

Uganda - Exposure Pathways Between Climate and Health 2022

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Identification

SURVEY ID NUMBER
LACUNA.2024.V1.0

TITLE
Exposure Pathways Between Climate and Health 2022

COUNTRY

Name	Country code
Uganda	UG

ABSTRACT

Understanding climate change and the associated impacts on human health and wellbeing is one of the major intractable challenges facing planning departments, policy makers and health researchers in the coming decades. Novel approaches such as data science techniques which use routine and big data sources will be critical in supporting this area of enquiry to evaluate the effect of climate change in communities.

Through our Implementation Network for Sharing Population Information from Research Entities (INSPIRE), we have access to African population health data from 11 Health Demographic and Surveillance Sites (HDSS). These data contain demographic vital registration outcomes such as births, Death and mortality collected over 10 years in rural and urban African communities. As part of the INSPIRE data standardization and governance, all HDSS data are transformed into the INSPIRE OMOP Common Data Model (CDM) to allow systematic analyses using common terminologies, vocabularies and coding schemes.

We plan to secure daily ground and remote sensor climate data from the respective national meteorological offices. Climate data will cover the areas/countries in which the HDSS sites are located and transformed into the INSPIRE CDM and used to investigate the effect of climate change on mortality and morbidity outcomes. The linked and labelled datasets will be made FAIR using standard platforms

including schema.org and governed through the INSPIRE secretariat. Project findings and outputs will be shared with national and sub-national policy-makers and researchers to inform effective data-driven decision making on mitigating the effects of climate change on health outcomes in Africa.

KIND OF DATA

Verbal autopsy

UNIT OF ANALYSIS

Individual, household interviews and climate data

Scope

TOPICS

Topic	Vocabulary	URI
Verbal autopsy	CIEL	Link
Cause of Death	MeSH	Link
ICD-10	MeSH	Link
Climate	MeSH	Link

Coverage

GEOGRAPHIC COVERAGE

The Iganga-Mayuge HDSS is located in the Iganga and Mayuge districts in Eastern Uganda. The demographic surveillance area consists of 65 villages spread over a 155 km square area with a population of 94,568 at the end of 2017. The average household size is five individuals, and the area is predominantly rural, with some peri-urban areas. Subsistence agriculture is the main occupation.

UNIVERSE

This data file includes information on deaths that occurred among residents within the Health and Demographic Surveillance System (HDSS) study area from January 1, 2007, to December 31, 2022. Causes of death were classified using the Inter-VA classification algorithm

Producers and sponsors

PRIMARY INVESTIGATORS

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PRODUCERS

Name	Abbreviation	Affiliation	Role
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Maureen Ngetich	MN	APHRC	Technical Assistance
Flavian Otieno	FO	APHRC	Technical Assistance
Agnes Karigga	Ak	APHRC	Technical Assistance

FUNDING AGENCY/SPONSOR

Name	Abbreviation	Role
Lacuna Fund	LF	Current Funder

OTHER IDENTIFICATIONS/ACKNOWLEDGMENTS

Name	Affiliation	Role
Iganga Mayuge Data Team	IMHDSS	Providing Data
INSPIRE-Network	INSPIRE	Providing IT Infrastructure for Data Processing

Sampling

SAMPLING PROCEDURE

All residents mortalities in the IMHDSS are included in the dataset

Data collection

DATES OF DATA COLLECTION

Start	End	Cycle
2007-01-01	2022-12-31	IMHDSS

DATA COLLECTION MODE

Verbal autopsy procedures (Interviewing surviving relatives or caregivers of the deceased to gather information about the

circumstances surrounding the death)

Access policy

CITATION REQUIREMENTS

D. Kajungu et al., "Cohort Profile: The Iganga-Mayuge Health and Demographic Surveillance Site, Uganda (IMHDSS, Uganda)," *Int. J. Epidemiol.*, vol. 49, no. 4, pp. 1082-1082g, Aug. 2020, doi: 10.1093/ije/dyaa064.

Disclaimer and copyrights

DISCLAIMER

The user of the data acknowledges that the original collector of the data and the relevant funding agencies bear no responsibility for the data's use or interpretation or inferences based upon it.

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Metadata production

DDI DOCUMENT ID

DDI.INSPIRE.LACUNA.2022.V1.0

PRODUCERS

Name	Abbreviation	Affiliation	Role
David Amadi	DA	LSHTM	DDI author
Dan Kajungu	DK	IMHDSS	Technical assistance in data collection and processing
Agnes Kiragga	AN	APHRC	Documentation of Study and Review of the metadata
Maureen Ng'etich	MN	APHRC	Documentation of Study and Review of the metadata
Flavian Otieno	FO	APHRC	Documentation of Study and Review of the metadata

Data Dictionary

Data file	Cases	Variables
IMHDSS_Mortality_Climate	5054	17

Data file: IMHDSS_Mortality_Climate

Cases: 5054

Variables: 17

Variables

ID	Name	Label	Question
V20	uniqueid	anonymized unique person identifier	
V21	gender	gender of the deceased	
V22	birthdate	date of birth	
V23	deathdate	date of death	
V24	age	age at death	
V25	birthyear	year of birth	
V26	deathyear	year of death	
V27	codmethod	method used to determine the cause of death	
V28	ICD10causeofdeaths	cause of death name as assigned in ICD-10 list	
V29	ICD10codes	ICD-10 code for the cause of death	
V30	GeneralCoD	cause of death category	
V31	causeofdeath	cause of death	
V32	climate_record_date	date of climate Data observation	
V33	avg_temperature	average temperature	
V34	max_temperature	maximum temperature	
V35	min_temperature	minimum temperature	
V36	precipitation	precipitation	

Total: 17

UNIQUEID: anonymized unique person identifier**Data file:** IMHDSS_Mortality_Climate**Overview**

Type: Continuous Decimal: 0 Width: 12 Range: 1 - 5054 Format: Numeric

GENDER: gender of the deceased**Data file:** IMHDSS_Mortality_Climate**Overview**Valid: 5054 Invalid: 0
Type: Discrete Decimal: 0 Width: 12 Range: 1 - 2 Format: Numeric**Questions and instructions**

CATEGORIES

Value	Category	Cases	
1	Female	2423	47.9%
2	Male	2631	52.1%

BIRTHDATE: date of birth**Data file:** IMHDSS_Mortality_Climate**Overview**Valid: 5054 Minimum: 1896-08-04 Maximum: 2022-12-13
Type: Discrete Width: 11 Range: - Format: character**DEATHDATE: date of death****Data file:** IMHDSS_Mortality_Climate**Overview**Valid: 5054 Minimum: 2007-06-10 Maximum: 2022-12-13
Type: Discrete Width: 11 Range: - Format: character**AGE: age at death****Data file:** IMHDSS_Mortality_Climate**Overview**Valid: 5054 Invalid: 0 Minimum: 0 Maximum: 115 Mean: 24.378 Standard deviation: 31.519
Type: Continuous Decimal: 0 Width: 12 Range: 0 - 115 Format: Numeric

BIRTHYEAR: year of birth**Data file:** IMHDSS_Mortality_Climate**Overview**

Valid: 5054 Invalid: 0 Minimum: 1896 Maximum: 2022 Mean: 1989.454 Standard deviation: 32.41
 Type: Continuous Decimal: 0 Width: 12 Range: 1896 - 2022 Format: Numeric

DEATHYEAR: year of death**Data file:** IMHDSS_Mortality_Climate**Overview**

Valid: 5054 Invalid: 0
 Type: Discrete Decimal: 0 Width: 12 Range: 2007 - 2022 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category	Cases	
2007		4	0.1%
2008		162	3.2%
2009		737	14.6%
2010		543	10.7%
2011		496	9.8%
2012		398	7.9%
2013		430	8.5%
2014		322	6.4%
2015		313	6.2%
2016		327	6.5%
2017		110	2.2%
2018		125	2.5%
2019		249	4.9%
2020		294	5.8%
2021		439	8.7%
2022		105	2.1%

CODMETHOD: method used to determine the cause of death**Data file:** IMHDSS_Mortality_Climate**Overview**

Valid: 5054 Invalid: 0
 Type: Discrete Decimal: 0 Width: 12 Range: 1 - 2 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category	Cases	
1	Interva	1230	24.3%
2	Physician	3824	75.7%

ICD10CAUSEOFDEATHS: cause of death name as assigned in ICD-10 list

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0

Type: Discrete Decimal: 0 Width: 12 Range: 1 - 63 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category	Cases	
1	Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances, sports and athletics area	10	0.2%
2	Acute renal failure, unspecified	136	2.7%
3	Acute upper respiratory infection, unspecified	58	1.1%
4	All other unspecified symptoms, signs and syndromes	18	0.4%
5	Assault by other specified means, home	105	2.1%
6	Bacterial sepsis of newborn, unspecified	11	0.2%
7	Calcification and ossification of muscles associated with burns	6	0.1%
8	Carcinoma in situ of breast, unspecified	5	0.1%
9	Cardiovascular disease, unspecified	51	1%
10	Cerebrovascular disease, unspecified	14	0.3%
11	Chronic meningitis	63	1.2%
12	Congenital malformation of brain, unspecified	36	0.7%
13	Contact with other specified venomous animals, unspecified place	16	0.3%
14	Delayed and secondary postpartum haemorrhage	30	0.6%
15	Dengue fever(classical dangué)	3	0.1%
16	Drowning and submersion, undetermined intent, home	11	0.2%
17	Dysplasia of cervix uteri, unspecified	19	0.4%
18	Epilepsy, unspecified	32	0.6%
19	Extremely low birth weight	365	7.2%
20	Falling, jumping or pushed from a high place, undetermined intent, home	32	0.6%
21	Febrile convulsions	48	0.9%

22	Fresh Still birth	353	7%
23	Functional diarrhoea	207	4.1%
24	HIV disease resulting in multiple diseases classified elsewhere	387	7.7%
25	HIV disease resulting in Pneumocystis carinii pneumonia	33	0.7%
26	Hypertensive heart disease with (congestive) heart failure	250	4.9%
27	Hypoplasia and dysplasia of lung	8	0.2%
28	Insulin-dependent diabetes mellitus without complications	144	2.8%
29	Intentional production or feigning of symptoms or disabilities, either physical or psychological [factitious disorder]	1	0%
30	Intentional self-harm by other specified means, home	17	0.3%
31	Intrahepatic bile duct carcinoma	48	0.9%
32	Iron deficiency anaemia secondary to blood loss (chronic)	129	2.6%
33	Measles without complication	26	0.5%
34	Moderate pre-eclampsia	8	0.2%
35	Moderate protein-energy malnutrition	156	3.1%
36	Neonatal Pneumonia	3	0.1%
37	Obstetrical tetanus	32	0.6%
38	Obstructed labour due to face presentation	2	0%
39	Other abortion, complete or unspecified, complicated by delayed or excessive haemorrhage	8	0.2%
40	Other and unspecified abdominal pain	125	2.5%
41	Other and unspecified cirrhosis of liver	98	1.9%
42	Other and unspecified communicable diseases	41	0.8%
43	Other and unspecified external causes of death	7	0.1%
44	Other and unspecified maternal causes	14	0.3%
45	Other and unspecified noncommunicable diseases	40	0.8%
46	Other congenital malformations of cardiac chambers and connections	258	5.1%
47	Other forms of acute ischaemic heart disease	16	0.3%
48	Other parasitologically confirmed malaria, not elsewhere classified	858	17%
49	Other sepsis	13	0.3%
50	Other specified disorders of central nervous system	27	0.5%
51	Other specified neoplasms of uncertain or unknown behaviour of lymphoid, haematopoietic and related tissue	34	0.7%
52	Other specified pulmonary heart diseases	3	0.1%
53	Person injured in collision between other specified motor vehicles (traffic)	149	2.9%
54	Pneumonia due to other specified infectious organisms	117	2.3%
55	Poisoning by and exposure to other and unspecified chemicals and noxious substances, undetermined intent, home	32	0.6%
56	Puerperal sepsis	5	0.1%
57	Severe birth asphyxia	208	4.1%
58	Sickle-cell anaemia with crisis	5	0.1%

59	Stroke, not specified as haemorrhage or infarction	48	0.9%
60	Tetanus neonatorum	17	0.3%
61	Tuberculosis of lung, confirmed by sputum microscopy with or without culture	50	1%
62	Tuberculosis of other specified organs	5	0.1%
63	Whooping cough due to Bordetella pertussis	3	0.1%

ICD10CODES: ICD-10 code for the cause of death

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0

Type: Discrete Decimal: 0 Width: 12 Range: 1 - 63 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category
1	A150
2	A17-A19; A20-A38; A42-A89; B00-B19; B25-B49; B55-B99
3	A188
4	A33
5	A34
6	A370
7	A41
8	A90
9	B059
10	B206
11	B227
12	B538
13	C221
14	D059
15	D477
16	D500
17	D55-D89; E00-E07; E15-E35; E50-E90; F00-F99; G06-G09; G10-G37; G50-G99; H00-H95; J30-J39; J47-J99; K00-K31; K35-K38; K40-K93; L00-L99; M00-M99; N00-N16; N20-N99; R00-R09; R11-R94
18	D57
19	E109
20	E440
21	F681
22	G031

23	G409
24	G968
25	I110
26	I248
27	I278
28	I516
29	I64
30	I679
31	J069
32	J168
33	K591
34	K746
35	M613
36	N179
37	N879
38	O01-O02; O20-O45; O47-O62; O68-O70; O73-O84; O86-O99
39	O056
40	O140
41	O642
42	O722
43	O85
44	P070
45	P210
46	P23-P25
47	P369
48	P95
49	Q049
50	Q208
51	Q336
52	R00-R99
53	R104
54	R560
55	S00-T99; W20-W64; W75-W99; X50-X59; Y10-Y98
56	V877
57	X279
58	X443
59	X830
60	Y080
61	Y190

62	Y210
63	Y300

GENERALCOD: cause of death category

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0

Type: Discrete Decimal: 0 Width: 12 Range: 1 - 7 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category	Cases	
1	Anaemia	150	3%
2	Communicable diseases, Perinatal and nutritional causes	2870	56.8%
3	direct maternal causes	124	2.5%
4	External causes	386	7.6%
5	Neonatal death	138	2.7%
6	non communicable diseases	1368	27.1%
7	Still birth	18	0.4%

CAUSEOFDEATH: cause of death

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0

Type: Discrete Decimal: 0 Width: 12 Range: 1 - 103 Format: Numeric

Questions and instructions

CATEGORIES

Value	Category
1	Accid drowning and submersion
2	Accid expos to smoke fire & flame
3	Accid fall
4	Accid poisoning & noxious subs
5	Accidental poisoning
6	Acute abdomen
7	Acute abdominal conditions

8	Acute cardiac disease
9	Acute resp infect incl pneumonia
10	AIDS
11	AIDS and Pulmonary tuberculosis
12	All other forms of tuberculosis
13	All other perinatal causes
14	All other specified acute abdominal conditions
15	All other specified acute febrile illness
16	All other specified Acute Respiratory Infections
17	All other specified cardiovascular disorders
18	All other specified CNS disorders
19	All other specified communicable diseases
20	All other specified diarrhoeal diseases
21	All other specified liver diseases
22	All other specified neoplasms
23	All other specified noncommunicable diseases
24	All other specified symptoms, signs and syndromes
25	Anaemia
26	Animal Bite or Attack
27	Ante or postpartum haemorrhage
28	Assault
29	Asthma
30	Birth asphyxia
31	Birth injury and or asphyxia
32	Burns
33	Carcinoma breast
34	Carcinoma cervix or uterus
35	Carcinoma of gastrointestinal tract
36	Carcinoma of the lung
37	Central nervous system disorders
38	Cerebrovascular disease
39	Chronic obstructive pulmonary disease
40	Congenital abnormalities
41	Congenital malformation
42	Congestive cardiac failure
43	Contact with venomous plant/animal
44	Dengue fever
45	Diabetes
46	Diabetes mellitus

47	Diarrhoeal diseases
48	Drowning
49	Eclampsia
50	Epilepsy
51	Falls
52	Fresh stillbirth
53	HIV/AIDS related death
54	Homicidal injuries
55	Hypertension
56	Intentional injuries
57	Ischaemic heart disease
58	Liver cirrhosis
59	Macerated stillbirth
60	Malaria
61	Malnutrition
62	Measles
63	Meningitis
64	Meningitis and encephalitis
65	Neonatal pneumonia
66	Neonatal sepsis
67	Neonatal tetanus
68	Obstructed labour
69	Other and unspecified cardiac dis
70	Other and unspecified external CoD
71	Other and unspecified infect dis
72	Other specified direct maternal causes
73	Other specified unintentional injuries
74	Other transport accident
75	Pertussis
76	Pneumonia
77	Pregnancy-related sepsis
78	Prematurity
79	Prematurity and or low birth weight
80	Puerperal sepsis
81	Pulmonary tuberculosis
82	Renal disorders
83	Renal failure
84	Road traffic accident
85	Sepsis (non-obstetric)

86	Severe malnutrition
87	Sickle cell with crisis
88	Specified abortion
89	Specified ante or postpartum haemorrhage
90	Specified renal disorders
91	Still birth
92	Stroke
93	Suicidal injuries
94	Tetanus
95	Unspecified Acute febrile illness
96	Unspecified Acute Respiratory Infections
97	Unspecified cardiovascular disorders
98	Unspecified communicable diseases
99	Unspecified direct maternal causes
100	Unspecified liver disease
101	Unspecified neoplasms
102	Unspecified noncommunicable causes
103	Unspecified TB AIDS

CLIMATE_RECORD_DATE: date of climate Data observation

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Minimum: 2007-06-10 Maximum: 2022-12-13
 Type: Discrete Width: 11 Range: - Format: character

AVG_TEMPERATURE: average temperature

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0 Minimum: 18.853 Maximum: 27.019 Mean: 22.063 Standard deviation: 1.097
 Type: Continuous Decimal: 0 Width: 10 Range: 18.8528033 - 27.0191687 Format: Numeric

MAX_TEMPERATURE: maximum temperature

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0 Minimum: 20.714 Maximum: 34.193 Mean: 26.195 Standard deviation: 1.688
 Type: Continuous Decimal: 0 Width: 10 Range: 20.7142769 - 34.1927867 Format: Numeric

MIN_TEMPERATURE: minimum temperature

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0 Minimum: 15.019 Maximum: 21.85 Mean: 18.515 Standard deviation: 0.882
Type: Continuous Decimal: 0 Width: 10 Range: 15.0187781 - 21.849602 Format: Numeric

PRECIPITATION: precipitation

Data file: IMHDSS_Mortality_Climate

Overview

Valid: 5054 Invalid: 0 Minimum: 0 Maximum: 16.607 Mean: 1.542 Standard deviation: 1.673
Type: Continuous Decimal: 0 Width: 10 Range: 0 - 16.606523 Format: Numeric
