

A study investigating a new form of insulin-deficient diabetes in children and young adults in Cameroon

Submission date 09/07/2026	Recruitment status Not yet recruiting	☒ Prospectively registered ☐ Protocol
Registration date 16/07/2026	Overall study status Ongoing	☐ Statistical analysis plan ☐ Results
Last Edited 10/07/2026	Condition category Nutritional, Metabolic, Endocrine	☐ Individual participant data ☒ Record updated in last year

Plain English summary of protocol

Background and study aims

Many children and young adults in sub-Saharan Africa who are diagnosed with type 1 diabetes appear to have a different form of diabetes that causes severe insulin deficiency but lacks the autoimmune features usually seen in type 1 diabetes. This study aims to understand this newly recognised condition and determine how it differs from classical type 1 diabetes.

Who can participate?

Children and young adults aged below 25 years diagnosed with type 1 diabetes within the previous year and healthy volunteers of similar age and sex.

What does the study involve?

Participants will complete questionnaires, physical examinations and blood tests. Individuals with diabetes will be followed for three years. Some participants will also undergo specialised pancreatic function testing and MRI scans.

What are the possible benefits and risks?

Participants may benefit from detailed diabetes assessment and closer follow-up. Risks include minor discomfort associated with blood sampling and inconvenience related to study visits and imaging procedures.

Where is the study run from?

Changing Diabetes in Children Clinic, Yaoundé Central Hospital (Cameroon)

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

September 2026 to December 2030

Who is funding the study?

1. Wellcome Trust Early Career Fellowship Award through the University of Exeter Medical School (UK)
2. Changing Diabetes in Children Programme Cameroon (in-kind support)

Who is the main contact?

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Additional identifiers

Internal reference number assigned by funder

Wellcome Trust Early Career Fellowship Award: 326531/Z/25/Z

Study information

Scientific Title

Prospective study of non-Autoimmune insuliN-Deficient diabetes subtype in young individuals in sub-saharan Africa

Acronym

PANDA

Study objectives

1. To characterise the clinical features and underlying pathophysiological mechanisms associated with the non-autoimmune insulin-deficient diabetes subtype (NAID) at diagnosis and to understand the early clinical course of the condition in children and young adults in Cameroon.
2. To determine the risk factors and clinical and metabolic characteristics that are associated with the non-autoimmune insulin-deficient diabetes subtype at diagnosis.
3. To assess for differences in the progression of beta-cell loss, glycaemic changes and rates of metabolic complications between non-autoimmune insulin-deficient diabetes and autoimmune type 1 diabetes over 3 years from diabetes diagnosis.
4. To determine the pancreatic architectural and functional (exocrine/endocrine) disorders associated with the non-autoimmune insulin-deficient diabetes subtype.

Ethics approval required

Ethics approval required

Ethics approval(s)

Approved 21/05/2026, Cameroon National Ethics Committee for Research on Human Health (Ministry of Public Health, Yaoundé, P.O Box 1937, Cameroon; +237 (0)690 99 67 81; setcominae@gmail.com), ref: 2026/05/1930/CE/CNERSH/SP/SPA

Primary study design

Observational

Secondary study design

Cohort study

Study type(s)

Health condition(s) or problem(s) studied

Clinically diagnosed type 1 diabetes, non-autoimmune insulin-deficient diabetes (NAID), autoimmune type 1 diabetes, diabetes heterogeneity in children and young adults

Interventions

Eligible participants will be identified from the national Changing Diabetes in Children (CDiC) registry and through consecutive recruitment of newly diagnosed cases attending the Yaoundé Central Hospital CDiC clinic.

At baseline, participants will undergo the following:

1. Informed consent procedures
2. Structured interviews collecting demographic, clinical, environmental and socioeconomic information
3. Physical examination and anthropometric measurements
4. Collection of blood, urine, stool and saliva samples for laboratory analyses
5. Assessment of diabetes complications

Participants with diabetes will subsequently be followed according to routine clinical review schedules approximately every 3 months for 3 years, with annual study assessments including glycaemic measurements, insulin requirements and beta-cell function evaluation.

A subset of participants will undergo the following:

1. Mixed Meal Tolerance Testing (MMTT) to assess endogenous insulin secretion

2. Magnetic Resonance Imaging (MRI) to evaluate pancreatic morphology and exocrine pancreatic function

No study interventions will be administered, and participants will continue receiving standard clinical care throughout the study.

Intervention Type

Other

Primary outcome(s)

1. Clinical and metabolic characteristics distinguishing NAID from autoimmune type 1 diabetes measured using islet autoantibody status (GADA, IA-2A, ZnT8A), random or stimulated C-peptide concentrations, clinical and anthropometric phenotyping, and pancreatic imaging measurements at baseline

Key secondary outcome(s)

1. Beta-cell function measured using C-peptide concentrations measured using direct electrochemiluminescence immunoassay on the 601 module of the Roche Cobas 8000 automated instrument (Roche Diagnostics, Mannheim, Germany) at baseline, 6 months, 1 year, 2 years, and 3 years
2. Glycaemic control measured using HbA1c at baseline, 1 year, 2 years, and 3 years
3. Severe hypoglycaemia and diabetic ketoacidosis (DKA) episodes measured using self report at 6 months, 1 year, 2 years, and 3 years
4. Pancreatic shape, volume and architecture measured using a standardised MRI protocol at 6 months
5. Beta-cell function during a mixed meal tolerance test measured using direct electrochemiluminescence immunoassay on the 601 module of the Roche Cobas 8000 automated instrument (Roche Diagnostics, Mannheim, Germany) at 6 months

Completion date

31/12/2030

Eligibility

Key inclusion criteria

1. Clinical diagnosis of type 1 diabetes made before 25 years of age
2. Diabetes duration less than 12 months at enrolment
3. Receiving insulin treatment only
4. Registered within the Changing Diabetes in Children (CDiC) programme in Cameroon
5. Able and willing to provide informed consent or assent with parental/legal representative consent where applicable

Healthy controls:

Age- and sex-matched individuals without diabetes and unrelated to diabetes participants

Healthy volunteers allowed

Yes

Age group

Mixed

Lower age limit

1 Years

Upper age limit

25 Years

Sex

All

Total final enrolment

0

Key exclusion criteria

1. Critically ill patients requiring urgent hospital admission or emergency intervention
2. Pregnant participants

Date of first enrolment

01/09/2026

Date of final enrolment

31/10/2029

Locations**Countries of recruitment**

Cameroon

Sponsor information**Organisation**

University of Exeter

ROR

<https://ror.org/03yghzc09>

Organisation

Recherche Santé et Développement (RSD) Institute, Cameroon

Organisation

Central Hospital of Yaoundé

ROR

<https://ror.org/00rx1ga86>

Funder(s)

Funder type

Funder Name

Wellcome Trust

Alternative Name(s)

Wellcome, WT

Funding Body Type

Private sector organisation

Funding Body Subtype

Trusts, charities, foundations (both public and private)

Location

United Kingdom

Funder Name

University of Exeter

Alternative Name(s)

Funding Body Type

Private sector organisation

Funding Body Subtype

Universities (academic only)

Location

United Kingdom

Funder Name

Changing Diabetes in Children Programme Cameroon (in-kind support)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available