Digital hemodynamic twins of arterial vasculature to improve clinical outcomes.

Dr. Sanjay R. Kharche. Research Scientist and Assist. Prof. Lawson Health Research Institute & Western University.

Clinical testing. Subjective decisions. Low treatment success.

Subject's geometry, physiology, VVUQ.

Alliance de recherche numérique du Canada Platforms: CFD, EP, image processing, VVUQ, Viz.

Objective actionable recommendation. Improved quality of life, higher treatment success.

Extensible CFD models.

Representative study: Some of the metrics that are part of the recommendation.

A. Imaging driven geometry.
B. FFR\textsubscript{CT} (primary clinical metric).
C. %age myocardium at risk.
D. Clotting risk.

What we need: I. HQPs (see Tim Hunter's poster). II. Health authority approvals. III. Deeper collaboration among CFD/data scientists and end users (clinicians, experimentalists), provider uptake. IV. Consortia of RSEs to accelerate the R&D.

Obesity, aging, micro-vascular dysfunction, device design.