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# Program ROSE: a revolutionary strategy in cervical screening

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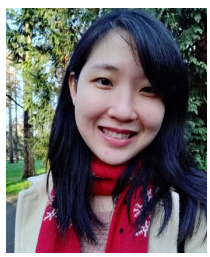

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In Malaysia, cervical cancer screening has largely been opportunistic in nature since the introduction of a cytology-based program in 1969. While the uptake of cervical screening has been reported to be as low as 12.8%[1], the national HPV-immunisation programme has been successful, consistently with uptake of between 80-95% coverage among adolescent girls since its introduction in 2010.[2] Like many developing countries, to achieve the WHO cervical elimination goals, a complete transformation of the existing cervical cancer program is required.

In 2017, through a collaborative effort, an innovative cervical screening programme using the principles of design thinking was conceived and piloted. Taking a human-centered approach and leveraging on collective and diverse teamwork, this revolutionary cervical screening solution was designed to address some of the local barriers that prevented women from being effectively screened. This process involved real-world observations within primary care clinics and interviews with various stakeholders, including frontline healthcare workers to identify local barriers. Fear and embarrassment associated

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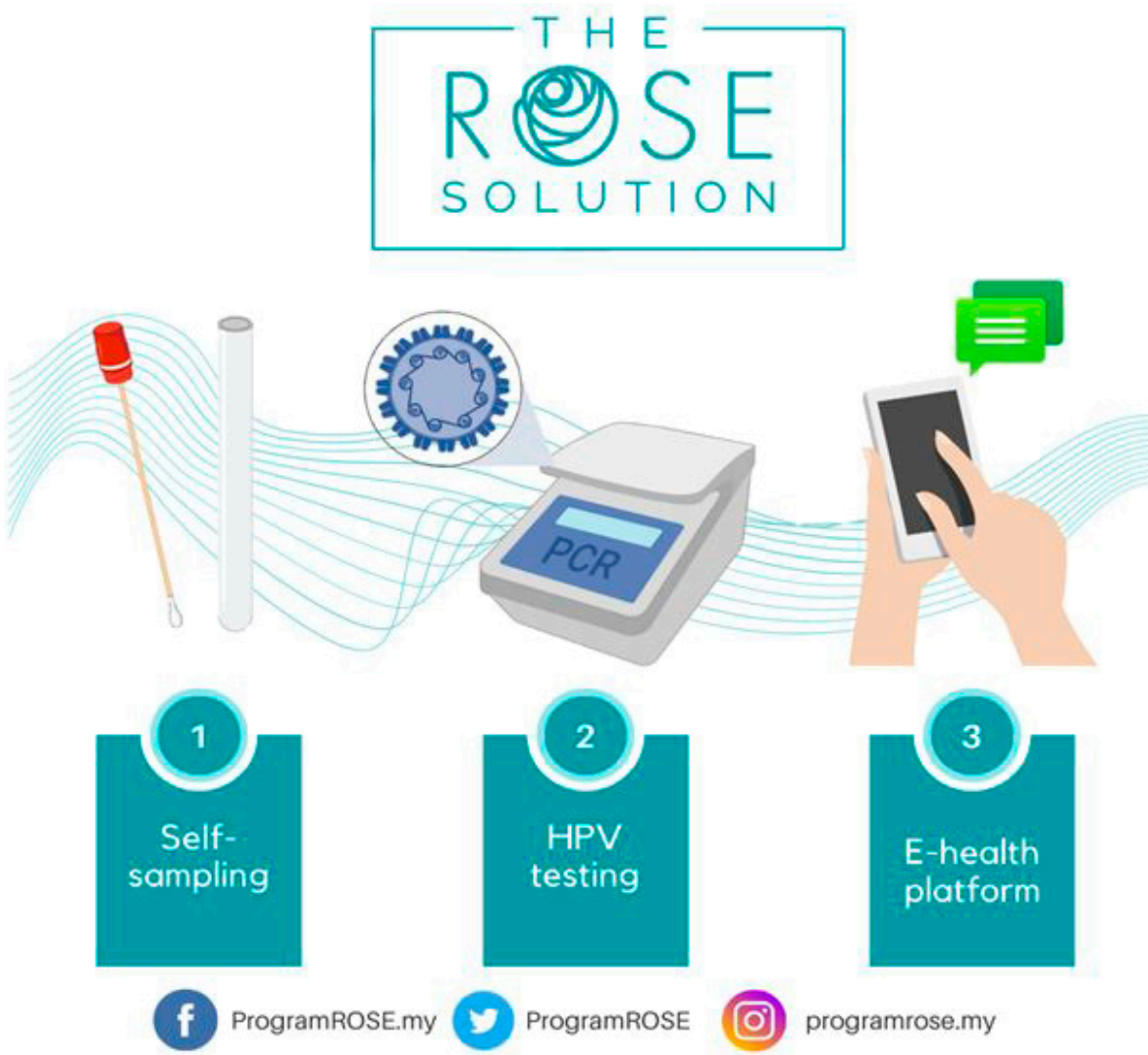
**The ROSE Program is a revolutionary cervical screening solution to address some of the local barriers that prevent women from being effectively screened, by integrating three main components: self-sampling, HPV testing and e-health technology.**

with a speculum examination, inconvenience, compounded by health infrastructural constraints associated with cytology-based screening, demanded a novel solution that would effectively overcome these local psychosocial and health system barriers.

The collaboration between multiple stakeholders in Malaysia and VCS Foundation Ltd., Australia, along with individual expert contributions from Hong Kong and the United States, led to the birth of ROSE (**R**emoving **O**bstacles to cervical **S**cr**E**ening). As its name suggests, this novel cervical screening solution served to address the common 'obstacles' to getting women screened by integrating three main components: self-sampling, HPV testing and e-health technology (Figure 1).

*Figure 1*

The three components of the ROSE screening solution: self-sampling, HPV testing and E-health platform.



**The ROSE model offers women the choice of using a self-swab to enable high-precision HPV tests to be undertaken, followed by prompt availability of results and navigation of follow-up through the women's mobile phone.**

Collectively, the ROSE model is an evidence-based, women-centered approach which offers women the choice of using a self-swab to enable high-precision HPV tests to be undertaken, followed by prompt availability of results and navigation of follow-up through the women's mobile phone. HPV testing provides access to improved diagnostic accuracy, allowing significantly less frequent testing over a Malaysian woman's lifetime while still affording high levels of protection against cervical cancer. With self-sampling, ROSE embodies privacy and dignity, encouraging more women to willingly participate in screening in a timely manner, while the accuracy and reliability of self-swabs for HPV testing provides greater assurance to women.

The utility of mobile technology powered by canSCREEN®, a population health management platform, enabled healthcare professionals to track the progress of every woman screened, regardless of where she was screened. This provides a welcome safety net to ensure that women in whom HPV is detected are followed up and managed appropriately. It also allows optimisation of health resources by preventing duplication of services while establishing a powerful resource to monitor the program's progress towards eliminating cervical cancer. The mobile portal facilitates communication and linkage of care for women who test positive, seamlessly navigating women through an otherwise complex and overwhelming healthcare system. Women with a positive HPV test are also provided with a phone number for counselling and organizing their follow-up care.

Project ROSE was initially piloted across five major community clinics in Malaysia in 2018, where the ROSE model proved to be widely accepted among women and healthcare staff alike, largely tripling the daily uptake of cervical screening. Of the 4,188 women screened, five per cent tested positive for HPV of whom 89% engaged in follow-up care. Encouraged by its success, ROSE was translated into a more structured programme. To execute its programme at scale, ROSE leverages on community engagement, upskilling healthcare professionals, mobilizing community volunteers and collaborating with other strategic community development initiatives and health services, such as breast screening and social welfare. Collectively, these provide the opportunity for cervical screening to be embedded within a larger community effort – driving far-reaching influence, especially in hard-to-reach grassroots communities.

The important lessons gained from Project ROSE were manifold. While a systematic approach was used to design the program, ROSE embodied a 'nation building' vision from the moment of its conception. Contributors to Project ROSE did so with the understanding that they had an opportunity to make cervical cancer a rare disease in Malaysia. The pilot project was made possible through crowdfunding and contributions by individuals to large corporations. Donations in various forms ranging from monetary, telecommunication device and services to volunteer technical consultants enabled the pilot to be expedited. On the ground, many healthcare professionals and women were excited and saw the potential of such a program. Project ROSE is an example of how health initiatives can be successful if it takes on a 'whole society' and all-inclusive approach with proper project management. The unique financing strategy employed by Project ROSE was used as a case study by the Economist Intelligent Unit in 2021.[3]

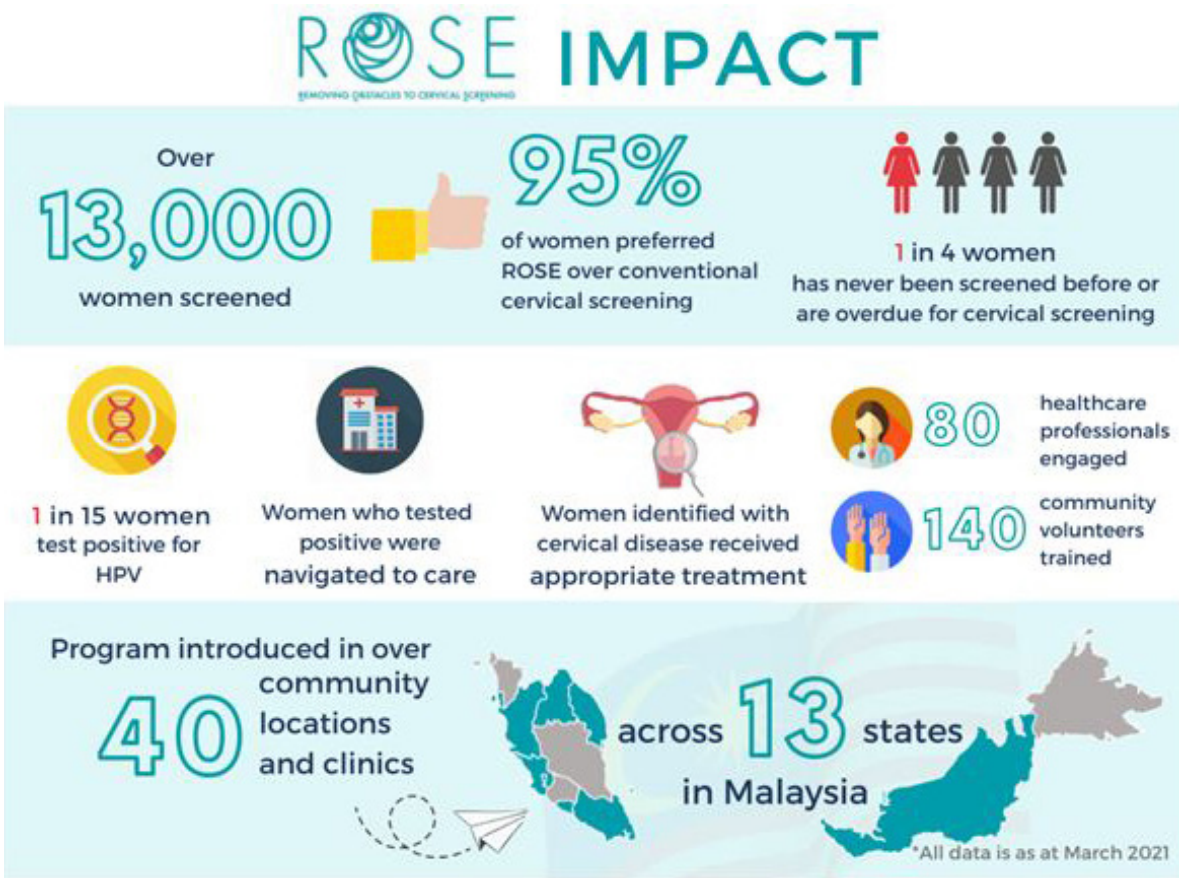
**As of March 2021, ROSE Foundation, which executes program ROSE had screened 13,750 women, trained over 80 healthcare professionals and 140 community volunteers in 13 states across Malaysia.**

As of March 2021, ROSE Foundation, which executes program ROSE had screened 13,750 women, trained over 80 healthcare professionals

and 140 community volunteers in 13 states across Malaysia. Furthermore, a significant portion of women were under-screened or unscreened (Figure 2). Over 95% of participants preferred ROSE over conventional cervical screening while healthcare professionals were very encouraged by its potential to increase the uptake of cervical screening and follow-up rates.

*Figure 2*

Impact of Program ROSE in different states involving community volunteers and healthcare professionals.




Empowering women to collect their own sample and navigate a follow-up system through their mobile phones, ROSE places a shield against cervical cancer quite literally in the hands of the women. In 2020, WHO advocated the integration of HPV self-sampling, as part of cervical screening, as a self-care intervention.[4] Such self-care interventions will not only address disruptions to routine health services layered upon over-stretched health systems during pandemics, but also strengthen community and primary care, anchoring the resilience of health systems. ■

**DISCLOSURE**

MS is an investigator on the Compass trial for which her organisation, VCS Foundation Ltd. has received kits and partial funding from Roche. VCS Pathology has also received free test kits from Roche, Seegene, Cepheid, Becton Dickinson, Abbott, AusDiagnostics and Atila Biosystems for research purposes. YLW has received investigator initiated study grants from ROCHE, Merck Sharp and Dohme. University Malaya has also received kits from Cepheid, ROCHE, Becton Dickinson for study purposes. LO declares no conflict of interests.

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