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A tiered digital education model for AKI/CRRT training in China: Bridging the gap in underserved settings

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Objective

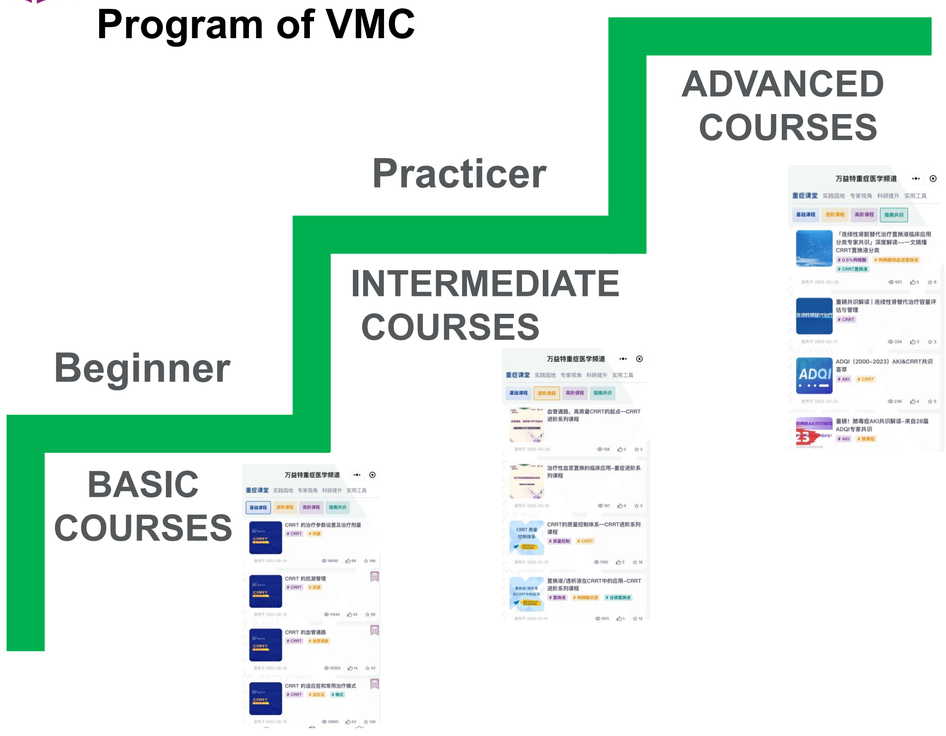
Acute kidney injury (AKI) is a significant contributor to preventable mortality in China. Following the COVID-19 pandemic, the rapid deployment of Continuous Renal Replacement Therapy (CRRT) in primary-level hospitals has outpaced the corresponding training for clinicians. This disparity has led to unsafe clinical practices and impeded progress toward the International Society of Nephrology's (ISN) 0by25 initiative, which aims to eliminate preventable AKI deaths by 2025. To address this challenge, this study describes the development and evaluation of a tiered digital education program from the Vantive Medical Channel (VMC). The program was designed to standardize knowledge and clinical practice of AKI and CRRT among clinicians in these settings.

Materials and Methods

A three-tier competency framework was co-designed with leading Chinese Intensive Care Units and nephrology centers. Content covered AKI pathophysiology, CRRT fundamentals, clinical applications via scenario-based training, procedural videos, interactive simulations, and evidence-based updates like citrate protocols. The program was disseminated via VMC's WeChat, Ding Xiang Doctor, and institutional partnerships, utilizing AI-driven analytics for targeted delivery to underserved regions and real-time feedback for iterative optimization.

Results

A Tiered Digital Education Program of VMC



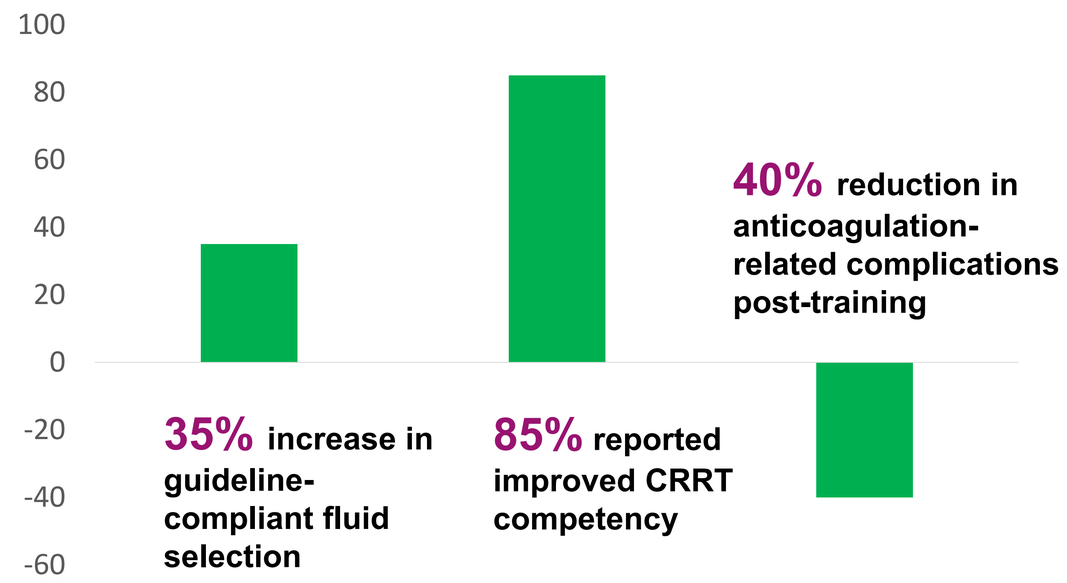
Outcomes of Tiered Digital Education Program

>100,000 content views

>150,000 learning minutes

> 60% of users were from Tier-3 hospitals and rural clinics

Survey Responses from Primary care Clinicians



35% increase in guideline-compliant fluid selection

85% reported improved CRRT competency

40% reduction in anticoagulation-related complications post-training

Joint Program Development with ICUs of Top-Tier Hospitals in China

▶The program was integrated into the Guangdong CRRT Clinical Training Program:

reaching >5,200 clinicians annually with 90% satisfaction

Discussion and Conclusions

This tiered, mobile-first digital education program effectively addresses China's AKI/CRRT training gap in underserved regions, supporting the ISN's 0by25 initiative by standardizing care and contributing to reduced preventable mortality. Its success, rooted in stakeholder collaboration, competency-driven design, and adaptability, demonstrates its scalability for other developing health systems. Future integration of AI-personalized learning and low-bandwidth tools could further democratize expertise.