

**Project Title**

Healthier Drivers, Safer Road

**Organisation(s) Involved**

Tan Tock Seng Hospital

**Project Period**

Start date: 08-2011

**Project Category**

Process Improvement, Care Redesign, Process Redesign, Productivity

**Keywords**

Care & Process Redesign, Process Improvement, Patient-centric Care, Productivity, Manpower Savings, Driving Assessment and Rehabilitation Programme, Elderly Vocational Drivers, Driving Assessment, Disabled Clients, Driving Modifications, GP Medical Assessment, Reduce Wait Time, Cost Savings, Multi-stakeholders Collaboration, Tan Tock Seng Hospital, Allied Health, Occupational Therapy, Land Transport Authority, Handicapped Welfare Association, Plan-Do-Study-Act

**Name and Email of Project Contact Person(s)**

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# Asian Hospital Management Awards 2017

## \*Required Fields

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## Community Involvement

*(includes free services and Environment, Energy and Green activities.)*

This is a project or program that brings together the hospital and the community, including socially responsible undertakings and free services. Is the project or program sustainable? Does the hospital seek the involvement of its stakeholders and community or does it merely provide resources? Does the hospital give of its management time and expertise? More weight is given to how meaningful it is to the community it serves in terms of preventive health and/or free services. Does the hospital have programs for environment protection, energy conservation and/or being green?

### Complete All Information Below:

**Project Title (Maximum 256 Characters): Healthier Drivers, Safer Roads**

**Date Project Started (Maximum 128 Characters) (i.e. May 24, 2015): Aug 2001**

**Department Name (Maximum 256 Characters): Occupational Therapy Department**

**Names of Key Staff Involved in this Project (Maximum 512 Characters) (Separate names with comma):**

Occupational Therapists: Florence Cheong, Dr Chan Mei Leng, Carol Fung, Lim Hui Hui, Lim Yi Hui, Huang Huixin, David Zhang, Chia Pei Fen, Doreen Yeo and Ernest Thia

Administrative Assistant: Toh Bee Tee

Patient Service Associates: Fanny Ng, Margaret Lim, Tan Siow Ting, Lek Pei Jun

Driving Instructors: Lau Chai Cheng and Alan Tan

**1. Provide some background as to how the project originated e.g. what problem/opportunity were you faced with. (Maximum number of words – 350)**

The Driving Assessment and Rehabilitation Programme (DARP) was pioneered by the Tan Tock Seng Hospital (TTSH) Occupational Therapy Department in August 2001.

The DARP helps clients with medical conditions learn or return to driving. The Occupational Therapist (OT) assesses a client's ability to return to driving safely and legally based on the Medical Guidelines on Fitness to Drive (Singapore Medical Association, 2011) and the Road Traffic Act.

Since 2001, TTSH has sent eight OTs for a 2-week postgraduate driving assessment certification training in the University of Sydney. When we set up the service, we realised that the Sydney model, which purchased their own vehicles and employed driving instructors, was too costly to run. Instead, we collaborated with private driving instructors and driving schools, with clients using the instructors' vehicles.

The DARP process consists of:

- 1) An off-road assessment at the OT outpatient clinic. The OT interviews the client on his medical condition, driving experience and assesses the client's physical, cognitive and visual abilities required for driving.
- 2) The OT conducts an on-road assessment with a certified driving instructor to determine the client's ability to drive. The OT will then prepare and send a report to the client, referring doctor and other relevant organisations. On-road assessments are available for cars (conducted in TTSH), motorcycles and heavy vehicles (conducted in driving schools).

Through in-services within TTSH and in other organisations, the DARP workload has steadily increased.

In 2004, the DARP OTs collaborated with Traffic Police, driving instructors, driving schools, Handicapped Welfare Association and the Land Transport Authority (LTA) to develop the process workflow for disabled clients with medical conditions to learn/resume driving legally with driving modifications such as left foot accelerators. This workflow has been implemented nationally.

In April 2006, the LTA decided to increase the upper age limit of taxi driving from 70 to 73 years old. The LTA then approached TTSH Occupational Therapy Department to initiate driving assessments for elderly vocational drivers (EVD) nationally, starting with taxi drivers. The DARP team realised that more effective and efficient ways were needed to manage the increasing demand for driving assessments.

**2. 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 community engagement/practices. Also, provide an overview of the team that was put together to undertake this. (Maximum number of words – 350)**

The DARP team comprises OTs, Patient Service Associates, and Administrative Assistant.

The DARP team assessed the problem and analysed the causes:

- 1) As the vocational driving assessments are non-subsidised, carrying out the off-road and on-road driving assessments in the same way as the DARP was costly. The private rate for the DARP full assessment was \$200. To save cost, the LTA requested shortening the duration and therefore reducing cost of the assessment. DARP assessment took 2 hours without report writing.
- 2) The OTs found report writing too long (2 hours/client). The six-page report for each client took the therapist two hours to prepare. The report includes results of off-road and on-road assessments, and recommendations to referring doctors. Referring doctors gave feedback that they only read the "Recommendations" section. Administrative Assistant spends another 10 minutes to photocopy and mail out reports.
- 3) As the report was mailed to clients, clients usually wait a week (and sometimes longer) to receive their reports. After receiving the reports, they will have to see their referring doctors to obtain a memo to certify medical fitness to drive. Hence, a delay in receiving the report can sometimes result in a loss of income.
- 4) Only manual car assessments were offered at that time. The taxi fleet in Singapore has started the process of gradually changing from mainly manual to mainly automatic transmission.
- 5) There was insufficient storage space to store the folders for vocational assessment services as the storeroom was small. White folders were wasted as the vocational drivers only came once or at most twice; and only two sheets of paper needed to be stored.
- 6) It was time-consuming to arrange for on-road assessments individually: After each DARP off-road assessment, the therapist calls the driving instructor to arrange for the on-road assessment. Each phone call averages 3 minutes. The DARP clients had to make two trips: one for the off-road assessment; another for the on-road assessment.

To overcome the above problems, the DARP team set out to work with the LTA, doctors, Ministry of Health (MOH), driving instructors and clients.

**3. Outline the steps or stages of the project and how these were executed by the team.**  
**(Maximum number of words – 300)**

We designed the EVD assessment process and assessment form together with LTA: EVDs will visit General Practitioners (GPs) for medical assessment before the OT driving assessment. To shorten the OT assessment, we convinced LTA to incorporate some OT off-road assessment components that did not require equipment e.g. Finger-Nose-Test, into the GP medical assessment. Due to adequate supply of GPs, the cost for GP medical assessment is kept competitive. This cuts down the EVD off-road assessment from 60 to 30 mins. MOH gave clearance for the EVD assessment form.

We then worked with driving instructors to block-book a driving instructor and two OTs in sessions for EVD assessments. Hence, an EVD can do the off-road and on-road assessments in one sitting, within 1 hour, further reducing duration and cost of the EVD driving assessment.

To overcome the report writing problem, we developed an “on-road checklist” to document on-road assessment observations and an “Outcome Form” for the OT’s recommendations. The “on-road checklist” is used for both DARP and EVD assessments, while the “Outcome Form” was used for DARP. Each form takes 5 mins to complete. This cuts down report writing time from 120 mins to 10 mins for DARP. We also sought feedback from referring doctors on the proposed format changes.

As the “on-road checklist” and “Outcome Form” are printed with carbon copies, the OT prepares and mails the reports immediately after on-road assessments.

Elderly taxi drivers gave feedback that they preferred a choice of manual or automatic transmission vehicles for on-road assessment. We then successfully convinced our driving instructors to also provide automatic transmission vehicles due to increasing workload.

Lastly, we now use re-useable plastic folders for EVDs instead of white folders, eliminating the need for huge storage space as EVD assessment records are now collectively filed in space-efficient ring binders.

- 4. Demonstrate the results of the project and how this was beneficial for the community. How did you measure this? Present quantifiable information such as before and after measurements. Also provide any qualitative information such as testimonials, awards etc. (Maximum number of words – 200)**

The improvements enabled us to see more clients more effectively and efficiently. They have resulted in faster, better, cheaper, safer services and help to maintain safety of road users on public roads.

**For DARP:**

OT’s time per DARP client reduced from 4 hours to 1.5 hours.

DARP clients receive their assessment reports immediately, instead of waiting for one week.

**For EVD:**

EVD assessments are sent off to LTA immediately after the session.

Elderly taxi drivers are happy with the choice of vehicle transmission: 95% chose automatic.

With further improvements such as pre-payment at registration that reduces the need to wait for payment separately, EVD assessments now take an average of 34 mins, an 86%-reduction from pre-improvement DARP which took 4 hours.

Cost of EVD OT driving assessment is \$101.90, 49% of DARP cost at \$200.

6995 white folders (at \$0.50 each) are saved (Total: \$3497.50). Savings from six years of storage: \$12,600.

From 2006-2016, we saved 2.5 hours/client from pre-improvement DARP. Time saved since intervention = 11489 clients (DARP and EVD) x 2.5 hours = 28722.5 hours  
Assuming Full Time Equivalent (FTE) = 42 hours/week, 50 weeks/year :

**FTE saved = 28722.5 ÷ (42x50)**

**= 13.7 FTE**

5. Please outline how sustainable the improvements are, and 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. **(Maximum number of words – 300)**

The DARP and EVD programmes contribute to a healthier and safer community of drivers in Singapore, through continuous engagement of clients, partners and staff, fulfilling TTSH's "Better Community" mission in Vision 2020.

We sustained our gains and continued on the improvement journey using the Plan-Do-Study-Act concept, implementing other sustainable improvements. In 2013, we successfully proposed to LTA to include contrast sensitivity test for off-road assessment following new literature evidence.

In 2015, we instituted retest clinics twice a month for EVDs who failed the first test. This retest clinic only requires block-booking of one OT and one driving instructor, reducing the need for one OT.

In 2016, we got the EVDs to make payment at registration instead of waiting for payment upon completion of on-road assessment. This shortens waiting time for EVDs and non-driving clients at the Occupational Therapy Department.

We started with elderly taxi drivers in 2006 then provided EVD assessments for minibus drivers (2011). In 2012, the upper age limit for EVDs increased to 75 years old and LTA consulted with DARP and MOH to implement yearly EVD medical and driving assessments for 73- and 74-year-old individuals. In 2016, the Ministry of Manpower invited us to assess elderly crane operators. In 2017, LTA invited us to assess elderly private hire drivers (Uber and Grab drivers). In 2016, TTSH DARP team mentored two OTs from Jurong Community Hospital to start their own DARP.

Equipped with care/process redesign measures, proactively working with partners has helped us deliver results at a system level. TTSH remains the only centre providing EVD assessments in Singapore. The improvements transformed DARP – a service for clients with medical conditions – to a preventative assessment for EVDs, keeping Singapore roads safe and extending the productive lives of EVDs, giving them dignity and income to sustain themselves.