

## Summary of research proposal LROI



### **Title:**

The Epidemiology of Antibiotic Loaded Bone Cement use in Primary Total Knee Arthroplasty among countries in Europe, North America, and Oceania - A register based international comparative study

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### **Abstract:**

In an attempt to reduce the risk of periprosthetic joint infection (PJI) following joint arthroplasty surgery, antibiotic-loaded bone cement (ALBC) and systemic antibiotic prophylaxis has been used over the last five decades. However, the practice in use of ALBC as well as systemic antibiotic prophylaxis varies geographically in the world. For instance, ALBC is a standard practice in many European countries today, particularly in Scandinavia, whereas in some other European countries and the USA, the use of ALBC is still controversial. Overall, the current evidence on the efficacy of ALBC as well as systemic antibiotic prophylaxis in reducing the risk PJI following primary total joint arthroplasty is insufficient to reach an international consensus.

Currently, the Norwegian Arthroplasty Register is conducting a multicenter Register-based Randomized Controlled non-inferiority Trial (RRCT) on the effect of ALBC versus plain bone cement use in primary TKA, hence, called the ALBA trial. This trial, however, does not assess whether or not the effect of ALBC varies with type/dose/contents of antibiotics in bone cement and bone cement brands and it do not assess the effect of systemic antibiotic.

The primary aim of this comparative study is to investigate the international differences in use of ALBC and systemic antibiotic prophylaxis in primary TKA.

This is a study based on primary TKA surgery data from different regional/national joint arthroplasty registries in Europe, North America, and Oceania (2010-2020). The data will be identified from the respective registries using a distributed health data network. Both fully and hybrid cemented TKA with primary osteoarthritis diagnosis will be included. The primary outcome will be revision due to infection. A meta-analysis of survival probabilities will be performed with use of a mixed-effects model.

The results from this comparative study could supplement the ALBA trial findings and be a base to conduct future RRCT study on related issues.

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