infants, consistent with global incidence rates. Importantly, only 2% required admission for phototherapy, suggesting that early identification and monitoring through tele-follow-up can facilitate timely intervention while avoiding unnecessary hospital visits.

Maternal outcomes were uniformly positive, with no major complications reported. The opportunity to discuss concerns related to wound care, lochia, and emotional well-being in a supportive environment likely contributed to maternal reassurance and satisfaction.

From a nursing perspective, the program empowered SRNs to play a central role in post-natal care delivery, supported by consultant oversight. This collaborative model aligns with international best practices in community-based maternal and child health services.

Benefits of the Program
Improved access to specialized post-natal care in the comfort of the patient's home.
Enhanced early detection of neonatal and maternal complications.
Reduction in unnecessary clinic and emergency department visits.
Strengthened continuity of care and patient-provider relationships.
Alignment with preventive and predictive healthcare principles.

Limitations
Small sample size from a single centre.
Short follow-up duration limited to the early post-discharge period.
Reliance on parental reporting for certain clinical parameters.
Lack of a control group receiving standard in-person follow-up only.

Future studies with larger cohorts, longer follow-up periods, and comparative designs are recommended.

Conclusion

The KPJ Perdana Post-Natal Remote Care Tele-Follow-Up Program successfully demonstrated that structured tele-based follow-up can enhance early post-natal care for mothers and newborns. The program supports safe early discharge, promotes breastfeeding, facilitates early detection of neonatal jaundice, and improves maternal confidence. Integration of tele-follow-up into routine post-natal services represents a sustainable, patient-centred approach that complements existing healthcare frameworks and advances the standard of care in private healthcare settings.

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