

# Type 1 diabetes monitoring and ophthalmic complications in children in the Democratic République of Congo

<b>Submission date</b> 18/04/2024	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 16/05/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 16/05/2024	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

In the Democratic Republic of Congo (DRC), it's common for children with Type 1 diabetes to develop a condition called diabetic retinopathy (DR), which affects the eyes. However, we've found that by educating patients about managing their condition and using continuous glucose monitoring systems (CGM) that measure glucose levels under the skin, we can decrease the occurrence of DR in these children in the DRC.

### Who can participate?

This study includes children with Type 1 diabetes, with or without DR, from different diabetes clinics in Kinshasa managed by the Diocesan Medical Works Office (BDOM).

### What does the study involve?

This research compares various aspects of health, including biological markers, eye health, and overall physical well-being, as well as the effectiveness of managing Type 1 diabetes and the advancement of diabetic retinopathy (DR) in two groups of children. One group uses a continuous glucose monitoring system (CGM), specifically the Dexcom one, while the other group monitors their blood glucose levels through self-testing.

### What are the possible benefits and risks of participating?

During the study, all necessary monitoring equipment will be provided. They also get free medical tests and eye check-ups. They will receive guidance on managing their condition through patient therapeutic education.

### Where is the study run from?

University Clinic of Kinshasa (Democratic Republic of Congo)

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

October 2023 to December 2025

Who is funding the study?  
Investigator initiated and funded

Who is the main contact?  
Dr Christophe NTALU, ntachristophe1@gmail.com

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**Additional identifiers****Clinical Trials Information System (CTIS)**

Nil known

**ClinicalTrials.gov (NCT)**

Nil known

**Protocol serial number**

STUDY DT1/RD3

**Study information****Scientific Title**

Type 1 diabetes in children and diabetic retinopathy in the Congolese environment: clinical, therapeutic and preventive approach

**Study objectives**

The use of continuous glucose monitoring (CGM) sensors can improve diabetes management and the progression of microangiopathic complications (diabetic retinopathy) in children with type 1 diabetes in the city of Kinshasa in the Democratic Republic of the Congo

**Ethics approval required**

Ethics approval required

**Ethics approval(s)**

approved 25/10/2023, National Health Ethics committee of Democratic Republic of Congo (PNMLS Building, local 5 Kasa vubu, Kinshasa, -, Congo, Democratic Republic; +243 99 84 19 816; feli1munday@yahoo.fr), ref: 490/CNES/BN/PMMF/2023

**Study design**

Multicenter interventional randomized control trial

**Primary study design**

Interventional

## Study type(s)

Diagnostic, Prevention, Treatment, Efficacy

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

Type 1 diabetes, diabetic retinopathy

## Interventions

We sampled type 1 diabetic patients aged 5 to 18 years with early-stage diabetic retinopathy. After 1:3 randomization, two groups were formed: group 1 used continuous glucose monitoring (CGM) with Dexcom one sensor for glycemic control, measuring interstitial glucose, while group 2 utilized fingerstick glycemic control, measuring capillary glucose. Biological parameters (HbA1c and microalbuminuria) were followed up at months 1, 3, 6, 9, and 12, and diabetic retinopathy stage was assessed at months 1 and 12.

## Intervention Type

Device

## Phase

Not Applicable

## Drug/device/biological/vaccine name(s)

Dexcom ONE sensor

## Primary outcome(s)

1. Hb1Ac levels measured using the Siemens DCA VANTAGE analyzer at months 1, 3, 6, 9, and 12
2. Microalbuminuria measured using the Siemens DCA VANTAGE analyzer at months 1, 3, 6, 9, and 12
3. Stages of diabetic retinopathy measured using the 2016 standards for screening and surveillance of ocular complications in people with diabetes at months 1 and 12

## Key secondary outcome(s)

1. Glycemic average measured using the following standard formula:  $Hb1ac \text{ (in \%)} \times 1.59 - 2.59$  at months 1, 3, 6, 9, and 12
2. Time in range (TIR) measured using a Dexcom ONE MCG sensor at months 1, 3, 6, 9, and 12
3. Body mass index (BMI) calculated by dividing weight in kg by height in cm squared at months 1, 3, 6, 9, and 12

## Completion date

31/12/2025

## Eligibility

### Key inclusion criteria

1. Children under 18 years of age, of both sexes, followed in the six diabetic clinics in Kinshasa
2. Known diabetic with diabetic retinopathy
3. No-sickle cell children
4. Informed consent from parents

## Participant type(s)

Patient

**Healthy volunteers allowed**

No

**Age group**

Child

**Lower age limit**

5 years

**Upper age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Age over 18 years
2. Non-type1 diabetes mellitus
3. Non-consent

**Date of first enrolment**

04/03/2024

**Date of final enrolment**

30/12/2024

## **Locations**

**Countries of recruitment**

Congo, Democratic Republic

**Study participating centre**

**The six diabetic clinics of the city of Kinshasa (RDC)**

Kinshasa

Congo, Democratic Republic

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## **Sponsor information**

**Organisation**

University Clinic of Kinshasa

# Funder(s)

## Funder type

Other

## Funder Name

Investigator initiated and funded

# Results and Publications

## Individual participant data (IPD) sharing plan

Data sharing plans for the ongoing study are currently unknown and will be available at later date

## IPD sharing plan summary

Data sharing statement to be made available at a later date