

# Singapore Integrated Diabetic Retinopathy Programme (SiDRP)



A collaboration between NHG Eye Institute (NHGEI) & Singapore National Eye Centre (SNEC)  
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## Background & Objectives

Singapore Integrated Diabetic Retinopathy Programme (SiDRP) is a national Diabetic Retinopathy (DR) screening programme based on the concept of centralised assessment of DR images through grading by trained graders on a tele-ophthalmology / tele-care network.

Before SiDRP was launched,

- Reading of images for DR were done by polyclinic doctors during lunchtime or after working hours
- Communication of results back to patients would take 2-4 weeks
- There was no harmonized grading criteria and guidelines at the national level

To improve the efficiency of DRP reporting and standardise grading standards, the Project Management Office involving NHGEI, SNEC and IHIS was set up in December 2013. The objectives include:

- Improve the level of screening standards and turnaround time
- Provide uniform assessment and referral guidelines for DRP reporting at the national level
- Provide standardised training and audit governance for DRP reporting



## Action Plan

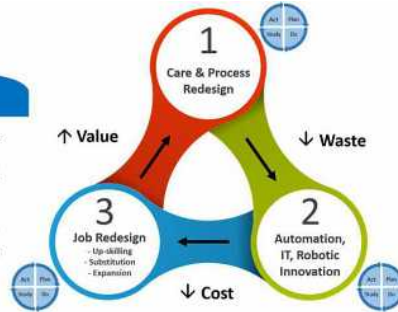
### Care & Process Redesign

Care and process redesign was done to centralise DR reading capabilities to two reading centres (National Healthcare Group Eye Institute (NHGEI) and Singapore Eye Research Institute (SERI)), with a set of nationwide standardise referral criteria and guidelines. The images taken at the polyclinics are sent to the reading centres for grading and final reports are sent back to polyclinics within 24 hours.

### Job Redesign

DR images used to be graded by polyclinic doctors or ophthalmologists. Through SiDRP, optometrists' role is expanded and are trained to grade images as primary graders.

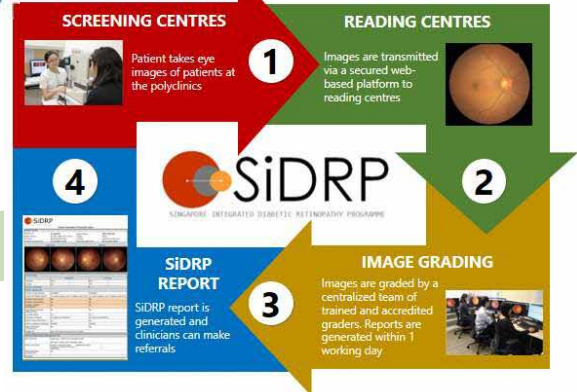
Moving forward – ophthalmic technicians will also be trained to grade images as primary graders while optometrists are upskilled to be secondary graders.



### IT Innovation

SiDRP involves transferring and grading a huge number of images from all 19 polyclinics in Singapore to the two central reading centres.

A single integrated National IT platform was launched in September 2015 to enable seamless transferring of images and final reports between screening centre and reading centre.



## Results & Staff Responses

<p><b>1 SiDRP Attendances</b></p> <p>Increasing SiDRP attendances – With shorter turnaround time, more patients can be screened and receive their results within 24 hrs</p>	<p><b>2 Specificity &amp; Sensitivity</b></p> <p><b>Specificity</b> (Accuracy of pick-up of DR) <b>97.7%</b></p> <p><b>Sensitivity</b> (Accuracy of pick-up of non-DR) <b>95.0%</b></p> <p>Graders are evaluated on specificity and sensitivity</p>	<p><b>3 Time Savings</b></p> <p>With images flowing electronically to a single National IT platform, both time and cost are saved for our patients.</p> <p>With early detection of eye conditions, patients can be referred in a timely manner.</p>	<p><b>4 Workforce Transformation</b></p> <p>With standardised training and accreditation of staff, the team has trained:</p> <ul style="list-style-type: none"> <li>• 8 optometrists to be primary graders</li> <li>• 3 optometrists to be secondary graders</li> <li>• 3 ophthalmic technicians to be primary graders</li> </ul>
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"Optometrists are able to exercise more autonomy and apply our clinical judgment and knowledge in deciding the patient's disease diagnosis and their management plan."

TAN SHIH CHIA  
Senior Optometrist



"This training has not only enabled me to have a better understanding and knowledge of the disease spectrum, it too helps to improve the quality of my core diagnostics duties such as fundus imaging."

SAMANTHA DING  
Ophthalmic Technician

## Future Plans

Enhancing SiDRP, there is an artificial intelligence analytics platform that will be introduced to detect abnormal fundus images, particularly diabetic retinopathy. This combines human intelligence with artificial intelligence to improve outcomes and productivity, and is slated to go-live in FY2021.

