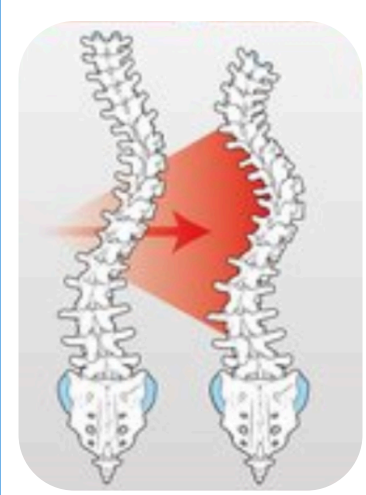


Fast-Tracking The Road To Scoliosis Surgery

Translating Spine Research into a Clinical Service Model to Prioritise Care for Adolescent Idiopathic Scoliosis

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Adolescent Idiopathic Scoliosis (AIS)

Background	Challenge	Aim
AIS affects 2–4% of children, and many go on to need surgical correction. By identifying those who will deteriorate rapidly while awaiting surgery, we can provide better, safer care.	Increasing waitlist pressures make high-risk patients difficult to identify, allowing progression of the curve that increases operative complexity, costs, and complication risk.	To implement a risk-stratified surveillance model using MRI biomarkers and clinical characteristics to prioritise monitoring and surgical access for AIS patients.

Methods

Retrospective review of 464 AIS surgical patients (2014–2024). Analysed 71 patients with prolonged wait times and sufficient imaging.

Identify Predictors of Scoliosis Progression

- Skeletal immaturity
- Proximity to menarche
- Severe Curvature size & at a younger age
- Male Sex
- MRI apical vertebral rotation

Develop a risk-stratification model & implemented targeted MRI access and waitlist surveillance for high-risk patients. Multidisciplinary engagement across orthopaedics, radiology and research teams.

Intervention

Proactive Waitlist Management

- Identify high-risk patients early
- Prioritise pre-operative MRI
- Implement targeted clinical surveillance
- Evidence-based surgical prioritisation

Key Outcomes

- Identified patients most vulnerable to scoliosis progression
- Improved imaging access & avoided unnecessary radiographs with radiation exposure.
- Enabled earlier clinical escalation
- Establish a scalable & reproducible framework for risk-informed waitlist management.

Risk-informed surveillance can improve safety, efficiency, and cost effectiveness in AIS waitlist management

Lessons

- Data surveillance of surgical waitlists can drive improvement.
- Supporting clinician-led research and fostering multidisciplinary collaboration are critical enablers of improvement.

Future Directions

- Comparatively evaluating surgical outcomes associated with scoliosis progression.
- Refining thresholds for surgical prioritisation.
- Exploring similar applications to other progressive diseases on surgical waiting lists.