

National Quality Improvement Conference

Designing functional, fashionable and affordable footwear for our patients

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Problem Statement

In Singapore, 4 diabetes-related lower extremity amputations (LEA) are performed per day. One of the most common precursor to LEAs is diabetic foot ulceration, many of which are due to use of poorly fitting footwear. Use of these footwear may result in excessive pressure or friction on certain parts of the feet, causing development of foot ulcers.

“Diabetic” footwear tend to be **costly** and may not possess recommended **features of a “good” footwear**. Many patients often select footwear based on affordability or aesthetic designs. This approach is not optimal as it may not provide the feet with the necessary protection and support they require.

Project Aim

Aim of the project is to develop a range of footwear that:

- Possess features of a **good footwear**
- Is **Affordable**
- Is **Aesthetically pleasing**
- Is **Acceptable** by both patients and general user

Lessons Learnt

One of the greatest challenge is to find commercial partners who are aligned with our project aims to see through the collaboration. Having support from NHG, Centre for Med Tech and innovations (CMTi), with domain knowledge in innovation and commercial networks was crucial to the success.

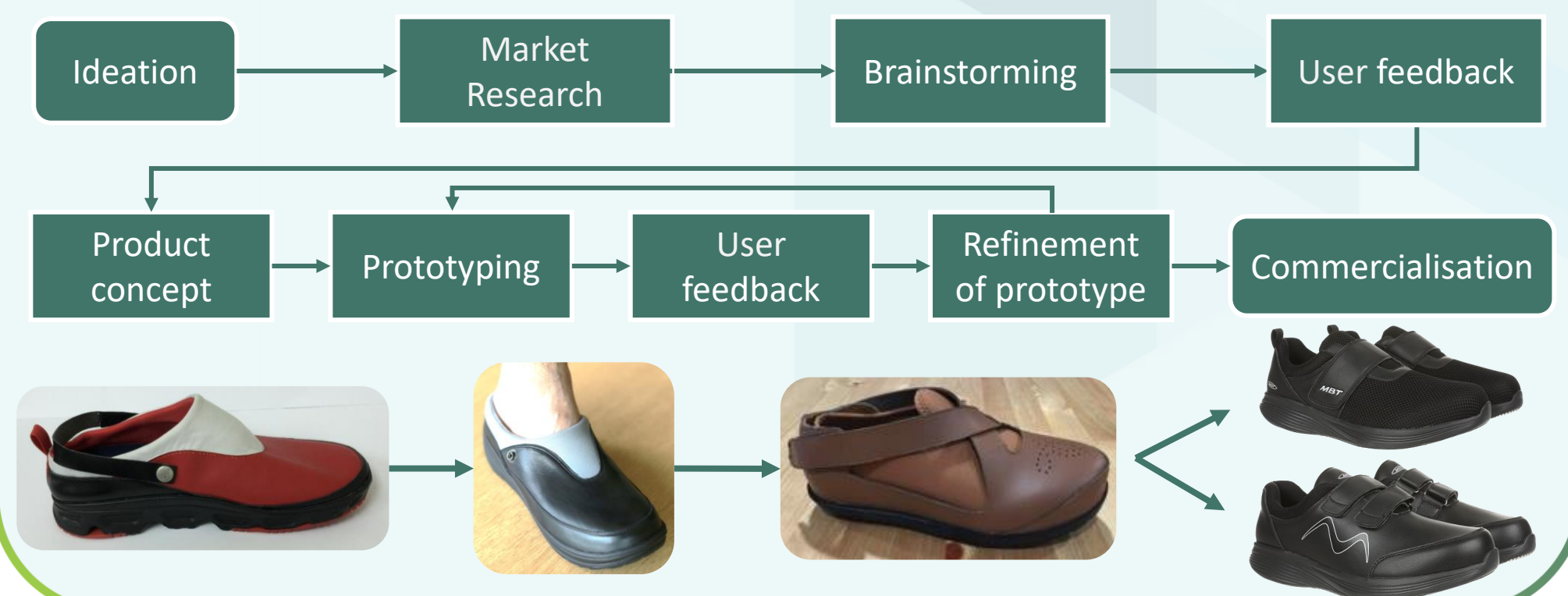
Keeping the commercialized product affordable is also challenging as many retailers’ main profit is from marking-up the price for retailing. Having domain knowledge in choice of materials used in construction of footwear and also eliminating middle-man in marketing the products help to keep costs affordable for patients.

Potential Solutions

Team came up with an idea to design a footwear with a commercial partner, so that it can be made available to public.

Market research on existing “diabetic” footwear design in retail and their price was done. A survey was conducted on patients to understand their experience using these footwear and what they look for when purchasing footwear.

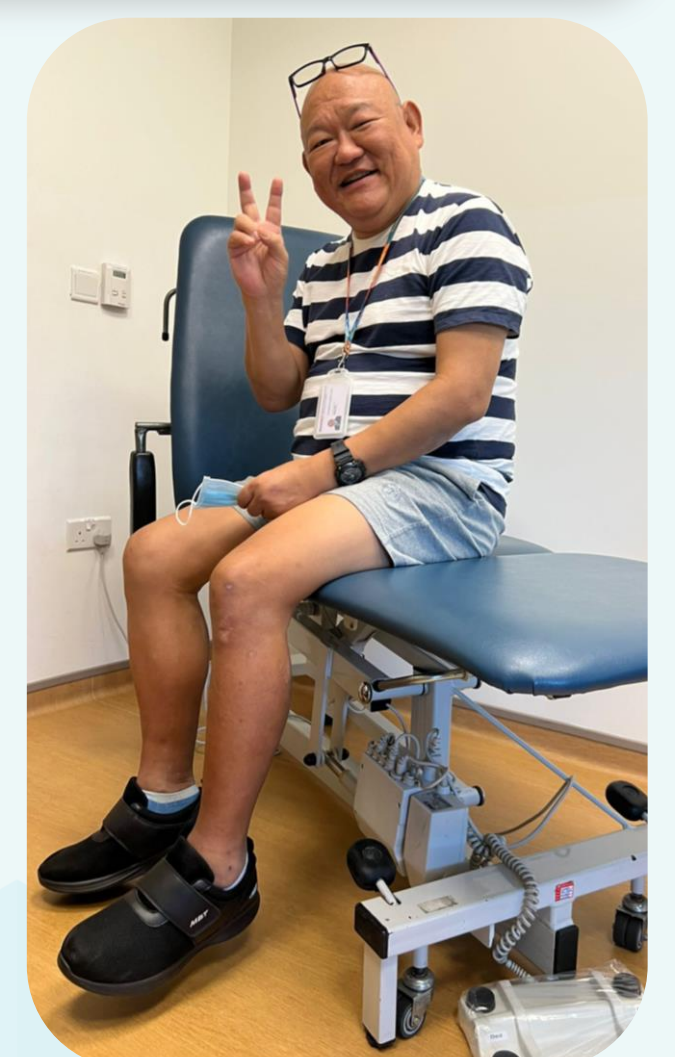
Multiple brainstorming and prototyping were done. Between each iteration, feedback was obtained from patients on the usability and comfort of these shoes. No less than 5 different prototype designs were considered before the final design was decided that met our patients’ functional needs, affordability and aesthetic appearances.



Outcomes & Impacts

Almost 100 patients have benefitted from the use of these shoes to date. Due to an innovation grant secured in the collaboration, we were able to fully subsidise the cost of 1000 pairs of the footwear.

To scale the impact, talks have been initiated with the various public health institutions on stocking these footwear for their patients and also for the commercial partners to retail them in their existing shops.



“Comfortable, lightweight footwear that is a affordable and presentable option for our patients, safe and deep enough to accommodate insoles” – Senior Podiatrist

*“The Value of an Idea lies in the **Using** of it” - Thomas Edison*