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Gleneagles Hospital PENANG

LEVERAGING WHATSAPP TO ENHANCE POST-SURGICAL-SURVEILLANCE THROUGH REMOTE PATIENT MONITORING PLATFORM

Team Member (Qualification):Norazlinda Binti Saidon, (Bachelor of Health Science(Nursing)
Aniggala A/P Eiangovan(Master of Nursing), Nagambigei A/P Muniandy,Bsc (Hons) Nursing Studies),
Solehah Binti Sapiai (Bachelor of Nursing Science with Honours)

1 INTRODUCTION

BACKGROUND

Surgical Site Infections (SSIs) are a major healthcare concern, leading to longer hospital stays and higher costs (WHO, 2023). Timely post-discharge monitoring is key to preventing complications.

Traditional SSI surveillance methods, such as follow-ups during clinic visits/readmission, telephone calls, and reporting from staff/doctors, often face challenges like delayed detection, treatment, and surveillance inefficiency, which affect the patient's outcome, increase morbidity & mortality, increase cost, and affect hospital reputation.

Remote Patient Monitoring (RPM) helps track recovery at home, but its success depends on effective communication. WhatsApp, a widely used and trusted app, offers real-time messaging, multimedia sharing, and better user engagement (Mars & Scott, 2016). This project explored replacing SMS with WhatsApp for SSI surveillance to improve Malaysian and Indonesian patients' responses and communication quality.

PROBLEM STATEMENT

Traditional surveillance methods in Surgical Site Infection (SSI) programs often suffer from low response rates due to technical challenges such as connectivity issues and language barriers. These obstacles create significant communication gaps, reducing the overall efficiency and effectiveness of data collection. As a result the reliability and success of SSI surveillance programs are compromised, hindering timely interventions and the ability to improve patient outcomes.

OBJECTIVE

To increase SSI surveillance patients' response rates to over 60% by using WhatsApp instead of SMS in the RPM system at Gleneagles Hospital Penang over a 3-month period.

2 METHODOLOGY AND DATA ANALYSIS

STUDY DESIGN

This project followed a pre-post observational study design to assess the impact of switching from SMS to WhatsApp messaging platform via SEMMEL Remote Patient Monitoring (RPM) system. The focus to improve Surgical Site Infections (SSI) surveillance. Patient engagement was measured before and after the transition, allowing for real-world evaluation without changing existing clinical workflows.

SAMPLE SIZE AND STUDY PERIOD

A total of 142 post-surgical patients were enrolled from January to March 2025. The surgeries included in the study:
• Colon Surgery & Hysterectomy_30-day follow-up
• Total Knee Replacement (TKR), Total Hip Replacement (THR), Coronary Artery Bypass Graft (CABG)_90-dayfollow-up

DATA COLLECTION

Patients were enrolled at the time of discharge and contacted at designated interval post surgery (days 7, 14, 30 etc).
• January: SMS messages with survey links were sent to patient's contact number.
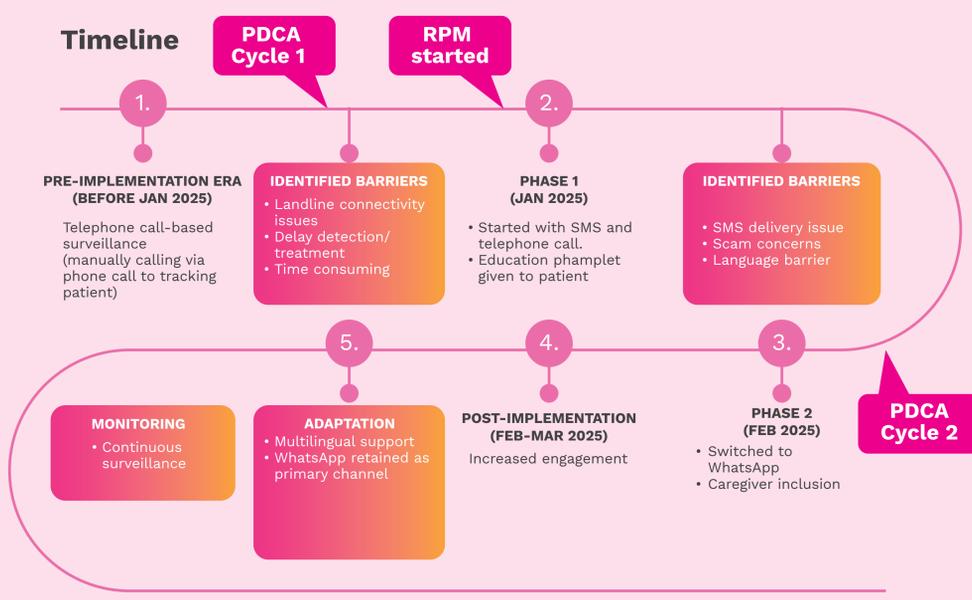• February–March: Switched to WhatsApp messages with survey links.
Patient engagement was measured by total number of response to the surveys.

DATA ANALYSIS

Microsoft Excel was used for data analysis. The analysis focused on:
• Monthly survey response rates (January to March).
• Comparing response rates before and after switching to WhatsApp.
• Identifying common communication issues (e.g., language barriers, scam concerns, broken links that hinder user experience).
• The improvement in engagement was measured by comparing the response rate in January (SMS) to the rates in February and March (WhatsApp).

3 INTERVENTION

Timeline

PDCA Cycle 1 · RPM started

1. **PRE-IMPLEMENTATION ERA (BEFORE JAN 2025)** — Telephone call-based surveillance (manually calling via phone call to tracking patient)

IDENTIFIED BARRIERS
- Landline connectivity issues
- Delay detection/treatment
- Time consuming

2. **PHASE 1 (JAN 2025)**
- Started with SMS and telephone call.
- Education phamplet given to patient

IDENTIFIED BARRIERS
- SMS delivery issue
- Scam concerns
- Language barrier

3. **PHASE 2 (FEB 2025)**
- Switched to WhatsApp
- Caregiver inclusion

PDCA Cycle 2

4. **POST-IMPLEMENTATION (FEB-MAR 2025)** — Increased engagement

5. **ADAPTATION**
- Multilingual support
- WhatsApp retained as primary channel
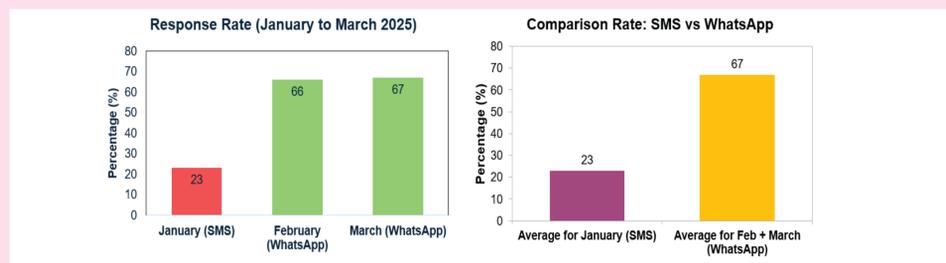
MONITORING
- Continuous surveillance

4 RESULTS

Over three months (January to March), 142 patients were monitored to track response rates to follow-up messages after surgery.
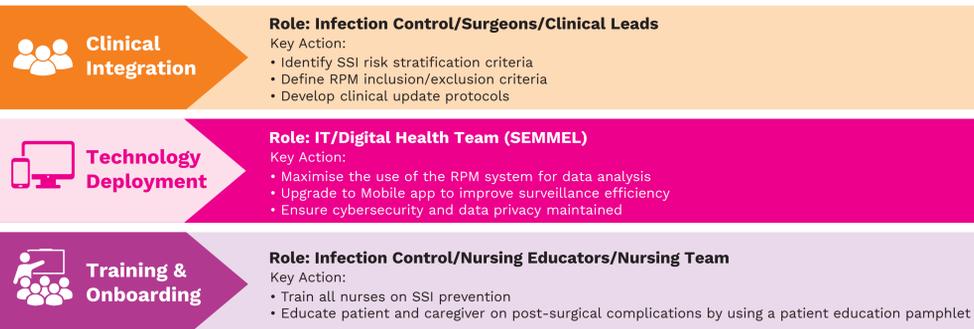
Overall Results :

Response Rate :
• The study shows initial response rate was 23% which improved gradually to 66% then to 67% in subsequent months.
• The study achieved the objective of increasing the response rate over 60% within the 3 months period—a 44% increase in response rate after transitioning from SMS to WhatsApp in the SEMMEL RPM system.

Response Rate (January to March 2025): January (SMS) 23, February (WhatsApp) 66, March (WhatsApp) 67

Comparison Rate: SMS vs WhatsApp: Average for January (SMS) 23, Average for Feb + March (WhatsApp) 67

5 SUSTAINABILITY

Clinical Integration — Role: Infection Control/Surgeons/Clinical Leads
Key Action:
• Identify SSI risk stratification criteria
• Define RPM inclusion/exclusion criteria
• Develop clinical update protocols

Technology Deployment — Role: IT/Digital Health Team (SEMMEL)
Key Action:
• Maximise the use of the RPM system for data analysis
• Upgrade to Mobile app to improve surveillance efficiency
• Ensure cybersecurity and data privacy maintained

Training & Onboarding — Role: Infection Control/Nursing Educators/Nursing Team
Key Action:
• Train all nurses on SSI prevention
• Educate patient and caregiver on post-surgical complications by using a patient education pamphlet

6 LIMITATIONS

• **Small Sample Size** : Only 142 people took part, so the results may not apply to other groups.
• **Short Study Period** : The study lasted just 3 months, which may not show long-term results or late problems.
• **No Comparison Group** : Without a control group, it's hard to know if improvements were due to WhatsApp or other things like reminders or education.
• **Biased Data** : Since the data was self-reported (sometimes by caregivers), it may not be fully accurate

7 CONCLUSION

RPM is a forward thinking solution that redefines post-operative care by bridging clinical excellence with sustainability. This real-time surveillance of SSI, RPM empowers clinicals to act earlier, reduces unnecessary hospital visits and promote patient recovery at home.

As healthcare shift toward digital innovation and value-based care, RPM stands as a scalable, sustainable model that aligns with both current patient needs and future system demands. It is a smart step forward in delivering safer and more efficient care to patient.

Key Findings

Response rates improved by 44% when switching from SMS (23%) to WhatsApp (66% in February, 67% in March).
Problems like failed SMS delivery, scam concerns, and tech issues (especially for older patients) were reduced with WhatsApp and help from caregivers.

Impact

Using a familiar app like WhatsApp helped patients stay in touch and follow up better.
The project highlighted the need for :
• Language support
• Caregiver involvement
• Flexible systems that match patients' needs and tech skills

Recommendations for Future Work
• Test the program in more hospitals and for different surgeries.
• Add a comparison group to better measure WhatsApp's impact.
• Improve support for elderly or low-tech patients, possibly through caregiver training or community health programs.

7 REFERENCES

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> Before Semmel, we had issues with patients not answering our calls and hanging up on us! I also had to get my colleagues to help speak with patients that has a language barrier. Imagine asking a patient to describe his wound. It's overwhelming! After Semmel, admin tasks are cut and data collection is automated with an astounding 50% response rate! Our clinicians love the photos showing how the wound is evolving and able to decide on early interventions.

Ms. Aniggala Elangovan, Operations Manager
Gleneagles Hospital Penang