

Title	3D Foot Scan, Gait Analysis Pressure Plate and Milling Machine
Organisation	Department of Health, Western Cape Province
Innovation	<p>Utilizing a digital platform as a patient evaluation consultation system and in the manufacturing processes of custom made innersole, this not only benefits and improves patient care, turnaround time from patient consultation to fitting a custom made superior product, streamlining the timely and costly procurement process of procuring multiple manufacturing materials this also opens the mind to new ways of where innovative technology can be implemented in the manufacturing of 3D scanning and digitally printed all lower and upper extremity Orthotic Assistive Devices.</p> <p>Currently there is a shortage of Medical Orthotists and Prosthetists (MOPs), where current 157 Public Service MOP's have to provide the service to a South African population of 60,041,994 citizens. In the Western Cape there is only 9 MOPs for a population of 7 million citizens. Given this shortage of professional personnel, implementing this digital platform for innersole in the WCDoH Orthotics and Prosthetics Centre presented a solution for public patients demand for custom made innersole. We now can also take this technology to our 92 annual Outreach Clinics where our rural patients can be assisted using a mobile foot pressure plate and laptop where a MOP can scan patients in a challenging rehabilitation environment, design the innersole and digitally send the file to our main centre where the manufacturing can begin whilst the clinician is on the road travelling back from his clinic.</p> <p>The manufacturing process includes a milling machine that takes the design and carves or 'mills' the required inner sole using predetermined materials that are chosen depending on the patient's needs. The milling process takes approximately 12 minutes to complete, the milling machine can also be used to manufacture pre-made, "measured" insoles according to shoe size, in bulk, and makes fitting of these types of insoles for less serious conditions instantaneous at both OPC and the CHC's (both Metro and Rural).</p>
Impact	<p>Between March 2021 and March 2022 we manufactured 4500 innersoles. The previous waiting time for patients in the Metro were 2-3 weeks and rural areas were 8-12 weeks, now we decreased the waiting time from weeks to hours as we latterly can make a pair of innersole from consultation to fitting in an hour.</p> <p>We now offer a one-stop-shop for clinics at the Orthotics Centre preventing follow up, 'fitting' appointments. This also apply to OSs in PHC facilities. There is notable improved quality and reduce the frequency of replacement and the inconvenience to the patient. The innovation has also resulted in reduced staff requirements for manufacturing, mitigating in part, the risk to the Footwear Department. The solution has also improved skills development for current staff.</p>