



MUNRO MEDICAL

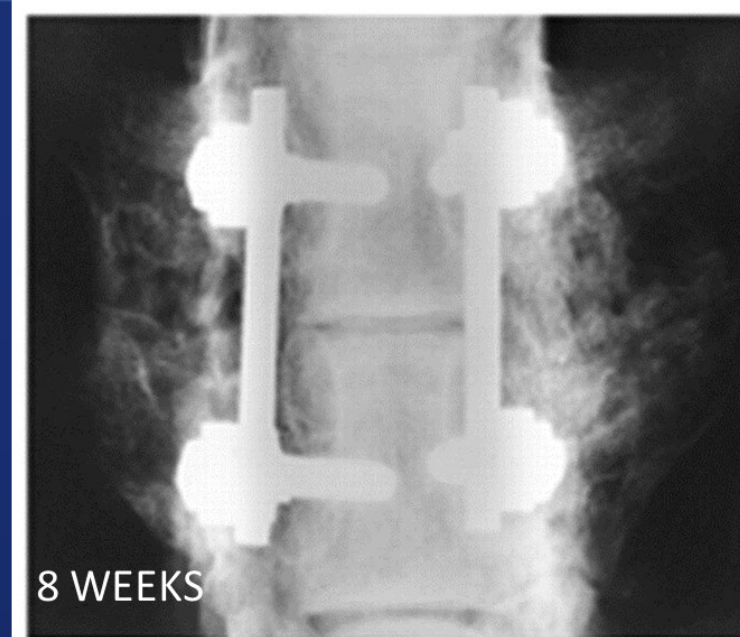
Smart implants for better outcomes

Dr Deborah Munro
President
www.munromedical.com



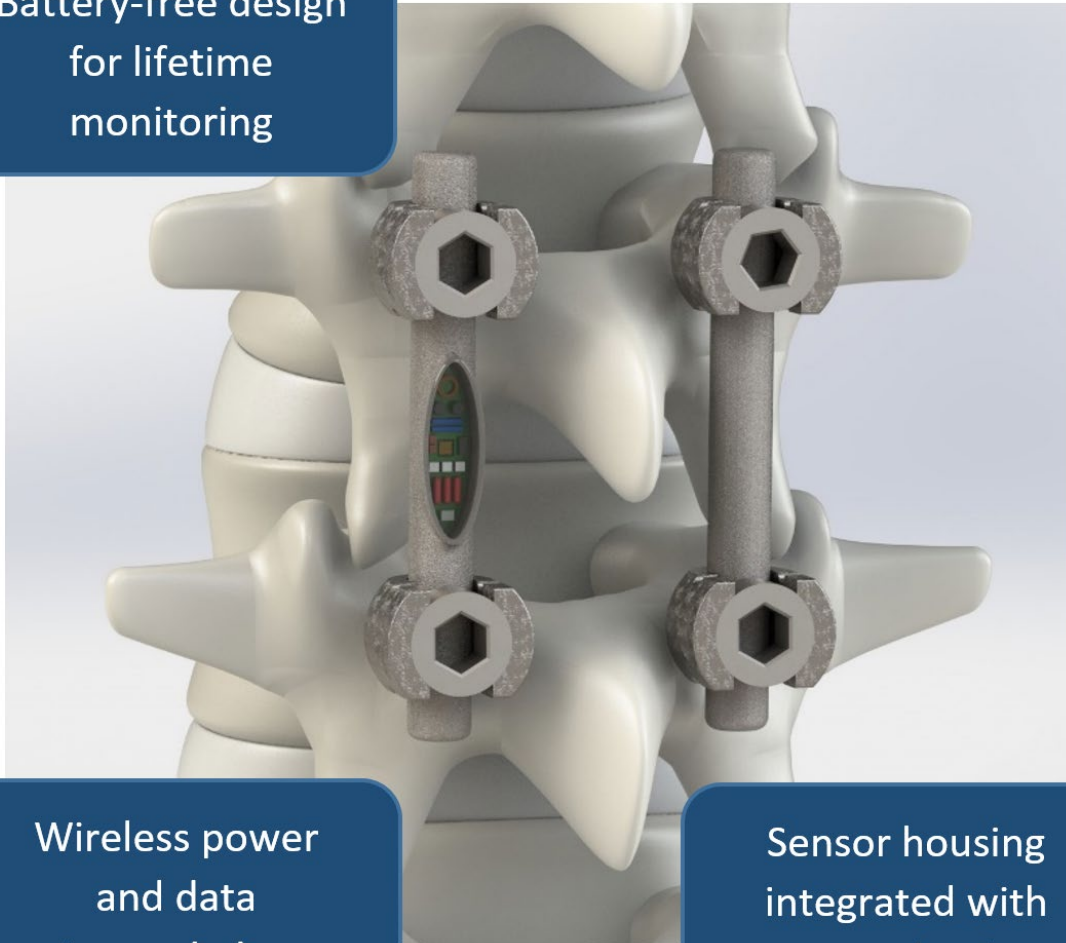
Challenges of Spinal Fusion

- **1M fusion surgeries per year in US**
(290k lumbar, 265k cervical, 352k interbody, 29k scoliosis)
- **Increased 143% since 2011**
- **Post-surgical = \$100k US per person**
- **Prolonged disability of 4-6 months**
- **Current x-ray method requires >16 wk**
- **Need a faster, more accurate method for assessing that's independent of x-rays**
- **Wireless implantable sensor based on strain**



Diagnostic, Implantable Sensor System for Spinal Fusion

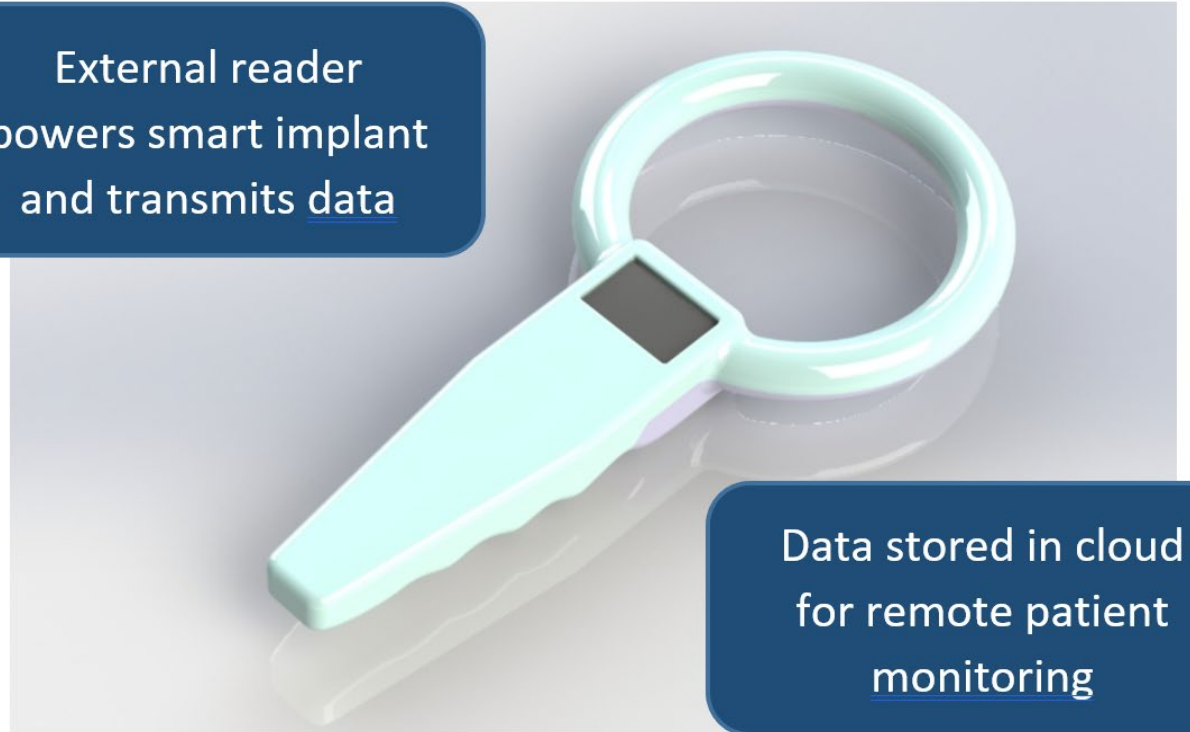
Battery-free design
for lifetime
monitoring



Wireless power
and data
transmission

Sensor housing
integrated with
spinal rod

External reader
powers smart implant
and transmits data



Data stored in cloud
for remote patient
monitoring