Singapore Integrated Diabetic Retinopathy Programme (SiDRP)
SORC MISSION STATEMENT

To be the premier innovator in providing industry partners and research collaborators with cutting-edge computer-aided imaging, reading and analysis of ocular images and other related service through a state-of-the-art IT infrastructure.

The eye offers an exceptional opportunity for advanced imaging technology to document, monitor and study human diseases. Major retinal diseases, glaucoma and age-related macular degeneration are common causes of blindness, and may also indicate major diseases elsewhere in the body.

Ocular imaging has progressed significantly in the last three decades, with various techniques developed to measure in a non-invasive manner, not only structural changes seen in the eye but also functional changes. At the same time, computer science has progressed to allow measurement of retinal vascular changes from photographs, altering the way in which we can understand and study human vascular diseases.

The SNEC Ocular Reading Centre (SORC) provides a comprehensive range of services in ocular imaging and grading for healthcare institutions, clinicians and industrial players. It aims to become the leading ocular imaging and grading centre in the Asia Pacific. Its activities focus on reading for pharmaceutical clinical trials, public health programmes, outsourced reading for other international reading centres and training.

Known for its high quality standards, SORC is already a service provider for a number of clinical trials as well as national level public health ocular imaging programme in Singapore.

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The SNEC Ocular Reading Centre (SORC) provides evaluation and interpretation (grading) services of ocular pathology from fundus photographs, fluorescein angiograms, optical coherence tomography scans or other imaging modalities.

SORC serves as a Tele-Ophthalmic Ocular Reading Centre, a hub that ensures effective and prompt service delivery by streamlining and automating the entire process, from image capture on site to the electronic transfer of the image via a dedicated conduit to the reading centre.

What We Do

1. Provide clinical trial standard reading services for industry partners and collaborators on different eye diseases such as diabetic retinopathy, age-related macular degeneration, glaucoma and cataract with strict quality assurance.

2. Provide accurate measurement of vascular structure from retinal images using computer-aided programmes such as SIVA (Singapore "I" Vessel Assessment).

3. Provide certification of equipment and photographers according to industry standards and maintain high quality imaging throughout the duration of trials.

4. Perform centralized grading for the national diabetic screening programme in Singapore – Singapore Integrated Diabetic Retinopathy Programme (SiDRP)

5. Conduct training workshops, mentoring sessions and accreditation for a spectrum of ocular imaging techniques.

Our vast ocular imaging database and tele-ophthalmology platform are supported by a robust and well-equipped IT infrastructure.
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Background

Diabetic Retinopathy (DR) is a microvascular complication that affects more than 3 million people in the world. Vision loss from DR is preventable with early diagnosis and proper treatment.

Traditional DR Screening

DR screening is the main method used to identify patients suffering from DR at an early stage. However, current DR screening models in many countries suffer from substantial limitations, including:

1. Delay in diagnosis and referral of patients with DR
2. Inconsistencies in the grading outcomes with no standardised protocol
3. Evidence of high over-referral rate to tertiary eye care (i.e., substantial levels of false positive cases and ensuing high treatment costs at tertiary centres)
4. Cost-ineffective as primary care doctors are made to assess DR when this can be performed by trained technicians
5. Large proportion of patients with diabetes who visit private GPs and endocrinologists may be excluded

National DR Screening Programme in Singapore

Singapore Integrated Diabetic Retinopathy Programme (SiDRP) aims to improve on the traditional DR screening with the establishment of a comprehensive screening programme based on ‘real time’ assessment of DR from photographs by a centralised team of trained and accredited technicians, supported by a national tele-ophthalmology IT infrastructure. Patients’ retinal photographs are graded within an hour, allowing immediate feedback on DR status to be given during the same primary care visit together with, if necessary, a referral to an ophthalmologist.
• 'Real time' assessment of diabetic retinopathy and other eye conditions, by trained and accredited technicians, from digital photographs submitted to SORC.
• Patients and physicians receive recommendation and feedback within one hour during the same clinic visit. Where necessary, patients are referred for further assessment by an ophthalmologist.
SiDRP Work
flow

Value Proposition for Healthcare Systems
Since its operation in July 2010, SiDRP has seen over 51,000 patients and delivered outstanding value to clinical centres, healthcare practitioners and the overall healthcare system:

1. SORC’s DR screening activity has reduced the rate of referral to tertiary centres to 23%, with only 14% for DR with sensitivity and specificity accuracy of 90%. There are no reported figures on the referral rate prior to the model being implemented; however, only 38% are truly positive for DR.

SORC has introduced a new pathway of 6 months re-screen where an estimated 8% of the patients screened with mild symptoms of DR are re-photographed at the primary care level, instead of being referred to the tertiary eye centre. The screening framework can thus significantly reduce excessive referrals to tertiary eye centres based on false positive results or due to uncertainty on the part of the physician. This translates to savings in cost, time and resources; and a corresponding increase in productivity.

The reduction in false positive results improves waiting time at the tertiary eye centres, with only patients who require medical intervention being seen in these centres.

2. Traditional DR screening model is limited by a delay in diagnosis and referral of patients with DR as doctors require a longer turnaround time (up to one month) due to their busy schedules. Patients are also required to visit the primary care centre twice for referral to tertiary eye care.

However, 99% of the reports within SORC’s DR screening framework are generated and sent within one hour. 95% of respondents in our patient satisfaction survey preferred to receive their report within one hour or less.

The improved grading turnaround time saves patients one additional visit to the primary care centre, and thus translates to savings in time and cost for both the patients and the healthcare system.
Key Benefits:

1. Faster. SORC’s DR screening programme, featuring a one-hour turnaround time is significantly faster than traditional DR screening systems. This saving in time will benefit patients (obviating the need for a second visit to the primary care setting) and allows faster referral to tertiary eye care, if needed. This translates to time and cost savings to patients and to the healthcare system.

2. Better. SORC’s DR screening programme considerably enhances the current system via the use of dedicated trained and accredited technicians. They have shown to produce grading quality which is at least equivalent to that of ophthalmologists.

3. Cheaper. Reduction in tertiary eye care referrals result in tangible savings to health systems due to reduced levels of reimbursement with lower number of referrals – savings in cost, time and resources.

SORC’s DR screening programme is a comprehensive, quality-assured and cost-efficient solution to the DR problem in countries throughout Asia and globally. This system has demonstrated effectiveness in early detection of DR and resulting in better clinical management of this eye disease.

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