Singapore Healthcare Management 2024

Scan QR code to access our publication on Project VRx

Watch Video

Scan QR code to watch a video trailer of VRx

Singapore General Hospital

Reduce failure rate in medication safety training for SGH Pharmacy new hires and trainees, from 51% to 35% in 24 months

(SHM_HR016)

Shakunthala D/O Hans Raj, Fan Yuen Wai Petrina, Irvin Lee Yong Yang, Lee Kok Yong, May Myat Noe Kyin, Ng Li Xian, Seah Sok Eng, Tsang Wing Yee, Yap Yi Lwern Kevin
Division of Pharmacy, Singapore General Hospital

Background

- Ensuring medication safety is crucial for prescription/medication order processing. This requires healthcare staff to be competent in medication safety practices such as picking and packing of medications
- New hires/trainees must undergo didactic and 200-medication pick-and-pack competency (PPC) training and assessment to meet the National Competency standards
- PPC assessment baseline data in 2020 revealed:
  - 51% failure rate amongst new hires/trainees
  - 6 assesses with ≥ 3 failed attempts
  - 14 – 21 calendar days taken to successfully complete assessment and practice independently
- This increases trainer's workload to provide re-training, assessment and feedback.
- Amid rising healthcare demands and manpower constraints, PPC training program requires review to improve medication safety and training outcomes and optimize manpower resource, which align with SingHealth's Quality Priorities of Safety and Efficiency

Mission Statement

- **Primary objective:** Reduce median PPC failure attempts from 51% to 35%, amongst Pharmacy new hires and trainees within 24 months

- **Secondary objectives:**
  - Eliminate new hires and trainees with 3 or more failed PPC attempts
  - Reduce time taken to complete PPC assessment

Methodology

Team composition

Pharmacy educators from each Pharmacy section and Executive for comprehensive representation and input

Data collection and gap identification

Baseline PPC assessment data were collected, and training gaps were identified through collaborative discussions with pharmacy educators.

Preliminary baseline results revealed root causes and workflow inefficiencies contributing to failed PPC attempts. 6
6 vital root causes were identified

Solution development

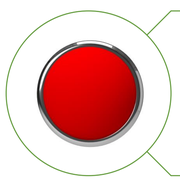
A Driver Diagram was used to develop solutions to address vital root causes through brainstorming sessions.

A Prioritization Matrix was used to assessed and scored the feasibility and impact of the solutions, with the highest-scoring solution for each root cause selected for Plan-Do-Study-Act (PDSA) cycles

Solutions / Interventions

Development of a 3D Virtual Reality (VR) apprenticeship program - VRx, aligned with National Pharmacy Technicians Entry-to-Practice Competency Standards, featuring an environment with virtual patient encounter, and training dashboard simulating key tasks in prescription and medication processing was completed in December 2020

PDSA 1: March 2021 – June 2022



Preliminary analysis revealed that new hires/trainees who underwent VRx before starting their PPC performed better, leading to its integration as standard practice here onwards

Training procedure mandates that new hires/trainee to shadow pick-and-pack of 5 prescriptions before starting PPC assessments. This new curriculum was implemented since Jun 2022

Creating and disseminating "Do's and Don'ts" materials to all Pharmacy staff to promote standardization of medication processing practices

Relocating posters designed to guide staff on handling distraction whilst performing picking and packing using acronym 'FOCUS' for improved visibility.

PDSA 2: June 2022 – February 2023

Feedback

Feedback after implementation of PDSA 1 & 2 were obtained from trainers and educators and were used for refinement of workflow processes and training curriculum to address their needs.

Trainees:

- 77% found VRx was easy to use
- 84% found it interactive and fun
- 88% felt it helped prescription processing skills
- Boosted confidence, creating a safer learning environment

Trainers (refer to Figure 1):

- Suggested to implement simulation training for all new hires and trainees
- Real-life case studies in a simulated environment, enriched training content and made it more relatable
- Trainers could effectively dedicate their attention to direct patient care responsibilities

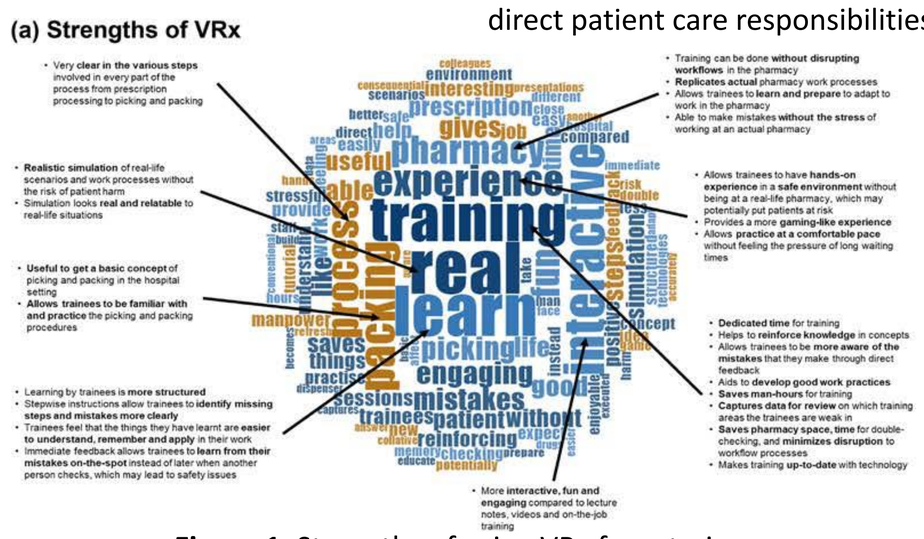


Figure 1. Strengths of using VRx from trainers

Results

The results met the primary and secondary objectives (refer to Figure 2) and aligned with SGH's Quality Framework and the operational business goals:

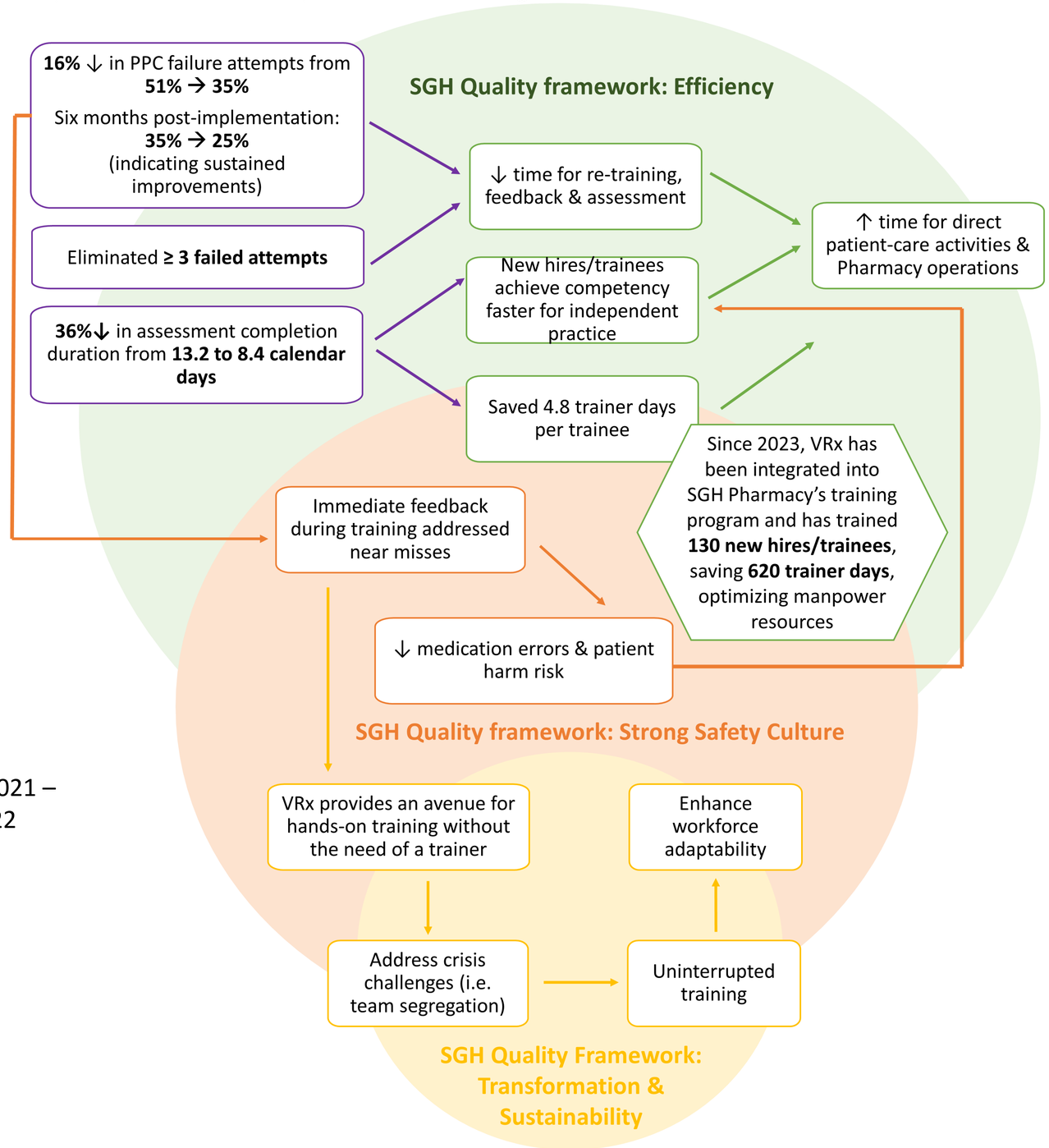


Figure 2. Strengths of using VRx from trainers

Conclusion

VRx, our immersive training tool, enhances prescription processing skills, reduces failure rates from 51% to 25% and assessment time by 36%, while ensuring patient safety and training efficiency, within 24 months.
In conclusion, VRx will continue to be the mainstream training program to improve medication safety and patient outcomes.

Future plans

The team is currently collaborating with other Public Healthcare Institutions to scale this VRx training solution.