**Cohort Profile: The Kiang West Longitudinal Population Study (KWLPS) – a platform for integrated research and health care provision in rural Gambia.**

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**Tables 1-4**

**Table 1.** Summary statistics of the Kiang West Longitudinal Population Study (KWLPS) cohort in 2013 and The Gambia national data in comparison.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Kiang West** | **The Gambia** | **Unit** |
| Total population | 14,846 | 1,967,7092 | Inhabitants |
| Crude birth rate | 34.86 | 30.062 | Births per 1000 people |
| Total fertility rate | 5.50 | 3.732 | Babies per lifetime |
| Crude death rate | 6.40 | 7.172 | per 1000 people |
| Neonatal mortality rate | 23.44 | 223 | per 1000 births |
| Post neonatal mortality rate | 15.63 | 123 | per 1000 births |
| Infant mortality rate (<1y) | 39 | 343 | per 1,000 live births |
| Child mortality rate (1-4y) | 6 | 203 | per 1,000 live 1 year olds |
| Under five mortality (<5y) | 45 | 543 | per 1,000 live births |
| Crude rate of natural increase | 28.46 | 24.49 | per 1000 people  (Birth rate minus crude death rate) |
| In-migration rate | 89.86 | N/A | per 1000 people |
| Out-migration rate | 88.91 | N/A | per 1000 people |
| Life expectancy at birth (Female) | 73.46  (64.94, 81.98) | 63 (N/S)12 | years (CI95%) |
| Life expectancy at birth (Male) | 65.28  (58.71, 71.84) | 59 (N/S)12 | years (CI95%) |

N/A, not applicable; N/S, not specified

**Table 2.** Data collected in the Keneba Electronic Medical Records System (KEMReS) during each patient encounter.

|  |  |
| --- | --- |
| Data collection stage | General description of data stored |
| Reception | * Demographic data retrieved from KWDSS on arrival and updated if required * Type of clinic visit (Emergency, self-referred, follow-up, child welfare clinic, antenatal, research) |
| Triage | * Anthropometry data after double entry by trained staff:   + Weight (All ages)   + Height/Length (once above 25y)   + Head circumference (HC) (<3y)   + Skin fold thickness (SFT) (all ages)   + MUAC (<5y) * Vital signs and triage assessment data:   + Blood pressure, heart rate, respiratory rate, temperature, oxygen saturation   + Glasgow coma score   + WHO emergency signs (tick boxes)5   + WHO priority signs (tick boxes)5   + Clinical triage (Emergency/Priority/Routine) |
| Doctor/Nurse | * Vaccination record data (either given in the clinic or from infant welfare care) * Details of past medical history:   + All previous clinic visits since start of KEMRES   + All known medical conditions of importance   + Birth history, drug history, drug allergy history, family history   + Status of breast feeding (for all women 14-50y) * Present complaints (Tick boxes for all systems) plus free text for additional information * Physical examination details (combination of drop down lists and tick boxes for each body system); free text available for any further comments * Requested investigations – linked to laboratory * Diagnosis with associated ICD-10 code9; free text for specification or if diagnosis not available; tick boxes for ‘Well with complaint’, ‘Well without complaint’, ‘Routine child health examination’ * Drug prescriptions: alerts for drugs presented; drug doses, frequencies and durations recorded and set according to British National Formulary (BNF) guidelines10 Restrictions for particular drugs for certain patient groups, e.g. aspirin not available for children under 12y * Information on suggested discharge from clinic and follow-up:   + None   + Admission to observation room   + Admission to nutritional rehabilitation centre   + Referral for secondary/tertiary care * Information on planned review * Option for referral letter print out |
| Midwives | * Obstetric history (including data of last menstrual periods, previous pregnancies and modes of delivery) * Antenatal clinic visit (including fundal height measurements) * Delivery (including place, mode and time between rupture of membranes and start of labour) * Baby check (including congenital abnormalities, gestational age based on Dubowizc) * Postnatal (including any post partum bleeding) |
| Laboratory | * Details of all investigations available at MRC Keneba: blood film (thick/thin), blood glucose, sickle test, HIV test, HcG, VDRL, blood group, Sputum acid fast bacilli (AFB), Full blood count (FBC), blood culture (children only), urine analysis, stool examination; free text for additional information |
| Dispensary | * Check of doctor’s prescription * No data entry apart from a record of drugs actually issued |
| Check out | * No data entry * Check of whether all stages have been completed and investigations done and reviewed * No check out possible if clinic visit incomplete * Paper check out printed – for filing |

**Table 3.**Ten most common clinical diagnoses made per age group between January 2010 and July 2014 at the MRC Keneba clinic.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Age group** | **<1y** | | | **1-4y** | | | **5-9y** | | | **10-14y** | | | **15-19y** | | | **20-49y** | | | **>50y** | | |
| **Number of clinic visits per age group (% of total overall) a** | 9712 (10) | | | 16360 (17) | | | 8544 (9) | | | 9206 (10) | | | 7730 (8) | | | 24951 (27) | | | 17344 (18) | | |
| **Total number of diagnoses / reasons for visit per age group b** | 13058 | | | 21254 | | | 9828 | | | 10489 | | | 8913 | | | 30464 | | | 23890 | | |
|  |  | n | % |  | n | % |  | n | % |  | n | % |  | n | % |  | n | % |  | n | % |
| **10 most common diagnoses / reasons for visit per age group** | Common Cold | 3031 | 23 | Common Cold | 5379 | 25 | Common Cold | 1973 | 20 | Common Cold | 2005 | 19 | Common Cold | 1443 | 16 | Common Cold | 2733 | 9 | Hypertension | 6430 | 27 |
| Routine child examination | 1547 | 12 | Viral Gastroenteritis | 1612 | 8 | Skin infection | 659 | 7 | Abdominal Pain | 886 | 8 | Abdominal Pain | 761 | 9 | Unknown diagnosis | 1906 | 6 | Follow up examination | 1871 | 8 |
| Viral Gastroenteritis | 1537 | 12 | Pneumonia | 1299 | 6 | Abdominal Pain | 624 | 6 | Headache | 679 | 6 | Unknown diagnosis | 430 | 5 | Headache | 1809 | 6 | Common Cold | 1465 | 6 |
| Pneumonia | 908 | 7 | Follow up examination | 1215 | 6 | Pneumonia | 417 | 4 | Unknown diagnosis | 498 | 5 | Headache | 326 | 4 | Hypertension | 1647 | 5 | Backache | 1248 | 5 |
| Follow up examination | 901 | 7 | Intestinal helminthiasis | 1093 | 5 | Unknown diagnosis | 388 | 4 | Skin infection | 471 | 4 | Local skin infection | 297 | 3 | Backache | 1630 | 5 | Unknown diagnosis | 983 | 4 |
| Well without Complaint | 492 | 4 | Local skin infection | 1061 | 5 | Headache | 366 | 4 | Conjunctivitis | 316 | 3 | Toothache | 240 | 3 | Abdominal Pain | 1405 | 5 | Headache | 893 | 4 |
| Conjunctivitis | 447 | 3 | Cutaneous abscess | 926 | 4 | Conjunctivitis | 338 | 3 | Injury | 300 | 3 | Tonsillitis | 218 | 2 | Urinary tract infection | 1137 | 4 | Unspecified pain | 768 | 3 |
| Cutaneous abscess | 376 | 3 | Conjunctivitis | 703 | 3 | Follow up examination | 316 | 3 | Tonsillitis | 281 | 3 | Unspecified pain | 206 | 2 | Follow up examination | 1077 | 4 | Old Age | 693 | 3 |
| Local skin infection | 364 | 3 | Routine child examination | 605 | 3 | Injury | 275 | 3 | Sickle-cell disorders | 275 | 3 | Dysmenorrhoea | 198 | 2 | Unspecified pain | 1064 | 3 | Pneumonia | 692 | 3 |
| Marasmus | 330 | 3 | Impetigo | 605 | 3 | Intestinal helminthiasis | 242 | 2 | Plasmodium falciparum malaria | 265 | 3 | Plasmodium falciparum malaria | 195 | 2 | Epigastric Pain | 945 | 3 | Arthritis | 583 | 2 |

a Overall there were 93,847 clinic visits with b a total overall of 104,839 diagnoses made. Notes: Diagnoses are classified according to the WHO International Classification of Diseases (ICD) and stored in KEMReS using the ICD-10 coding system9. The diagnoses include follow up examinations (ICD-10 code Z09) and routine child welfare clinic examinations (ICD-10 code Z00.1).

**Table 4.** Data and samples collected as part of the Keneba Biobank.

|  |  |  |  |
| --- | --- | --- | --- |
|  | < 5 year olds | 5-18 year olds | >18 year olds |
| Questionnaire | n/a | education | education, assets, medication for diabetes and hypertension received outside the district |
| Phenotypes | weight, height, skinfold thickness, head circumference, mid-upper arm circumference | weight, height, body composition, blood pressure | weight, height, body composition, blood pressure |
| Field and laboratory analyses | malaria test, ZnPP, full blood count | ZnPP, glucose, blood pressure, full blood count | ZnPP, glucose, blood pressure, full blood count |
| Biological samples  collected | unfasted blood (4.0ml EDTA, 1.2ml serum) | fasted blood (4.9 EDTA, 1.2ml LH, 4.5 serum) and ~3ml urine | fasted blood (4.9 EDTA, 1.2ml LH, 4.5 serum) and ~3ml urine |
| Biological sample aliquots banked | whole blood, red blood cells, plasma (EDTA and LH), serum, DNA | whole blood, red blood cells, plasma (EDTA and LH), serum, DNA; urine (spun, unspun, acidified) | whole blood, red blood cells, plasma (EDTA and LH), serum, DNA, urine (spun, unspun, acidified) |

Notes: Weight in kg to the nearest 10g; height, head circumference and mid-upper arm circumference (MUAC) to the nearest 0.1cm; body composition by Tanita BC-418 MA analyser; blood pressure (Omron 705-CPII), fasting glucose by Accu Check (Roche Diagnostics); malaria rapid test (Standard diagnostics); zinc protoporphyrin (ZnPP) by Haematoflurometer (Aviv Biomedical); full blood count by Medonic M-series 3-part hematology analyzer (Boule Medical); acidified urine samples treated with concentrated hydrogen chloride.