Project Title

SingHealth Community Nursing Remote Vital Signs Monitoring (VSM) for Residents with Hypertension

Project Lead and Members

Project lead: Dr Lim Su-Fee; Ms Tan Poh Choo

Project members:

- Ms Stephanie Teo
- Ms Xu Yi
- Ms Ong Li Jiao
- Ms Kee Mong Nee
- Ms Imma Harliny Binte Abdul Rahim
- Ms Shannon Lim
- Mr Tan Zhi Xiang

Organisation(s) Involved

SingHealth, Singapore General Hospital, Changi General Hospital

Project Period

Start date: September 2019

Completed date: On-going

Aims

To transit from a fully nurse-assisted to resident-initiated sustainable blood pressure (BP) monitoring care model through the development of a VSM Kiosk which can be placed at Senior Activity Centres (SACs)

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

As SingHealth Community Nursing VSM Pilot is still Work in Progress, the anticipated challenges include:

1. **Resident's Commitment in Using VSM Kiosk Constantly**

Since this is an empowerment model and community nurses are not around all the time to assist/monitor residents, they may stop using due to fear or forget how to navigate the kiosk. Therefore, SAC staff are trained to support seniors and identify a few residents who can be the champion to assist others in using the kiosk. With continual support from SAC staff and resident champions, this will help residents to overcome their fear and/or slowly guide those who need more time to accustom.

2. **Technical Issues Faced when Using VSM Kiosk**

Though HD Apps, iPads and BP monitoring sets will be scheduled for regular upgrade/maintenance, unexpected technical glints can still happen. There is a dedicated technical helpdesk for residents to report issues during office hours and a service level agreement (SLA) is devised to ensure system downtime is kept to minimum, depending on severity of issues reported. Nevertheless, a BCP is put in place for residents to manually record their BP readings on a monitoring sheet and pass it to community nurses during their review session.

3. **Resurgence of COVID-19 Cases in the Community**

While Singapore has managed to contain COVID-19 pandemic and recently moved into Phase 3 with relaxation of more people gathering in a group, there is still potential risk that COVID-19 cases may resurge in the community, if Singaporeans fail to observe the

safe distancing measures. If this happens, SACs will restrict the number of residents in their centres or may suspend their services, which inevitably affects the pilot continuity. Infection control guidelines are prepared for multi-user VSM kiosk and residents will be educated by community nurses on this aspect. Project team will also take guidance from MOH Advisory and adjust project scope accordingly should this occur.

Conclusion

See poster appended/ below

Project Category

Automation, IT & Robotics Innovation

Keywords

Automation, IT & Robotics Innovation, Care & Process Redesign, Care Continuum, Preventive Care, Community Health, Chronic Care, Self Management, Manpower Cost Saving, SingHealth, Singapore General Hospital, Changi General Hospital, Community Nursing, Senior Activities Centres, Vital Signs Monitoring

Name and Email of Project Contact Person(s)

Name: Ms Tan Poh Choo

Email: poh_choo_tan@cgh.com.sg

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Lim Su-Fee[1], Tan Poh Choo[2], Xu, Yi[1], Ong Li Jiao[1], Kee Mong Nee[2], Imma Harliny Binte Abdul Rahim[2], Shannon Lim[3], Tan Zhi Xiang[3], Stephanie Teo[3]

[1]Singapore General Hospital, [2]Changi General Hospital, [3]SingHealth

BACKGROUND

SingHealth Community Nurses (CMN) currently manage about 100 residents per Community Nurse Post (CNP) and around 60% of them have hypertension. The residents tend to rely heavily on community nurses to take their BP readings during CNP sessions and advise them on the next actions. These readings are also manually transcribed from BP monitoring set to SingHealth Electronic Medical Record (EMR) episodically, which does not allow result trending. Consequently, community nurses keep tab on these residents' BP readings via a manual monitoring sheet.

AIM

To transit from a fully nurse-assisted to resident-initiated sustainable BP monitoring care model through the development of a VSM Kiosk which can be placed at Senior Activity Centres (SACs).

TARGET GROUP

Residents who are motivated, do not own a BP monitoring set and require support to self-monitor and self-manage.

IMPLEMENTATION

PROJECT PLANNING

1) Analysis of resident's profile to identify target residents' profile

2) Selection of IT solution with IHIS guidance based on user requirements

3) Develop detailed functional requirements and project costing

4) Seek approval from respective committees/ management for project support

5) Apply Pilot Funding and seek IT Committees' approval for project execution

6) Weekly meetings to monitor project progress

KIOSK & SYSTEM DEVELOPMENT

1) Frequent engagement with nursing leaders to fine-tune requirements

2) Conduct user experience trials with residents for feedback

3) System re-design to meet residents' and CMN requirements

4) Data integration of VSM system with SingHealth EMR

5) Design and fabricate VSM Kiosk

6) Develop teaching and communication materials for residents, CMN and SAC Staff

Old Workflow

Resident visits CNP → CMN assists to measure BP → CMN advises resident on next step → CMN documents and transcribes BP readings into EMR

New Workflow

Resident visits CNP → Resident self-measures BP at VSM Kiosk → VSM Kiosk advises resident on next step based on BP reading → BP readings auto-flows into SingHealth EMR with trending graphs

DESIRED OUTCOMES

Manpower cost savings of approximately $292,500 per year

Reduce at least 1 primary care/ SOC visit a year

Improve BP readings of enrolled residents with better medication compliance

CONCLUSION

- Empower residents to take control of their health and better manage hypertension in the community
- Insights gained from pilot will help refine care processes and guide future expansion into other clusters
- Expansion of pilot to include other vital signs (e.g. SPO2 & CBG) to benefit residents who require frequent monitoring of their chronic conditions
- Result in manpower savings, decrease care utilization and improve overall care experience