

Providing Affordable Diabetic Footwear for our Patients

Law. C.C.C., Subramaniam. T.
Podiatry, Diabetes Centre
Khoo Teck Puat Hospital, Admiralty Medical Centre

Aim

The aim of the innovation project is to provide affordable and functional footwear for the patients in Podiatry Department in Khoo Teck Puat Hospital (KTPH)

Background

Every day in Singapore, four diabetic patients lose a lower limb to diabetes. However, 75% of all amputations are preventable with good foot care and appropriate footwear. Unfortunately, good and affordable footwear is inaccessible to many of our patients for various reasons, including cost, availability, and design.

As alternatives, patients often choose footwear that may be more affordable but not functionally appropriate for them. This frequently results in unnecessary diabetic foot ulcers that may eventually lead to an increased risk of diabetic foot infections and even amputations.

Team Members

Name	Designation	Department
Chelsea Law	Head	Podiatry
Tavintharan Subramaniam	Senior Consultant	Diabetes Centre

Interventions / Implementation

A collaboration between KTPH Podiatry Department and an external partner, Star 360, was established to design and develop affordable yet functional footwear for the diabetic population at KTPH. Multiple meetings between Podiatrist and designers from Star 360 took place to determine the functional features required for the footwear, as recommended by podiatrists for diabetic patients.

A draft design was created and agreed upon by the collaborators, which then progressed to prototyping. Sixty pairs of prototypes were produced for trials on internal colleagues and selected patients. A questionnaire was conducted to gather feedback on the usability, comfort, function and overall aesthetics of the footwear. Based on the collated feedback, the prototype was further refined before mass production. The general features incorporated in these shoes were:

- Deep & wide toe box
- Soft breathable material for upper
- Stiff heel cup
- Soft midsole
- Soft and cushioning sock liner (antibacterial & antifungal)
- Rocker-bottom outsole
- Smooth constructed inner
- Easy don & doff Velcro straps

The footwear was made available for sale through the Podiatry Department after a podiatrist's assessment for suitability. A public funding campaign, "Help Save a Diabetic Limb", was conducted to raise funds. A total of \$43,700 was raised from public donations.

The fund was used to subsidise the price of the footwear of \$80 (specifically those with financial difficulties and under government subsidy).



Onward 2026

By making high-quality footwear accessible and affordable for our patients without requiring them to visit retail stores aligns with our goal to be a "hospital of choice for patients". Reducing the possibility of avoidable diabetic foot complications and ulcers from the use of inappropriate footwear is undoubtedly "adding years of healthy life" for our patients.

Whilst the provision of footwear is not a mainstream healthcare service in a typical public healthcare institution, it demonstrates the "hassle-free" holistic care that KTPH is committed to providing for our patients by expanding our "acute care beyond the hospital".

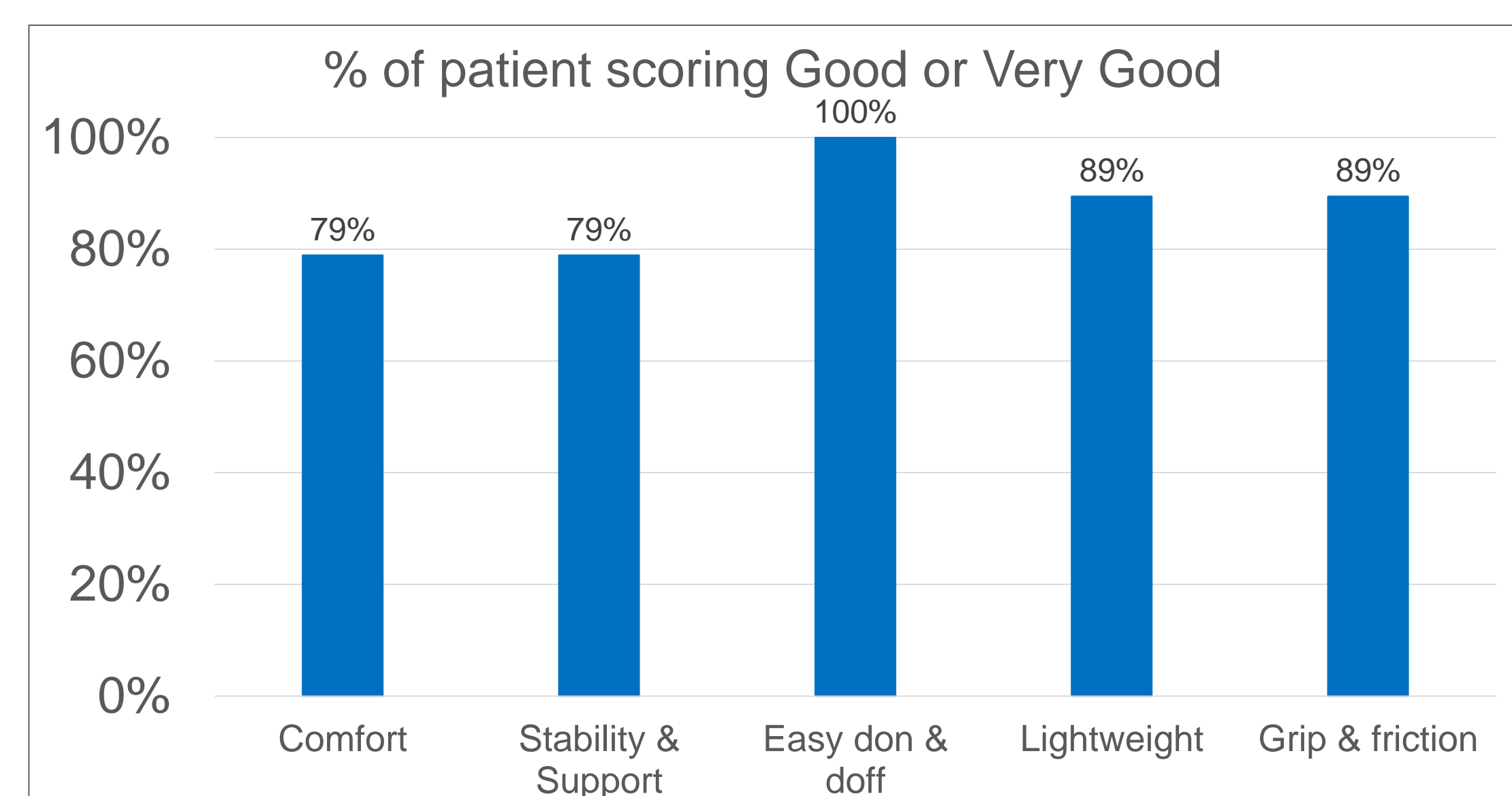
This project embodies our mission to provide good quality, affordable and hassle-free healthcare with science, love and wisdom.

Results & Outcomes

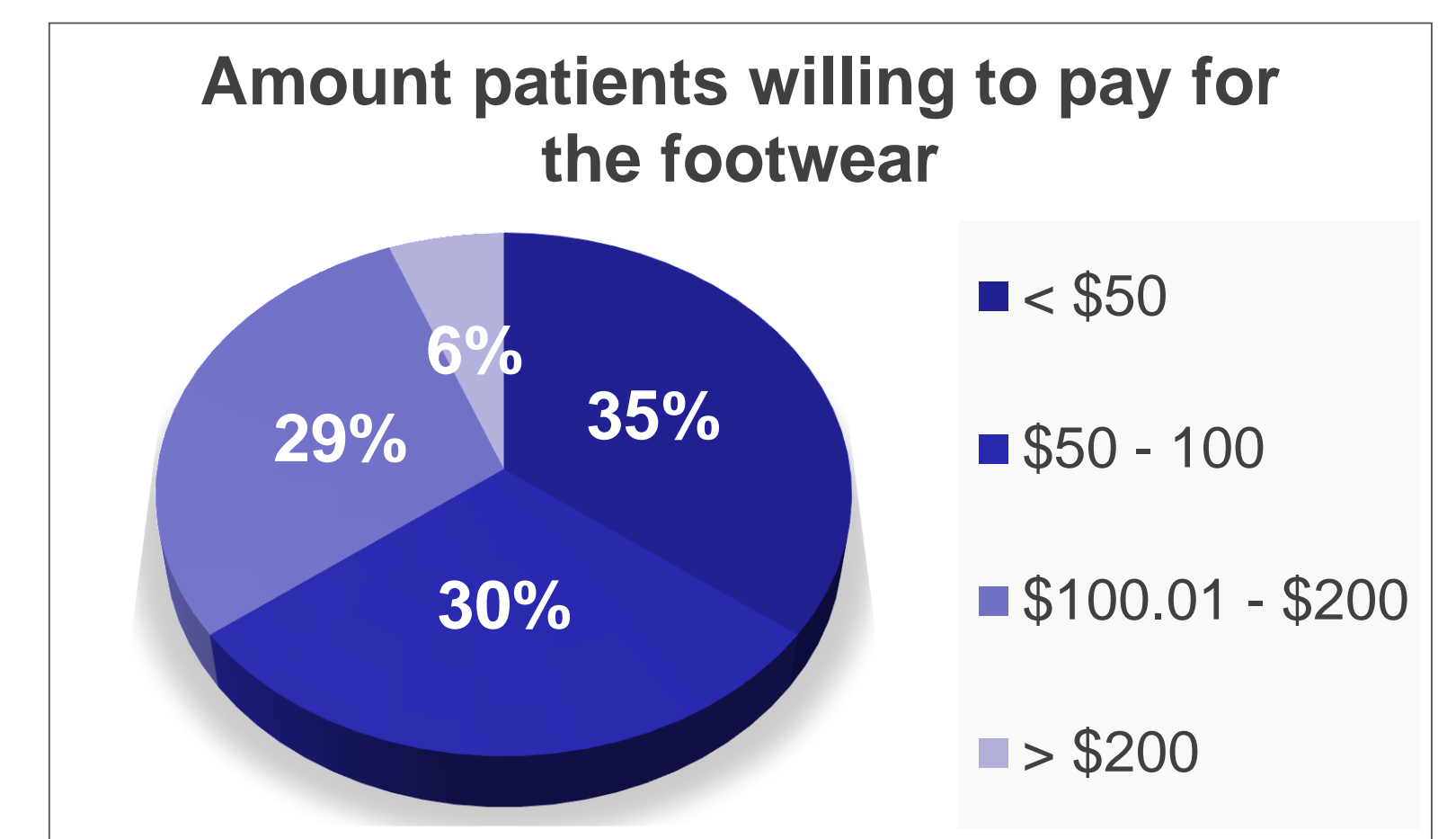
2 lines of diabetic footwear were developed to meet the needs of our patients. 1 model had splash-proof uppers for wet-weather and the other model had mesh uppers for better breathability. To date, 180 pairs of footwear has been issued to KTPH and AdMC patients.

These were available in retail shop in Suntec City at \$169 per pair, making them accessible to patients outside KTPH. We have managed to negotiate for preferential pricing for NHG-referred patients and also for those referred by other clusters.

Majority of the patients surveyed scored the footwear at least 75% on a 4-point scale (shown in chart below), with ease of don and doff scoring a perfect 100%.



65% of the surveyed patients expressed willingness to pay more than \$100 for the current pair of footwear. This high percentage indicates a strong acceptance of the value of good, functional footwear that can significantly reduce the likelihood of diabetic foot complications.



Conclusion

Accessibility to good, functional footwear at affordable prices is generally poor in Singapore. This project has helped many of our patients obtain high-quality, functional footwear without paying exorbitant prices or opting for cheaper but inappropriate alternatives. Ultimately, this is expected to reduce the incidence of footwear-related diabetic foot ulcers.