EP059

Enhancing Preventive Screening Uptake: The Role of QR Code Digital Nudges in Clinical Triage

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INTRODUCTION

Colorectal cancer is now the leading cancer among men and the second most common in women in Malaysia, while cervical cancer ranks sixth. Cancer deaths have risen sharply—from 5,231 in 2001 to 19,180 in 2024—with over 50,000 new cases annually, and more than 65% diagnosed at late stages (Stage 3–4)(1).

Despite government efforts to promote screening (e.g., mammograms and HPV tests), Malaysia still relies on an opportunistic screening model. This places responsibility on Medical Officers to identify and initiate screening during acute consultations. However, behavioral science shows this approach is limited by cognitive load, decision fatigue, and high clinical workload.(2)

As a result, preventive care is often overlooked— Studies indicate that only about 3% to 10% of the population in some Malaysian studies had previously undergone CRC testing while cervical screening is only 35.2%. (3,4) This highlights a critical gap between policy intent and real-world practice, underscoring the urgent need for a more systematic, proactive screening approach.

OBJECTIVE

To assess the convenience of a QR-code-based triage tool combined with automated WhatsApp alerts in the uptake of cervical and colorectal cancer screenings among clinical outpatients.

METHODOLOGY

This study utilizes a "digital nudge" strategy by placing QR codes at clinical triage point.This strategy has been in place since August 2025 in KK Kota Sentosa.

Intervention: When patients scan the QR code at triage, their eligibility for screening is identified, and they receive an automated WhatsApp alert containing personalized message.

Behavioral Mechanism: This approach reduces "hassle factors" by simplifying the screening process and uses "salience" by delivering information through a platform (WhatsApp) that users check frequently. This utilizes "Task Shifting" and "Automation," which reduces the cognitive burden on the Medical Officer during the primary consultation

Measurement of Effectiveness:

Patient Uptake: The primary outcome is the uptake rate—the percentage of patients who received the WhatsApp alert and successfully completed their Pap smear or colorectal screening.

Provider Satisfaction: A secondary outcome measures Medical Officer (MO) satisfaction through a Likert-scale survey. This assesses the perceived reduction in consultation pressure and the ability to focus on the patient's immediate medical concerns.

RESULTS

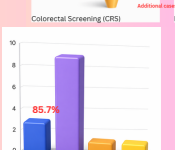
The QR-code digital nudge system successfully increased preventive care engagement, achieving a **50% uptake rate for cervical screenings** and initiating colorectal screening process for **36% of eligible patients.** By utilizing WhatsApp alerts to reduce "hassle factors," the intervention reinforced the importance of health screenings regardless of whether they were completed at our facility or an alternative location. This strategy optimized clinical workflows, with **78.5%-85.7% of Medical Officers** expressing satisfaction as the "Automation" and "Task Shifting" of screening advocacy effectively reduced their cognitive burden and consultation pressure. Ultimately, this digital triage approach ensured that critical preventive cues were no longer lost in the clinical workflow, allowing clinicians to focus more effectively on their patients' immediate medical concern.



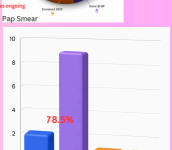
Colorectal Screening (CRS)



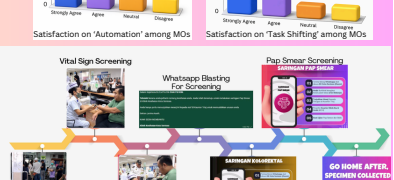
Pap Smear



Satisfaction on 'Automation' among MOs



Satisfaction on 'Task Shifting' among MOs



DISCUSSION & CONCLUSION

The study shows that low screening rates aren't due to lack of care, but because healthcare systems make it difficult. By reducing cognitive burden through simple QR nudges and using WhatsApp as a familiar, supportive communication tool, patients were more likely to engage.

This approach also improved clinic workflow—freeing up clinicians and creating more meaningful patient interactions. Despite being low-cost and simple, the intervention achieved strong screening uptake, proving that small, human-centered changes can have a big impact.

Making healthcare easier and more personal leads to higher participation and better outcomes.

ACKNOWLEDGEMENT

"It Takes a Village"
This work was made possible by the dedication of triage nurses, the trust of patients, and the support of medical officers and leadership.

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