Automated Hip Implant Loosening Detection System

A system for early & accurate detection of hip implant loosening to reduce surgical revision rates. .

Benefits

- Implant loosening and migration detection within the first two years.
- Early detection allows poorly performing implants to be recalled faster.
- Potential to reduce the number of post-surgical x-rays and follow-up visits.
- Improves health care management costs and quality of care.
- Allows visual measurement tracking over time with an easy to interpret system.

Background

Globally the revision surgery rate for total hip replacements is approximately 6% after five years and 12% after 10 years, creating an economic burden, poorer prognosis and higher risk of failure given revision surgery is more complex than the primary joint replacement.

Current diagnosis of hip implant migration is by surgeons visually comparing past and present x-rays.

This method is inaccurate with visual comparisons generally picking up migrations of over 5mm five years post-surgery. Such inaccuracies can result in implant failure and necessitate revision surgeries.

A method that enables early diagnosis is crucial to enhance patient outcomes and reduce future revision procedures.

Technology overview

We've pioneered an automated system that precisely measures implant migration and rapidly predicts implant failure within the initial two years after surgery. Our cutting-edge system boasts a verified accuracy of detecting deviations as small as 0.5 mm within a mere 30 seconds per patient's x-ray set. Notably, it not only identifies the patient's pelvic anatomy but also visually tracks the implant's position over time through an easy to read and interpret system.

Opportunity

We are seeking a commercial partner in the medical device industry for further development and commercialisation.

Inventors

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