

Project Title

Tan Tock Seng Hospital Tele-ophthalmology Clinic

Project Lead and Members

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- Ryan Tay
- A/Prof Wong Hon Tym
- A/Prof Vernon Yong
- Dr Vivien Yip
- Pauline Gan
- Winnie Koh
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Organisation(s) Involved

Tan Tock Seng Hospital

Project Period

Start date: Mar 2009

Project Category

Technology, Care Redesign, Workforce Redesign

Keywords

Care Redesign, Quality Improvement, Workforce Redesign, Staff Empowerment, Job Redesign, Expanded Role & Capabilities, Primary Care, Structured Community Eye Care, Care Right Siting, Co-management, Optometrists, Concordance in Eye Management, Tele-ophthalmology Service, Technology, Digital Health, Telehealth, Telemedicine, Teleconsultation, Stable Eye Condition, Time Saving, Cost Saving, Patient Satisfaction Survey, Eye Specialist Outpatient Clinic ,Tan Tock Seng Hospital, Ophthalmology, Polyclinic

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Category: Clinical Service

Title: Tan Tock Seng Hospital Tele-ophthalmology Clinic

Project Started: 1 Mar 2009

Department Name: Department of Ophthalmology, Tan Tock Seng Hospital

Names of Key Staff Involved in this Project: Quek Zuoling, Ryan Tay, A/Prof Wong Hon Tym, A/Prof Vernon Yong, Dr Vivien Yip, Pauline Gan, Winnie Koh, Pamela Teo

BACKGROUND: Provide some background as to how the project originated e.g. what problem/ opportunity were you faced with. MAX 350 WORDS

The Eye Specialist Outpatient Clinic (SOC) in Tan Tock Seng Hospital (TTSH) receives close to 150,000 patients each year, this comprises both new referrals and repeat visits. The workload in TTSH's Eye SOC is constantly on the rise over the years as a result of inflow of new referrals and high retention rate of existing patients. There is a mismatch in the number of new referrals (23,856 in CY2017) against the number of patients discharged (8,466 in CY2017). This causes a strain on our existing resources and translates to difficulty in accommodating new referrals from the polyclinics in the primary care setting, resulting in an increasing trend in wait time to obtain an eye SOC appointment.

Many patients with stable conditions that can be discharged often request for follow-ups in our SOC. The most common reason is the fear of their condition worsening. Patients also feel that it is troublesome to get an appointment from polyclinic back to the SOC and would rather just remain in the SOC. As such, we needed to find an avenue to decant and manage such stable cases in the community. The need to have a structured primary eye care service in the community arose.

MEASUREMENT: Describe what was required to address the aforementioned problem/ opportunity. Outline what your targets/ goals were and whether any approach was outlined to correlate this program with better clinical service from the patient's perspective. Also provide an overview of the team that was put together to undertake this and how involved the physicians were in the project. MAX 250 WORDS

Traditionally, Telemedicine is used to bring medical expertise to remote and out-of-reach areas. By applying the same concept in Singapore's current context of increasing demand in eye care, Tele-ophthalmology service was conceived. Tele-ophthalmology aims to reshape a new model of eye care where patients get right siting of care in the community. Stable eye conditions can then be managed in the polyclinics and more complex conditions can be referred to SOC in an appropriate and timely manner. This is convenient as well as cost- and time-saving for the patients and their carers. It also reduces unnecessary new referrals and repeat visits to the SOC.

Tele-ophthalmology service was launched in Hougang Polyclinic in July 2011 and expanded to Toa Payoh Polyclinic in 2014. This service is helmed by a selected team of six optometrists and two eye specialists. This team-based approach aims to provide a comprehensive eye examination in the community with appropriate and timely referrals to SOC where indicated. The optometrists onsite conduct specialised consultation and eye imaging for patients with chronic blurring of vision. The eye specialist who is off-site will then review the electronic consultation notes as well as the eye images taken. Tele-consultation with the eye specialist is available if indicated.

List of services provided by TTSH Tele-ophthalmology clinic include:

- a) Slit Lamp Microscope Examination & Photography;
- b) Refraction;
- c) Eye Screening;
- d) Diagnosis and treatment.

The polyclinics that the Tele-ophthalmology clinics are located at have also provided support in co-managing these patients clinically and administratively.

ACTIVITY: Outline the steps or stages of the project and how these were executed by the team. MAX 200 WORDS

Please refer to **Section 1: Issues and Solutions for TTSH Tele-ophthalmology clinic** in the attachment titled "*Supplementary Information for TTSH Tele-ophthalmology Clinic*" which summarises the issues that were faced by the Eye Specialist clinic, as well as the how the inception of TTSH Tele-ophthalmology clinic has helped to mitigate these issues.

RESULT: Demonstrate the results of the project and how this was beneficial for the patients. How did you measure this? Present quantifiable information such as before and after measurements and percentage improvement. MAX 200 WORDS

Refer to Sections 2-4 in attachment.

The clinics saw a steady increase in workload [95 cases (2009) to 837 cases (2017)]. From CY2016 to CY2017, Toa Payoh Polyclinic saw a 26%-increase and Hougang Polyclinic saw a 19%-increase.

SOC referral rate reduced by an average of 47% annually. This improved tertiary first-visit waiting time and increased number of available follow-up visits, translating to better quality care as clinicians spend more time with patients with complex conditions. It expanded the role and capabilities of allied health professionals-Optometrists in the primary setting.

Over time, the inflow of patients referred to tertiary care and number of existing patients will continue to increase. This care model ensures appropriate and timely SOC's referrals, includes other common eye symptoms and provides eye screening opportunities. It creates and enhances a new care path to right-site patients to rightful care providers while maintaining standards.

Clinical management by optometrists and ophthalmologists is tracked separately to ascertain if there is concordance. There is a high concordance rate of 92% (343 of 371 cases) and direct feedback given by the Eye specialist to the optometrist pertaining to discordant cases. Overall results showed both are aligned in eye management in the community.

CLOSING ARGUMENT: Please give any other information, including third party testimonial regarding your project which you think would help convince the judges that this project (or program) should win this category. MAX 300 WORDS

Patient Satisfaction Survey

Patients who have visited TTSH Tele-ophthalmology clinic have responded favourably in the Patient Satisfaction Survey with the following results observed from the survey:

a) Experience in TTSH Tele-ophthalmology clinic

Please refer to **Section 5: Experience in TTSH Tele-ophthalmology clinic** in the attachment titled "*Supplementary Information for TTSH Tele-ophthalmology Clinic*"

94% of the respondents felt that the video-conferencing service offered between the patient and the doctor at TTSH was comparable to a real-life consultation, and 98% of respondents were satisfied with the Tele-ophthalmology consultation services rendered by the optometrists and the doctors.

Quality and satisfactory eye care is delivered to patients at their convenience through Tele-ophthalmology.

b) Preferred choice and recommendation of TSH Tele-ophthalmology clinic

Please refer to **Section 6: Preferred choice and recommendation of TSH Tele-ophthalmology clinic** in the attachment titled "*Supplementary Information for TTSH Tele-ophthalmology Clinic*"

After visiting the Tele-ophthalmology clinic, 92% of the respondents opined that they would visit the clinic again if they have an eye problem in the future and 96% would recommend the services to their friends and relatives. This is largely due to the accessibility of quality eye care services in the community, eliminating the need for patients to travel to the hospital and reducing their wait time for assessment.