

# Orthopaedic surgery in Uganda - Trauma, Infection and Cancer

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 18/02/2025	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
<b>Last Edited</b> 11/02/2025	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Orthopaedic trauma, infection and cancer present significant challenges in low- and middle-income countries (LMICs) like Uganda. Trauma-related fractures are a leading cause of disability and economic strain, while pathological fractures from malignancies or infections, such as osteomyelitis, further increase healthcare demands. Sarcomas are a group of often highly malignant cancers, and the patients accumulate in specialised orthopaedic centres. Despite the growing burden, data on treatment outcomes and barriers to orthopaedic care in Uganda remain scarce. This study investigates the management of long bone fractures in Uganda, focusing on traumatic and pathological fractures caused by infections and malignancies. Key objectives include identifying treatment delays, comparing surgical and non-surgical care, and evaluating outcomes and complications. It also explores barriers to care for pathological fractures and current sarcoma management practices. This study will provide critical insights into orthopaedic fracture management in Uganda, identifying gaps and barriers to care. The findings aim to guide clinical interventions, optimize treatments, and improve resource allocation in LMICs.

### Who can participate?

Any individual with a traumatic or pathological fracture, or with sarcoma, and who present to Mulago National Referral Hospital or Jinja Regional Referral Hospital in Uganda can participate in the study.

### What does the study involve?

The study includes six sub-studies:

1. Traumatic Fractures: Prospective cohort study on treatment practices for major traumatic fractures.
2. Pathological Fractures: Prospective cohort study comparing surgical and non-surgical management and outcomes.
3. Barriers to Care: Qualitative study using interviews to identify delays in care for pathological fractures.
4. Sarcoma Management: Retrospective cohort study on patterns, treatments, and outcomes for sarcoma patients.
5. Vascular injuries in patients with traumatic fractures: Prospective cohort study on vascular injury management in major fractures.

6. Plastic surgery for open fractures: Prospective study on reconstructive surgery outcomes for soft tissue deficits in open fractures.

Studies 1, 4, 5, and 6 involve the use of routine data collection in the hospital and no additional patient contact.

Study 2 includes data collection at the hospital at the time of presentation as well as follow-up after 3 months. This involves an interview, physical examination and direct contact with the research team.

Study 3 is a qualitative study in which persons with pathological fractures can participate. This involves participating in an interview about the condition, the treatment, barriers to care and possible facilitating factors to receive care. The interview will be carried out by members of the research team and it will be audio recorded.

Data collection will evaluate treatment delays, complications, functional outcomes, quality of life, and survival.

What are the possible benefits and risks of participating?

The study does not include any additional investigations or surgical procedures outside of what is the routine at the respective hospital. Therefore, the physical risks introduced by the study are minimal. The potential benefits of participating for the individual are also limited due to the observational nature of this study. The patients with pathological fractures who participate will possibly have access to more detailed information about their condition and thereby, their level of knowledge about their condition could improve as a result of participating in the study.

Where is the study run from?

The study will be run at two public hospitals in Uganda: Mulago National Referral Hospital, and Jinja Regional Referral Hospital.

When is the study starting and how long is it expected to run for?

January 2022 to December 2025. Data collection will run for a total of 6 months during 2025.

Who is funding the study?

The Swedish Research Council

Who is the main contact?

Dr Jenny Löfgren, [jenny.lofgren@ki.se](mailto:jenny.lofgren@ki.se)

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

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## **Additional identifiers**

## **Study information**

### **Scientific Title**

Orthopaedic trauma, infections and cancer care in Uganda - disease panorama, management and barriers to care

### **Acronym**

OTIC

### **Study objectives**

The project consists of six substudies. The hypotheses of these are outlined below.

#### **Study I: Treatment of Major Traumatic Fractures in Uganda**

1. The proportion of patients with major long bone fractures receiving definitive surgical treatment in Uganda is lower compared to high-income countries (HICs).
2. Postoperative complications, such as infections and malalignment, occur at a higher rate in Uganda compared to high-income countries due to resource limitations and delayed interventions.

#### **Study II: Treatment of Pathological Fractures of Long Bones in Uganda**

1. The proportion of patients with pathological fractures receiving definitive limb-preserving surgical care is low due to healthcare and financial barriers.
2. Patients who receive delayed surgical treatment for pathological fractures have worse functional outcomes and quality of life compared to those treated promptly.

#### **Study III: Health-Seeking Behavior for Pathological Fractures**

1. Barriers such as limited healthcare access, financial constraints, and lack of knowledge delay patients from seeking timely care for pathological fractures.
2. Reducing delays in assessment and treatment can improve outcomes for patients with metastatic bone disease and pathological fractures.

#### **Study IV: Exploring Sarcoma Surgery in Uganda**

1. Most patients presenting with sarcomas in Uganda have advanced disease at diagnosis, limiting curative treatment options.
2. Survival outcomes are significantly poorer for patients managed conservatively or with amputation compared to those receiving limb-preserving surgical care.

#### **Study V: The Role of Vascular Surgery in Patients with Major Traumatic Fractures**

1. Vascular injuries are underdiagnosed in patients with major traumatic fractures in low-resource settings.

2. Timely detection and appropriate management of vascular injuries significantly reduce rates of amputation and mortality in patients with major traumatic fractures.

Study VI: The Role of Reconstructive Plastic Surgery in Patients with Major Traumatic Fractures

1. The availability and use of reconstructive procedures for wound closure reduce rates of non-union, infections, and amputations in patients with open fractures.

2. Patients undergoing reconstructive procedures experience shorter time to wound closure and better functional outcomes compared to those managed without such procedures.

### **Ethics approval required**

Ethics approval required

### **Ethics approval(s)**

approved 10/01/2025, Uganda Christian University Research Ethics Committee (Plot 67-173, Bishop Tucker Road, Mukono, -, Uganda; +256(0)312 350 885; uncstuganda@gmail.com), ref: UCUREC-2024-1001

### **Study design**

Mixed-methods study carried out in 2 hospitals

### **Primary study design**

Observational

### **Study type(s)**

Other, Quality of life, Treatment

### **Health condition(s) or problem(s) studied**

Traumatic fractures, pathological fractures, sarcoma

### **Interventions**

Patients who present with traumatic fractures, pathological fractures and sarcoma will be included in the study. Information about their condition and management, as well as in-hospital outcomes, will be collected for all. The study does not include running additional tests or investigations, only information that is routinely collected for patients with these conditions will be included. Study participants with pathological fractures will also be followed up after 3 months regarding their level of function and quality of life.

A qualitative study will also be carried out in parallel with the above data collection. In this study, patients with pathological fractures due to infection or metastatic bone disease will be included. They will be interviewed in English or a local language and the interview will be recorded. The questions are about their condition, how they have sought care and how they received care. It aims to identify barriers to care for this condition and to also identify facilitating factors.

### **Intervention Type**

Other

### **Primary outcome(s)**

Surgical versus non-surgical management of patients with traumatic fractures, pathological fractures and sarcoma, defined as the number of patients undergoing definitive surgery for any of the above conditions divided by the total number of patients with the above conditions during their hospital stay, measured using hospital-based information at one time point

### **Key secondary outcome(s)**

1. Postoperative complications measured using hospital-based information on physical examinations during the time of hospitalisation
2. Functional outcomes and quality of life for patients with pathological fractures measured using physical examination and EuroQol 5D during hospitalisation and at follow-up after 3 months
3. Barriers and facilitating factors to care for persons with pathological fractures measured using qualitative deep interviews during hospitalisation or outpatient visit

### **Completion date**

31/12/2025

## **Eligibility**

### **Key inclusion criteria**

1. All patients with traumatic or pathological fractures or sarcoma are eligible for the quantitative part of the study.
2. Only patients with pathological fractures are eligible for the part of the study with 3-month follow-up and the qualitative study

### **Participant type(s)**

Patient, Health professional

### **Healthy volunteers allowed**

No

### **Age group**

All

### **Lower age limit**

0 years

### **Sex**

All

### **Key exclusion criteria**

Unwillingness to participate in the part of the study with pathological fractures

### **Date of first enrolment**

01/02/2025

### **Date of final enrolment**

31/12/2025

# Locations

## Countries of recruitment

Uganda

## Study participating centre

**Jinja Regional Referral Hospital**

Jinja

Uganda

PO Box 43 Jinja

## Study participating centre

**Mulago National Referral Hospital**

Haji Musa Kasule Road

Kampala

Uganda

P.O. Box 7062

# Sponsor information

## Organisation

Karolinska Institutet

## ROR

<https://ror.org/056d84691>

# Funder(s)

## Funder type

Research organisation

## Funder Name

Vetenskapsrådet

## Alternative Name(s)

Swedish Research Council, VR

## Funding Body Type

Government organisation

**Funding Body Subtype**

National government

**Location**

Sweden

## Results and Publications

**Individual participant data (IPD) sharing plan**

The data-sharing plans for the current study are unknown and will be made available at a later date

**IPD sharing plan summary**

Data sharing statement to be made available at a later date