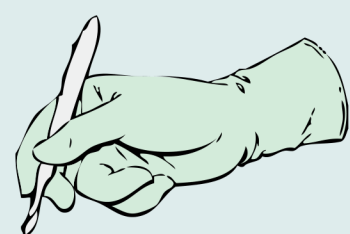


Project Calculus

Our mission is to develop a tool to **reduce** the rate of complications caused by **inaccurate puncturing** during Percutaneous Nephrolithotomy (PCNL) kidney stone removal surgery.

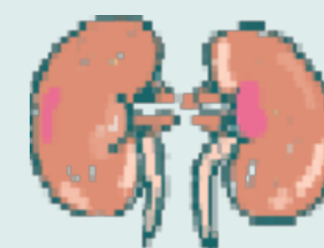
Unmet need



Difficulty angle and trajectory of puncture from the initial CT scans.



Perioperative bleeding (10%), infection rates and failure to remove stones completely (20%)



Low-resolution visualisation of the kidneys and surrounding structures

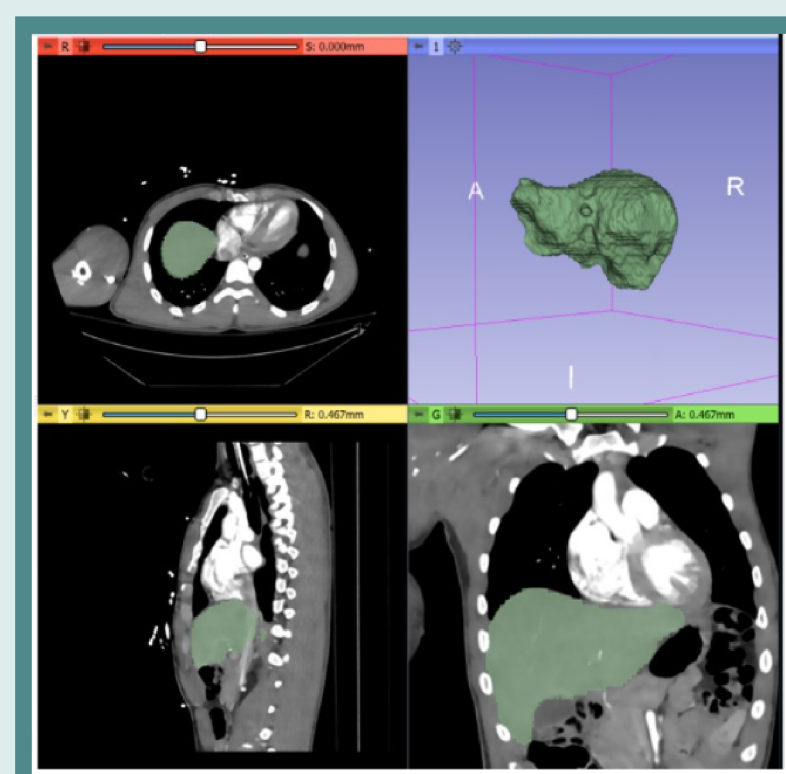
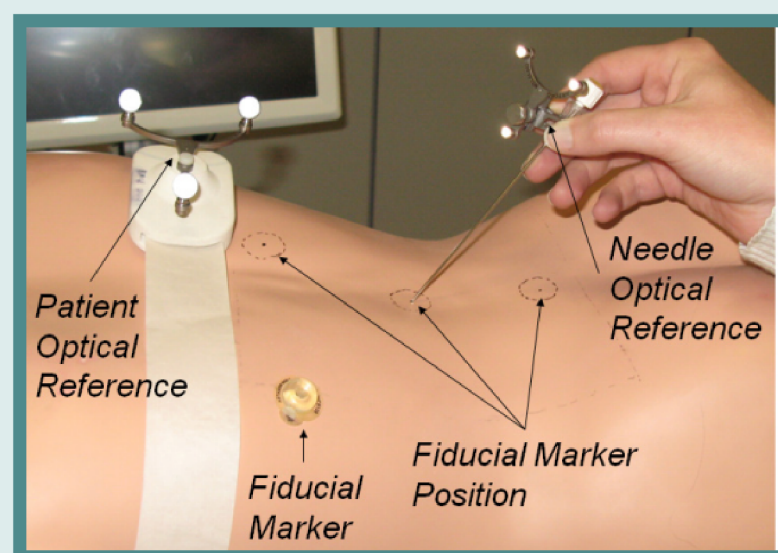
Solution

Stereotactic guidance system

- Puncture alignment assist
- Path planning / needle trajectory
- Reduced operator dependency

3D visualisation

- Auto-segmentation in areas of surgical interest from CT scans
- Mapping in 3D space



Impact

- Easy 3D High resolution navigation (real time) of the kidney
- Reduce punctures
- Better patient outcomes
- Increased surgical confidence



Week 11&12

April 2023

Oct 2023

2024

Validated surgical workflow

3D Visualisation model - Auto Segmentation

Surgical planning software - stereotactic guidance

Clinical trials

TGA-FDA approval for use in surgical workflow