

# Collaboration in research activities to improve patient outcomes after Total Knee Replacement

## BACKGROUND

Total Knee Arthroplasty (TKA) is a well-established and effective treatment for end-stage osteoarthritis. Individualised rehabilitation is an important factor that improves recovery for this surgery. However, no clinical guidelines currently exist to inform recovery pathways.

The inconsistent approach may be due to a general lack of data demonstrating the effectiveness of any specific pathway with many studies having used a single, traditional outcome measure such as reports of functional mobility, pain or quality of life. A need has been identified to consider patient satisfaction and social integration with these other traditional measures.

## DESIGN

The SuPer Knee research project is a prospective, observational study involving Total Knee Replacement (TKR) patients. Patient referrals are received from 11 Orthopaedic surgeons operating at 4 Ramsay sites across NSW including: Lake Macquarie Private Hospital, Gateshead, Kareena Hospital, Caringbah, Baringa Hospital, Coffs Harbour and Wollongong Private Hospital. The study is centrally managed by the Centre for Rehab Innovations in Newcastle NSW. The potential predictive capacity of a broad range of biopsychosocial factors on patient outcomes is being measured, with data collected from study participants within 4 weeks prior to surgery and 3 months following their TKR.

Physical assessments include: Pre-surgery hand grip strength, pre and post-surgery 30 second sit-to-stand and timed up and go tests. An extensive battery of psychosocial parameters are collected using a number of validated self-reported tools to evaluate mood, pain catastrophising, committed action and resilience. In addition, lifestyle factors including social support, physical activity, education, employment status, sleep quality, diet, alcohol consumption and smoking behaviours were determined prior to surgery. Participants level of expectation of surgery and their satisfaction of outcomes achieved are evaluated. In addition, patient reported outcome measures (PROMS) including the WOMAC and SF12 Physical and Mental Quality of Life, are undertaken prior to and at 3 months post-surgery.

Additional data regarding concomitant medications, anaesthetic agents, rurality, body mass index, the anaesthetist ASA score and length of hospital stay, are derived from medical chart reviews at each participating study site.

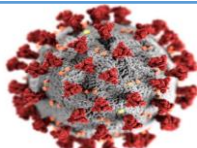
## OUTCOMES

Data collected from 1050 patients will be used to develop an advanced, comprehensive clinical decision-making support tool for the delivery of efficient, personalized rehabilitation.

## THE PLAN

- Consent form paper-based
- Participant questionnaires primarily paper-based
- Face-to-face physical assessments by SuPer Knee Research Assistant

## THE CHALLENGE

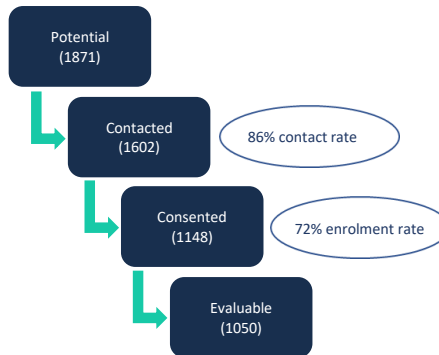


## THE SOLUTION

- Option for e-consent
- Patient portal for online questionnaires refined to become more user-friendly
- Video calls run by research staff with patients in their own homes to observe (and time) their undertaking of the 30 second chair Sit-to-Stand and Time Up and Go assessments
- Grip Strength assessments were incorporated into Pre-op Clinic visits or undertaken on DOS by SuPer Knee Research Assistant or Day Surgery admission staff (LMPH only)



## RECRUITMENT: November 2019 – June 2022



## KEYS TO SUCCESS

- ✓ SuPer Knee Research Nurse onsite
- ✓ Assistance with re-design of study in response to COVID restrictions
- ✓ Facilitation of process to locate potential participants
- ✓ Continuation of recruitment throughout periods of lockdown
- ✓ Highest recruitment number to study
- ✓ Development of process to obtain Grip Strength at Pre-operative Clinic or Day Centre

Study Title: Understanding and predicting recovery in patients undergoing total knee replacement (SuPer Knee)  
Principle Investigator: Professor Michael Nilsson, Director, CRI  
Funding for the SuPer Knee study was provided by a research grant from Ramsay Hospital Research Foundation



## A SILVER LINING – the patient experience

- Many of the older patients embraced a technology previously unfamiliar to them
- Improved study access for out-of-towners  
“Because of COVID, it gave me something different to experience”  
“It was satisfying to be able to contribute in some small way”



## INTERIM DEMOGRAPHIC SUMMARY

Feature	N*	
Age at Surgery	881	Range: 44 – 92 years, Mean: 68 years
Sex	952	50% female
BMI	763	Median: 31 Range: 17-60, Mean: 32
Rurality of home address	951	Metropolitan areas: 711 (75%) Regional centres: 35 (4%) Large rural towns: 51 (5%) Medium rural towns: 71 (8%) Small rural towns: 83 (9%)
Highest level of education reached	856	Primary school: 8 (1%) High school: 440 (51%) Diploma: 218 (25%) Undergraduate degree: 96 (11%) Postgraduate degree: 94 (11%)
Employment status	761	Retired: 439 (58%) Employed: 224 (29%) Other: 59 (8%) Home duties: 27 (4%) Unemployed: 12 (2%)
Surgery type	764	Unilateral TKR: 674 (88%) Bilateral TKR: 90 (12%)
Diagnosis	761	Osteoarthritis: 757 (99%) Rheumatoid arthritis: 3 (0.4%) Other: 1 (0.1%)

## ACKNOWLEDGEMENTS

