





CLINICAL INFORMATION NETWORK

COMBINED HOSPITALS ROUTINE REPORT

April 2015 - May 2015

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# BACKGROUND

* Ministry of Health has made efforts to foster improved medical record keeping in clinical areas by providing and promoting the use of paediatric and newborn admission record forms.
* Recent research in Kenyan hospitals has shown that hospitals have challenges in providing quality data on inpatient workload, mortality and morbidity.
* Hospital data not often suitable or not used within the hospital to monitor quality of care provided to patients.
* To this end the Ministry of Health, in collaboration with KEMRI Wellcome Trust Research programme, the Kenya Paediatric Association and other partners, has developed a project to support improved collection and use of hospital data.
* Initial focus is on in-patients wards or units serving the sick newborns and sick children.
* Repeated audits and feedback will allow hospitals to monitor the quality of care they offer to children and facilitate the use of data in planning service delivery.

# DATA COLLECTION

* Data were collected from medical records of all patients admitted in the Paediatric ward (age & spectrum of diseases depend on the hospitals' organization). Data was collected at the time the patient is discharged from the ward to establish documentation of history, physical examination, diagnosis, laboratory investigations, treatment and discharge plans.
* Data were collected in an electronic tool- REDCap.
* Data were collected by a trained data clerk under close supervision by the KEMRI team and the hospital medical records department.
* Quality assurance was done by the KEMRI team.

# COLOUR KEYS

|  |  |  |
| --- | --- | --- |
|  | Excellent documentation | >90% |
|  | Good documentation | 80 - 90% |
|  | Some documentation | 60 - 79% |
|  | Poor documentation | <60% |

# HOSPITAL KEYS

## Table 1: Hospitals are represented using the following codes in the report

| Key | Hospital |
| --- | --- |
| H1 | Kiambu District Hospital |
| H2 | Machakos Level 5 Hospital |
| H3 | Mama Lucy Kibaki Hospital |
| H4 | Mbagathi District Hospital |
| H5 | Kerugoya District Hospital |
| H6 | Karatina District Hospital |
| H7 | Nyeri Provincial General Hospital |
| H8 | Kisumu East District Hospital |
| H9 | Kakamega Provincial General Hospital |
| H10 | Vihiga District Hospital |
| H11 | Busia District Hospital |
| H12 | Kitale District Hospital |
| H13 | Mbale Rural Health DC Hospital |
| H14 | Embu Provincial General Hospital |

GENERAL ANALYSES

This section presents general analysis on all patients

# SUMMARY

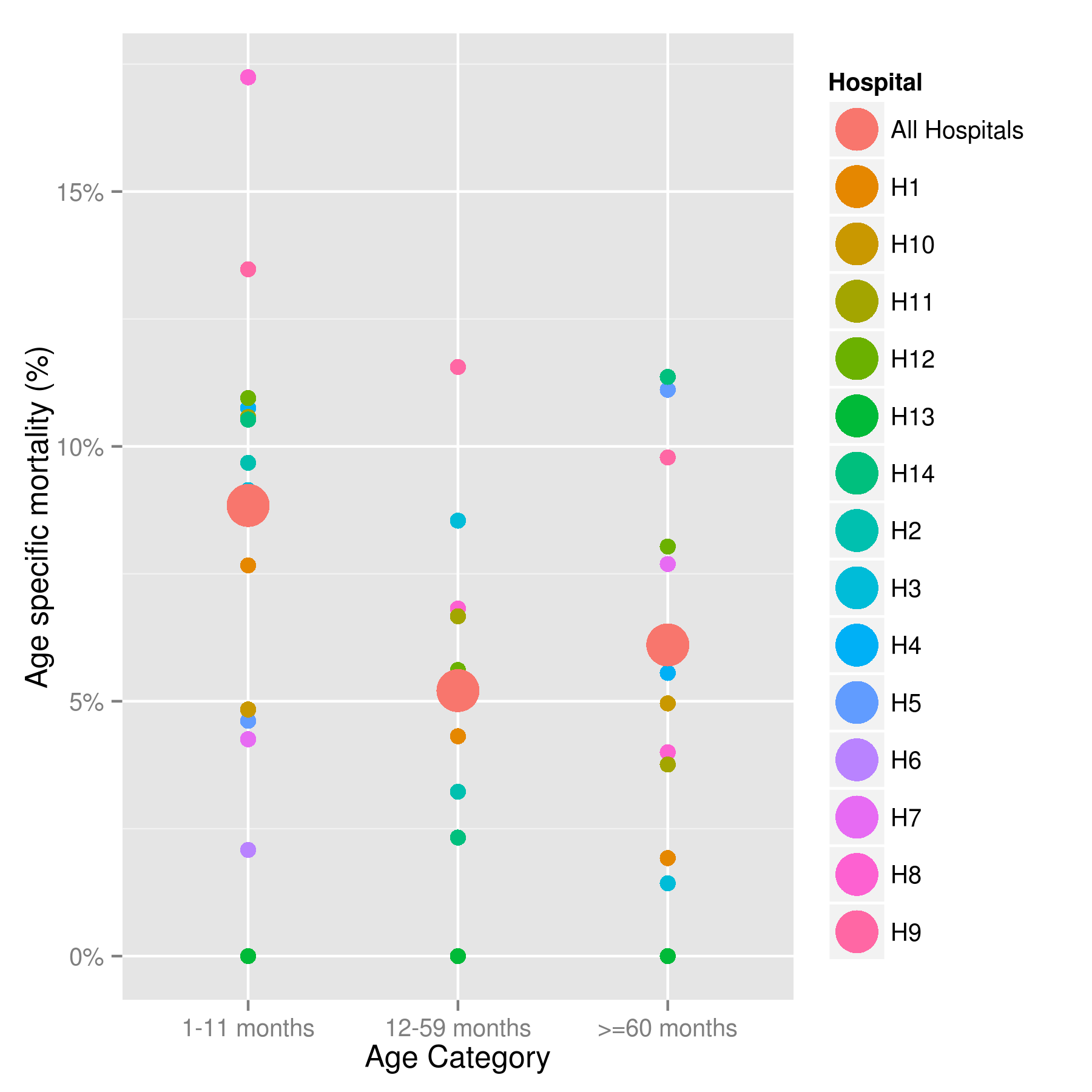
## Table 2: Summary - documentation of key items.

(Previous period ; Sep 2013 – Oct 2014. Current period ; Nov 2014 – Dec 2014)

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Weight | Previous | 39098/46549 (83.99%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4997/5874 (85.07%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gender | Previous | 46008/46549 (98.84%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 5845/5874 (99.51%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HIV Status | Previous | 13762/46549 (29.56%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 3361/5874 (57.22%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | Previous | 46361/46549 (99.6%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 5854/5874 (99.66%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WHZ / MUAC | Previous | 13368/46549 (28.72%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 2909/5874 (49.52%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

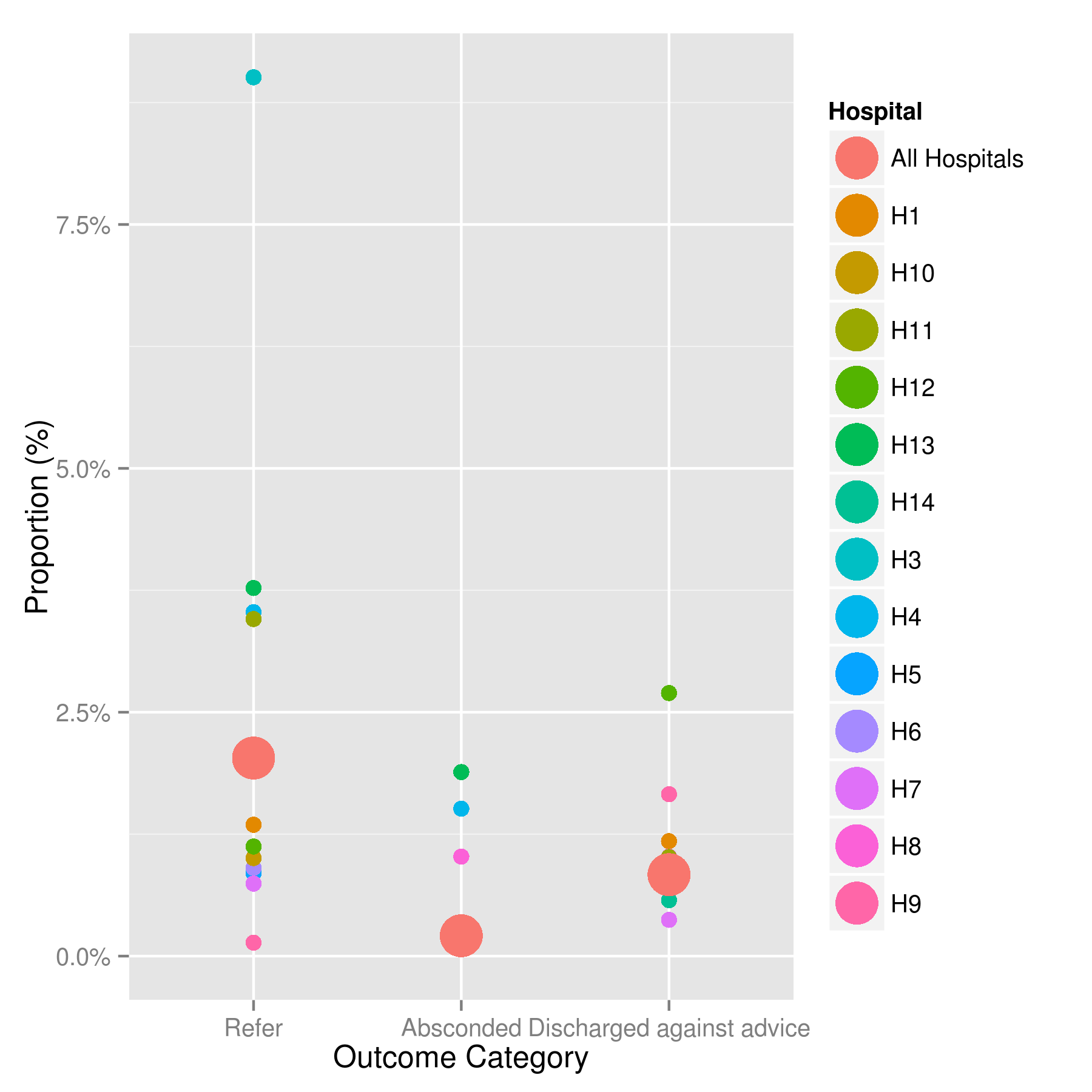
# OVERALL AGE SPECIFIC MORTALITY PROPORTION FOR DISCHARGES

## Figure 1: Mortality by age category (Nov 2014 – Dec 2014)



# OUTCOMES FOR CHILDREN WHOSE CASE RECORDS WERE REVIEWED

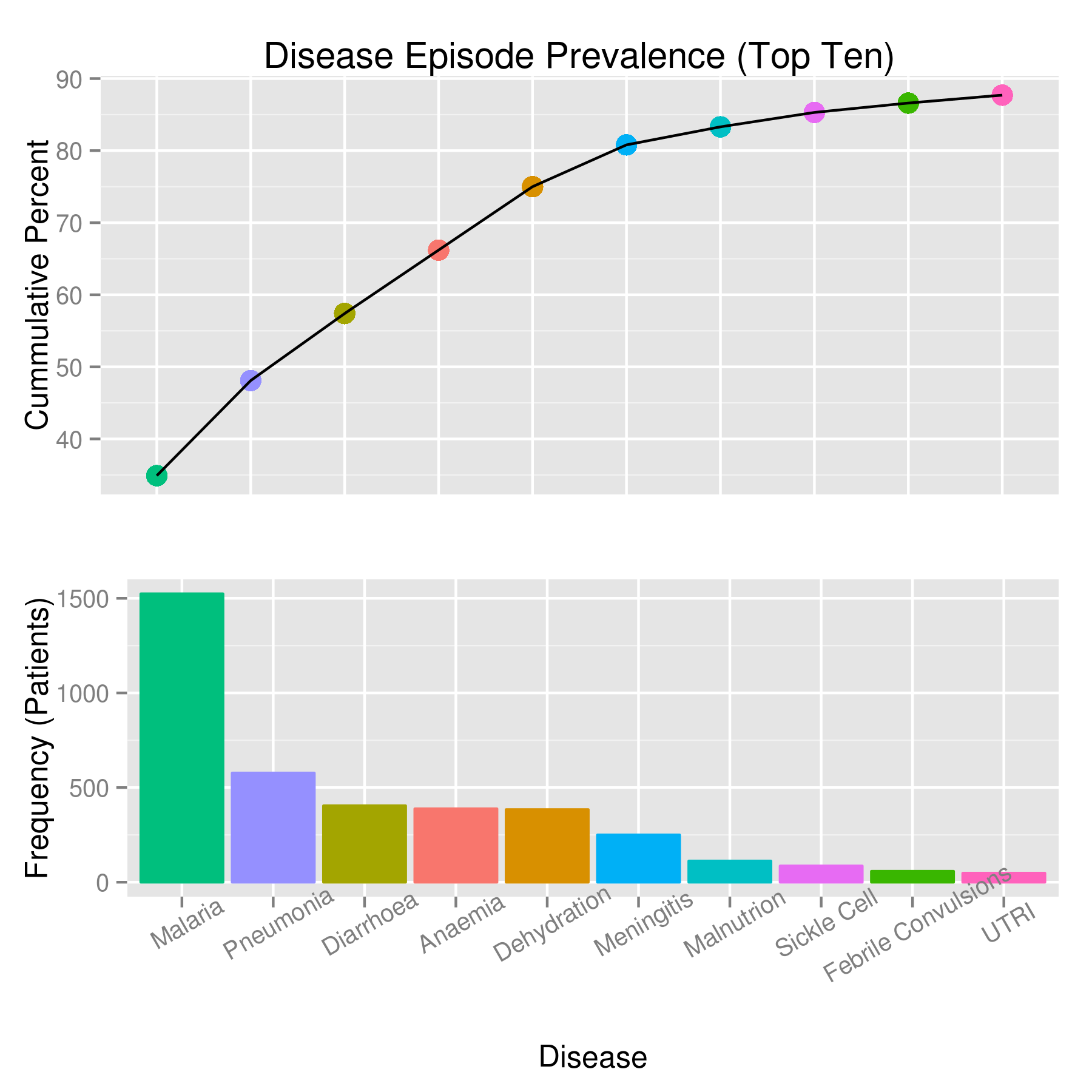
## Figure 2: Proportion of referrals, discharged against advice and abscondees (Nov 2014 – Dec 2014)



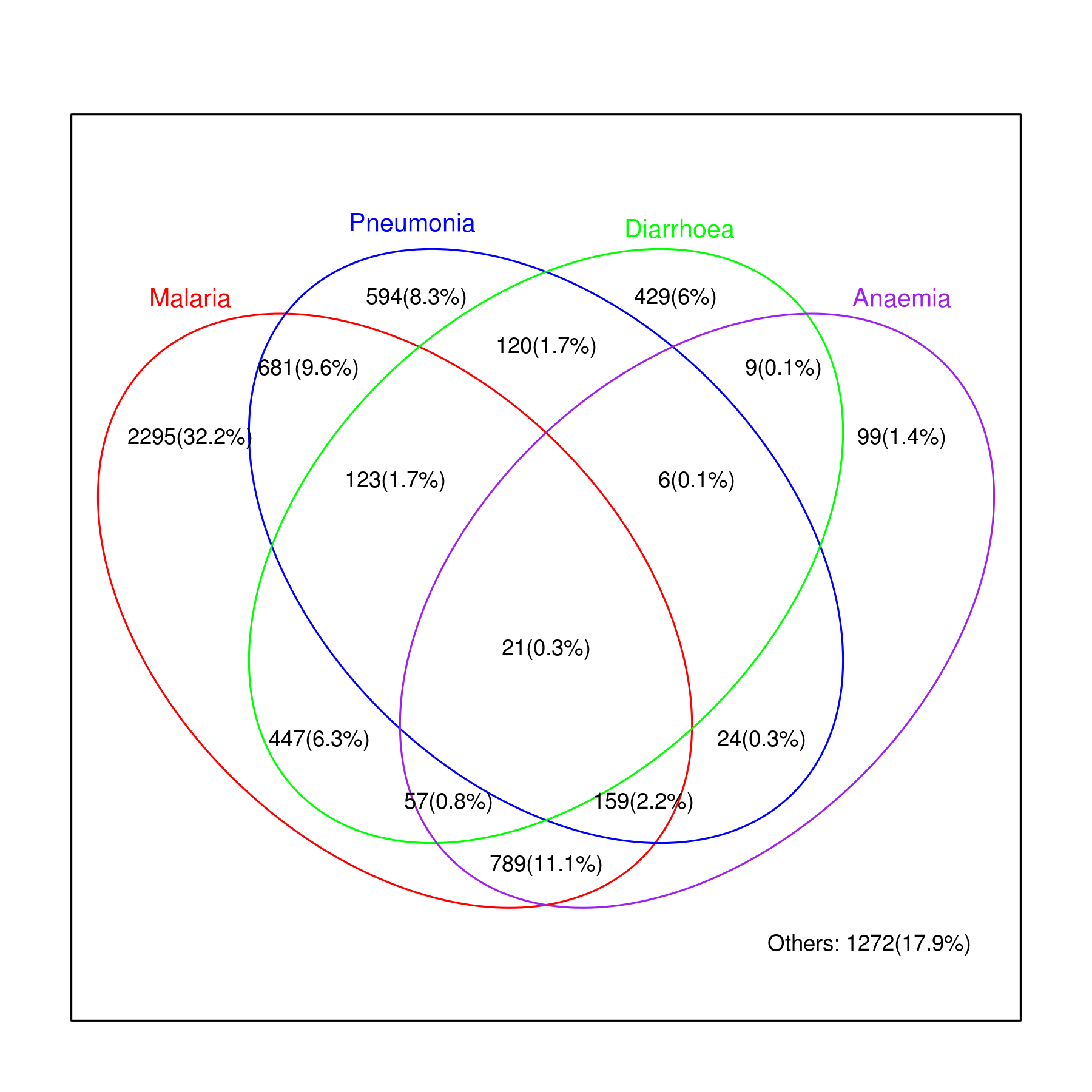
# MORBIDITY & MORTALITY PATTERNS FOR CHILDREN > 1 MONTH

## High Malaria endemic zone (H1,H3,H7,H8,H12,H14)

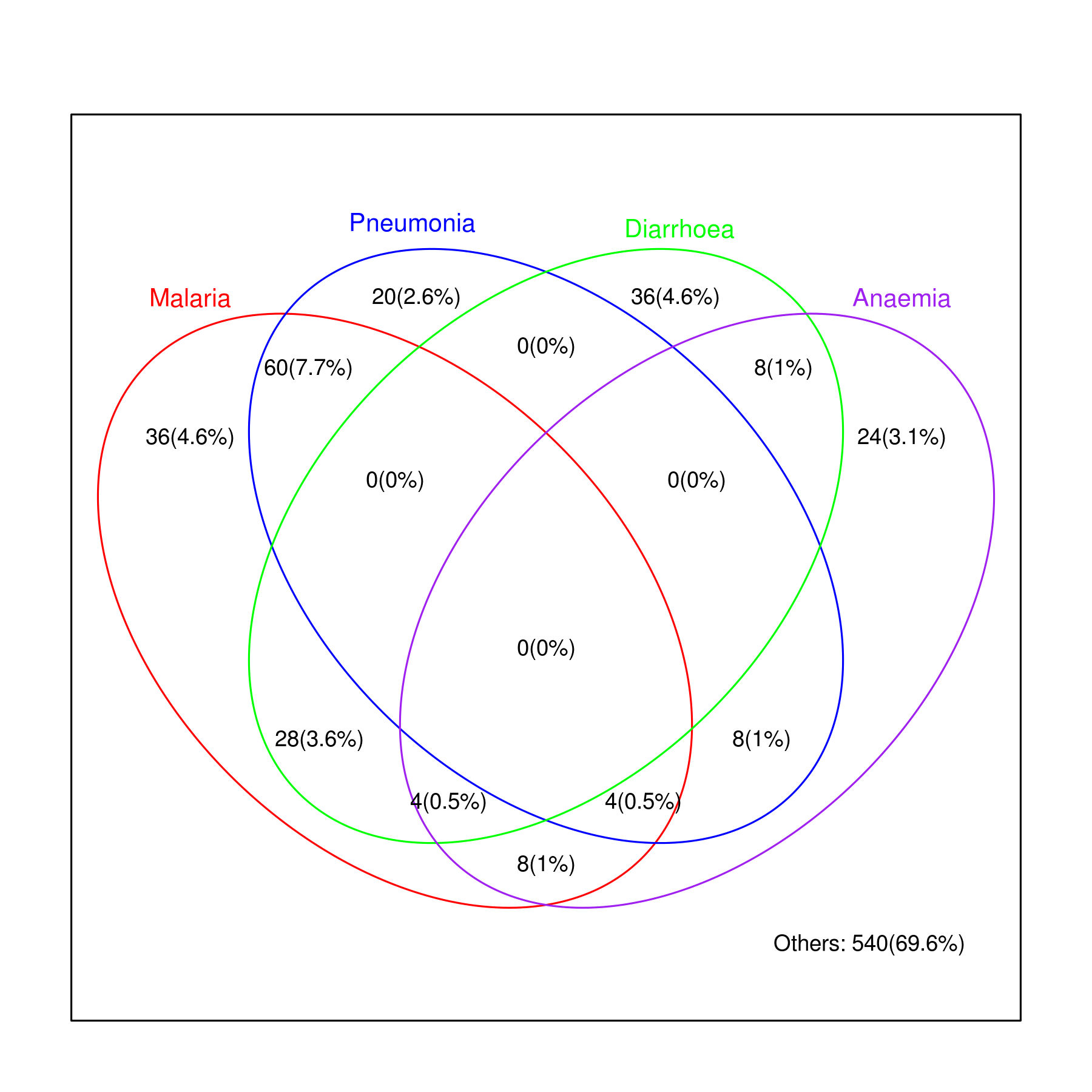
### Figure 3: Top ten discharge diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)



### Figure 4: Top four admission diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)

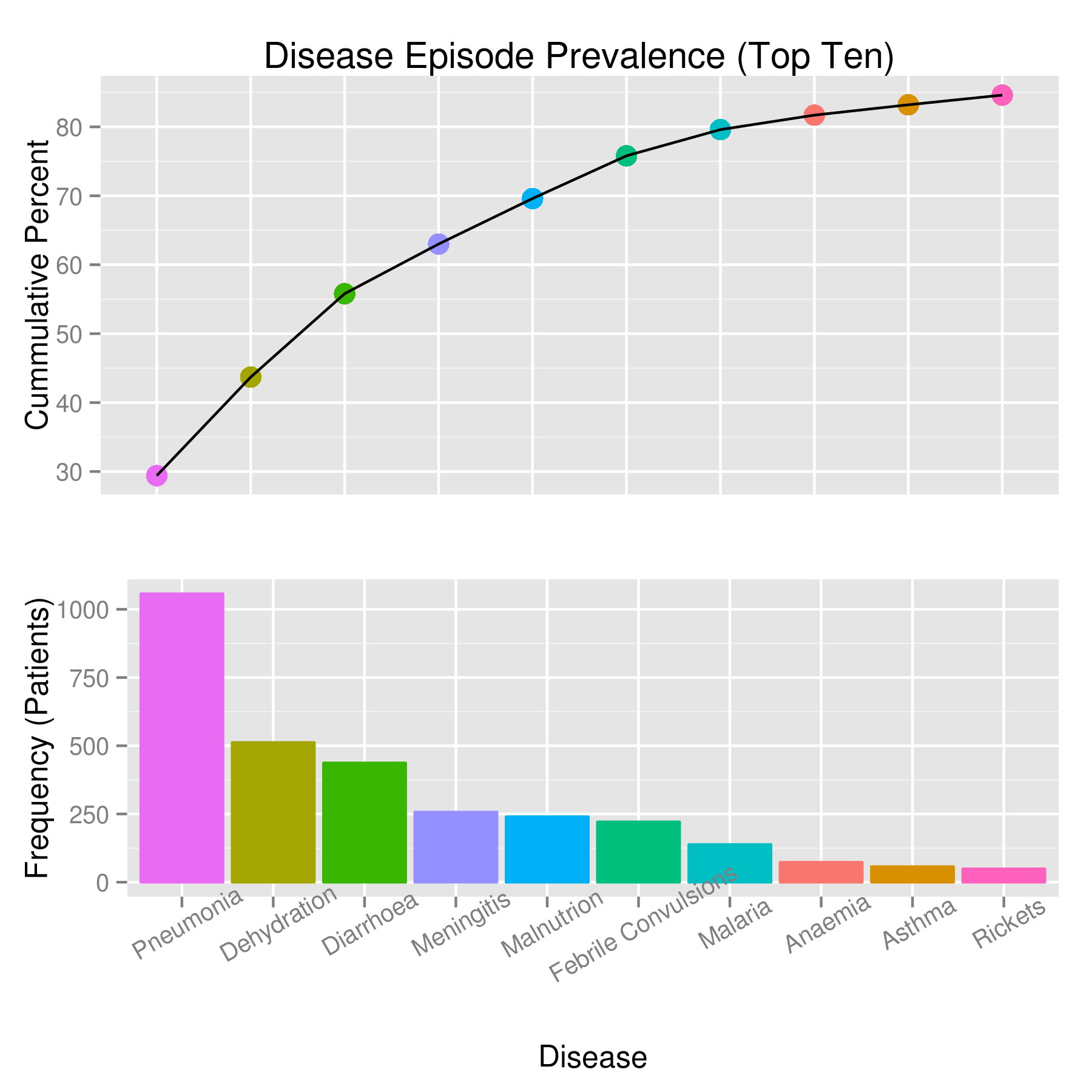


### Figure 5: Top four causes of mortality (Nov 2014 – Dec 2014)

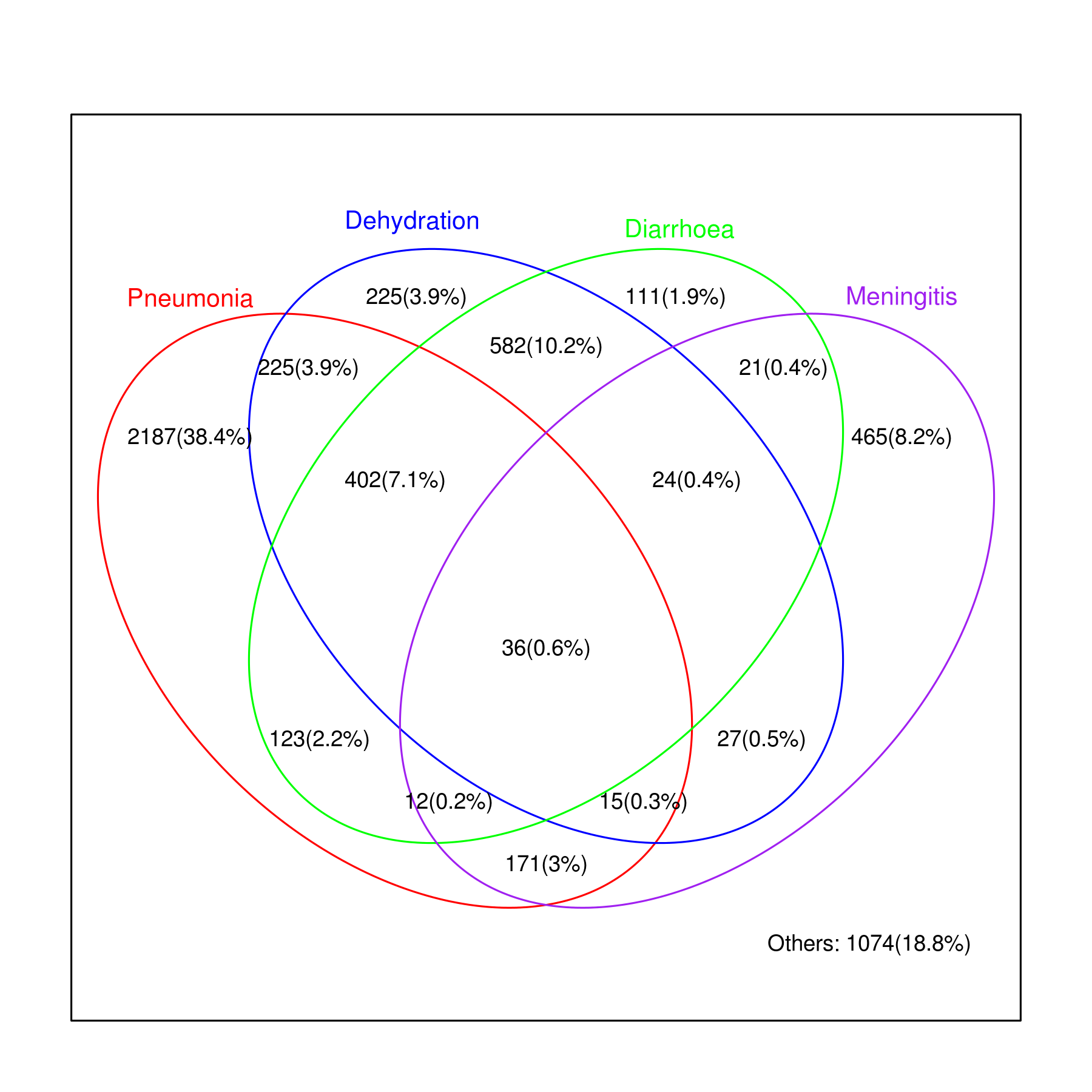


## Low Malaria endemic zone (H2,H5,H9,H10,H11)

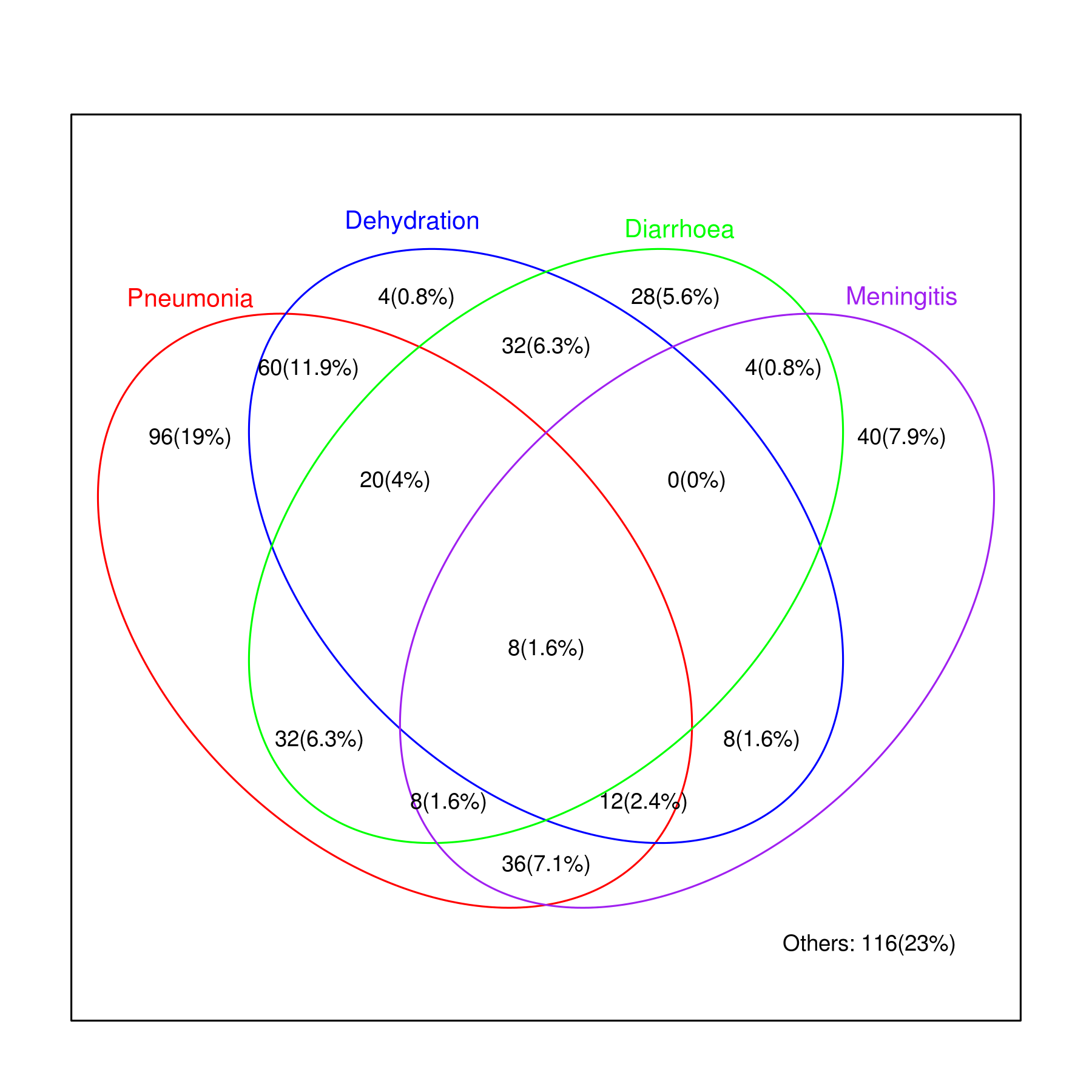
### Figure 3: Top ten discharge diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)



### Figure 4: Top four admission diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)

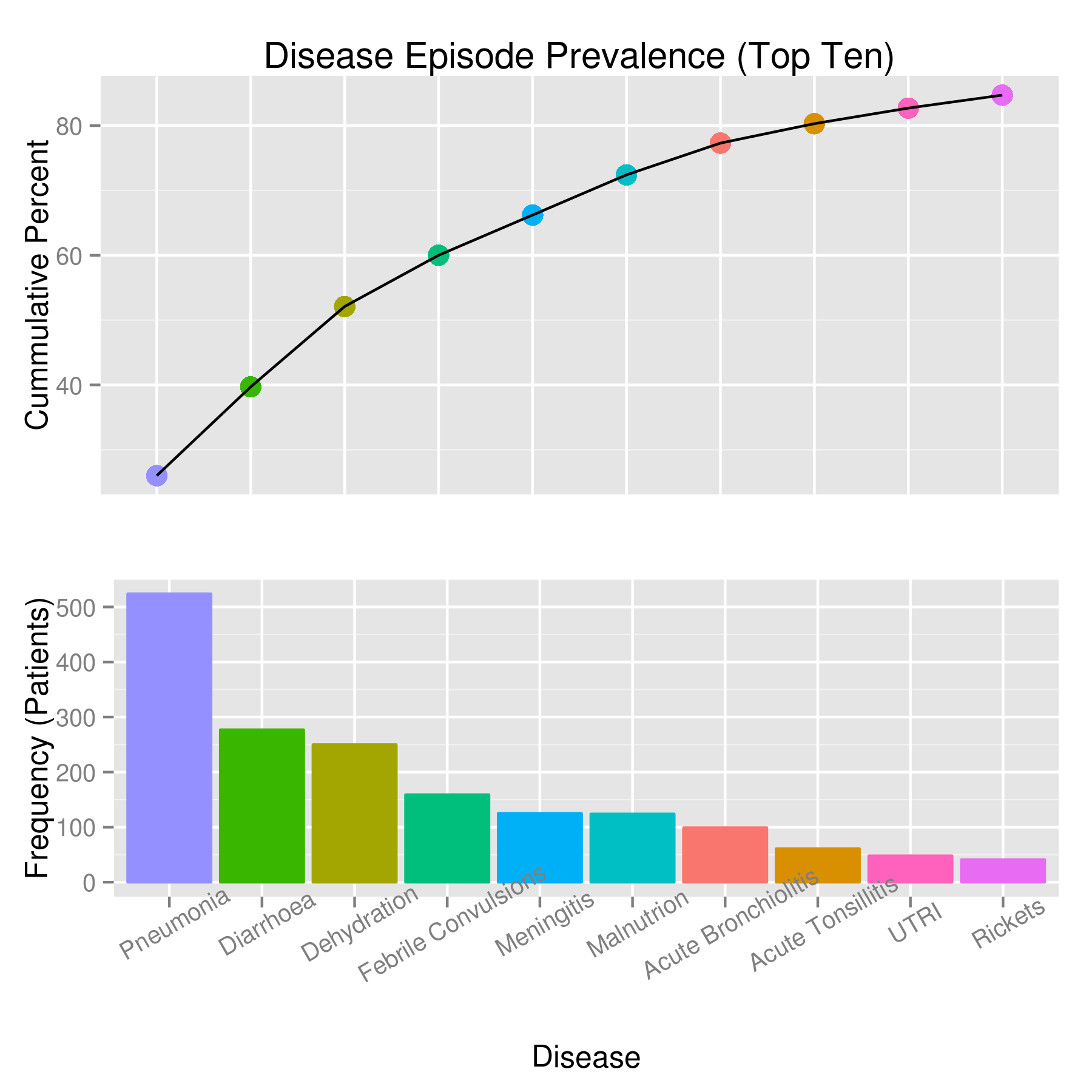


### Figure 5: Top four causes of mortality (Nov 2014 – Dec 2014)

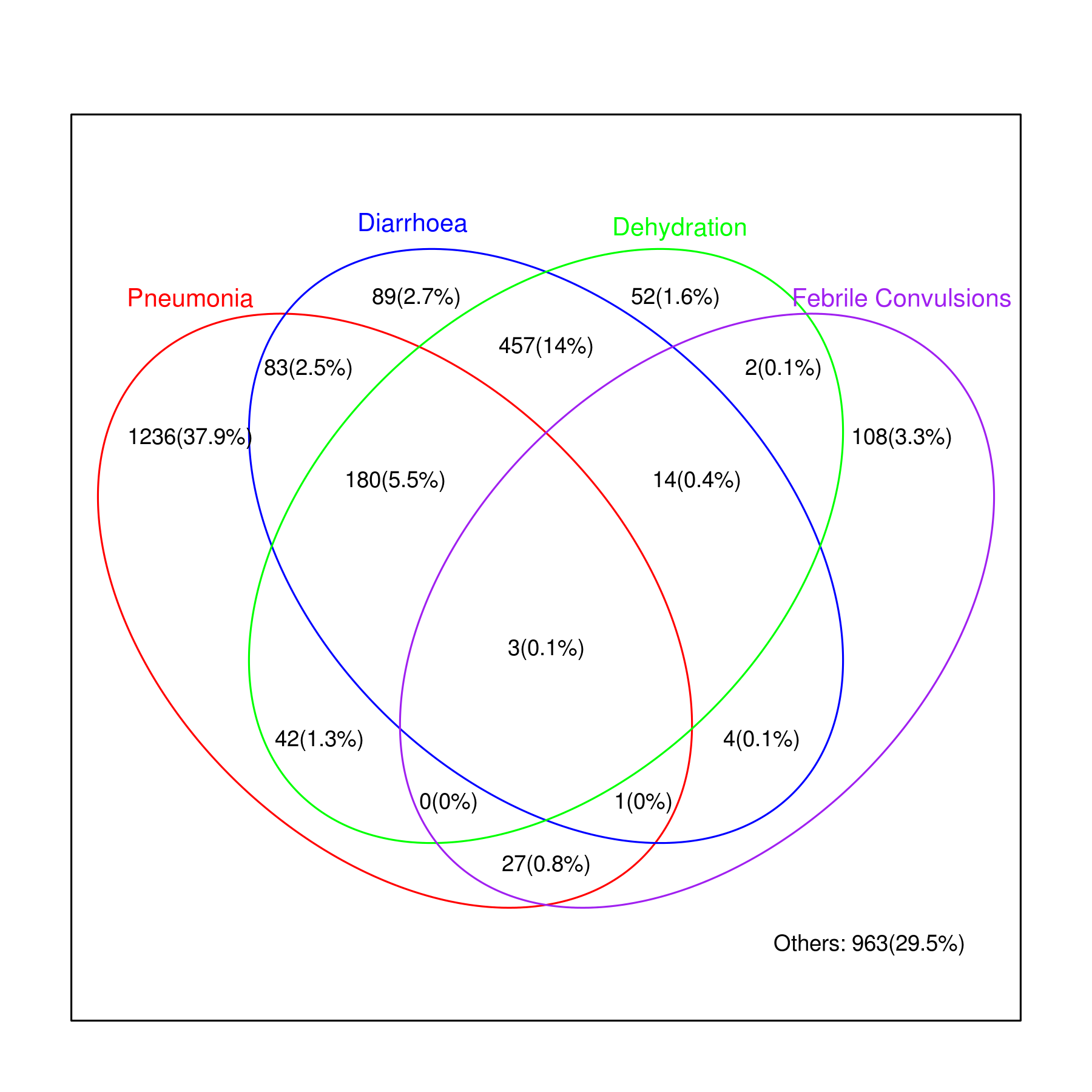


## Very low Malaria endemic zone (H4,H6,H13)

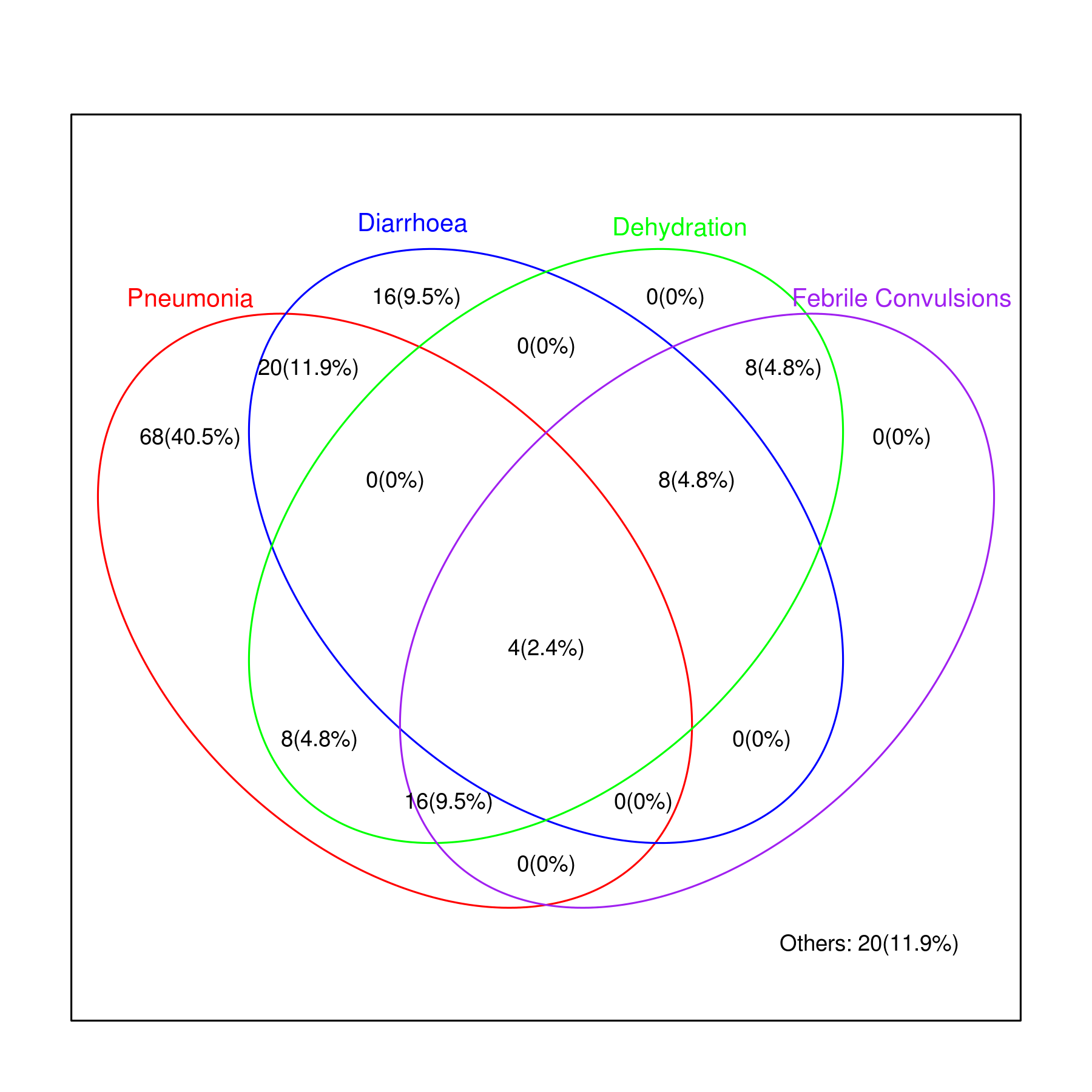
### Figure 3: Top ten discharge diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)



### Figure 4: Top four admission diagnoses in children aged > 1 month (Nov 2014 – Dec 2014)



### Figure 5: Top four causes of mortality (Nov 2014 – Dec 2014)



# (B) CLINICAL INFORMATION NETWORK

This section reports specific CIN indicators on a subset of patients whose case records were reviewed in detail.

* Children aged less than one month and children with an admission for surgery or burns are excluded from subsequent analyses.
* Children up to the maximum age admitted to the paediatric ward are included.

# EMERGENCY SIGNS

## Table 3: Documentation of emergency signs.

(Previous period ; Sept 2013 – Oct 2014. Current period ; Nov 2014 – Dec 2014)

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AVPU | Previous | 30870/33904 (91.05%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4133/4340 (95.23%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Grunting | Previous | 28973/33904 (85.46%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4103/4340 (94.54%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Central Cyanosis | Previous | 31561/33904 (93.09%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4183/4340 (96.38%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Can drink | Previous | 27983/33904 (82.54%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 3975/4340 (91.59%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pallor | Previous | 31587/33904 (93.17%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4109/4340 (94.68%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oxygen Sat | Previous | 7166/33904 (21.14%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 1340/4340 (30.88%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# OTHER SIGNS

## Table 4: Documentation of other signs.

(Previous period ; Sept 2013 – Oct 2014. Current period ; Nov 2014 – Dec 2014)

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fever | Previous | 32224/33904 (95.04%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4212/4340 (97.05%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cough | Previous | 31199/33904 (92.02%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4178/4340 (96.27%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Difficult Breathing | Previous | 30085/33904 (88.74%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4155/4340 (95.74%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Diarrhoea | Previous | 31127/33904 (91.81%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4205/4340 (96.89%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Convulsions | Previous | 30768/33904 (90.75%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4151/4340 (95.65%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vomits | Previous | 31512/33904 (92.94%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4233/4340 (97.53%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Difficult Feeding | Previous | 28631/33904 (84.45%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Current | 4099/4340 (94.45%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# PENICILLIN AND GENTAMICIN PRESCRIPTIONS

To determine the appropriateness of the prescription of common antibiotics, those with admission diagnosis of meningitis of children was excluded.

## Table 5: Penicillin and gentamicin prescriptions and dosing

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Penicillin Prescribed | 2096/3734 (56.13%) | 113/136 (83.09%) | 145/219 (66.21%) | 229/283 (80.92%) | 286/336 (85.12%) | 237/286 (82.87%) | 98/139 (70.5%) | 58/238 (24.37%) | 51/148 (34.46%) | 165/561 (29.41%) | 96/239 (40.17%) | 168/363 (46.28%) | 189/368 (51.36%) | 27/103 (26.21%) | 234/315 (74.29%) |
| Adequate prescription | 1991/2096 (94.99%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct dose | 1734/1991 (87.09%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gentamicin Prescribed | 1177/3734 (31.52%) | 43/136 (31.62%) | 86/219 (39.27%) | 179/283 (63.25%) | 234/336 (69.64%) | 109/286 (38.11%) | 31/139 (22.3%) | 22/238 (9.24%) | 42/148 (28.38%) | 80/561 (14.26%) | 55/239 (23.01%) | 73/363 (20.11%) | 86/368 (23.37%) | 6/103 (5.83%) | 131/315 (41.59%) |
| Adequate Prescription | 1103/1177 (93.71%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct dose | 1000/1103 (90.66%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

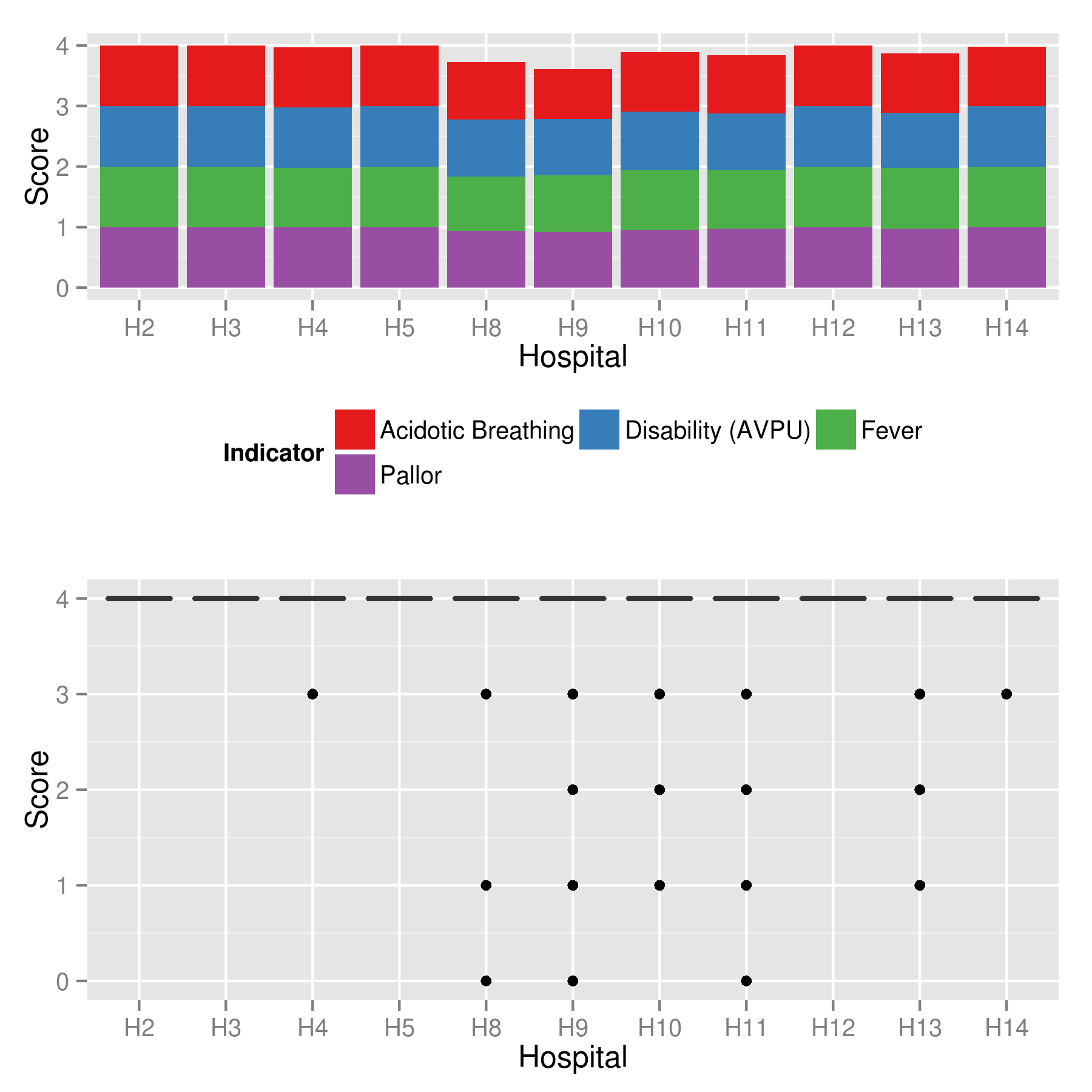
# MALARIA

This subsection represents summary statistics for cases with a clinical admission diagnosis of malaria.

## Table 6: Malaria investigations – all children with malaria admission diagnosis

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Malaria Cases | n = 1550 | n = 2 | n = 4 | n = 46 | n = 38 | n = 6 | n = 2 | n = 3 | n = 77 | n = 587 | n = 207 | n = 224 | n = 240 | n = 74 | n = 40 |
| MPS in Malaria cases | Ordered | 1422/1550 (91.74%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Results available | 1200/1422 (84.39%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tested positive | 1024/1200 (85.33%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Severe Malaria | Cases | n = 1043 | n = 1 | n = 1 | n = 39 | n = 29 | n = 1 | n = 0 | n = 1 | n = 46 | n = 456 | n = 167 | n = 118 | n = 107 | n = 68 | n = 9 |
| Treated with Artesunate | 362/1043 (34.71%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

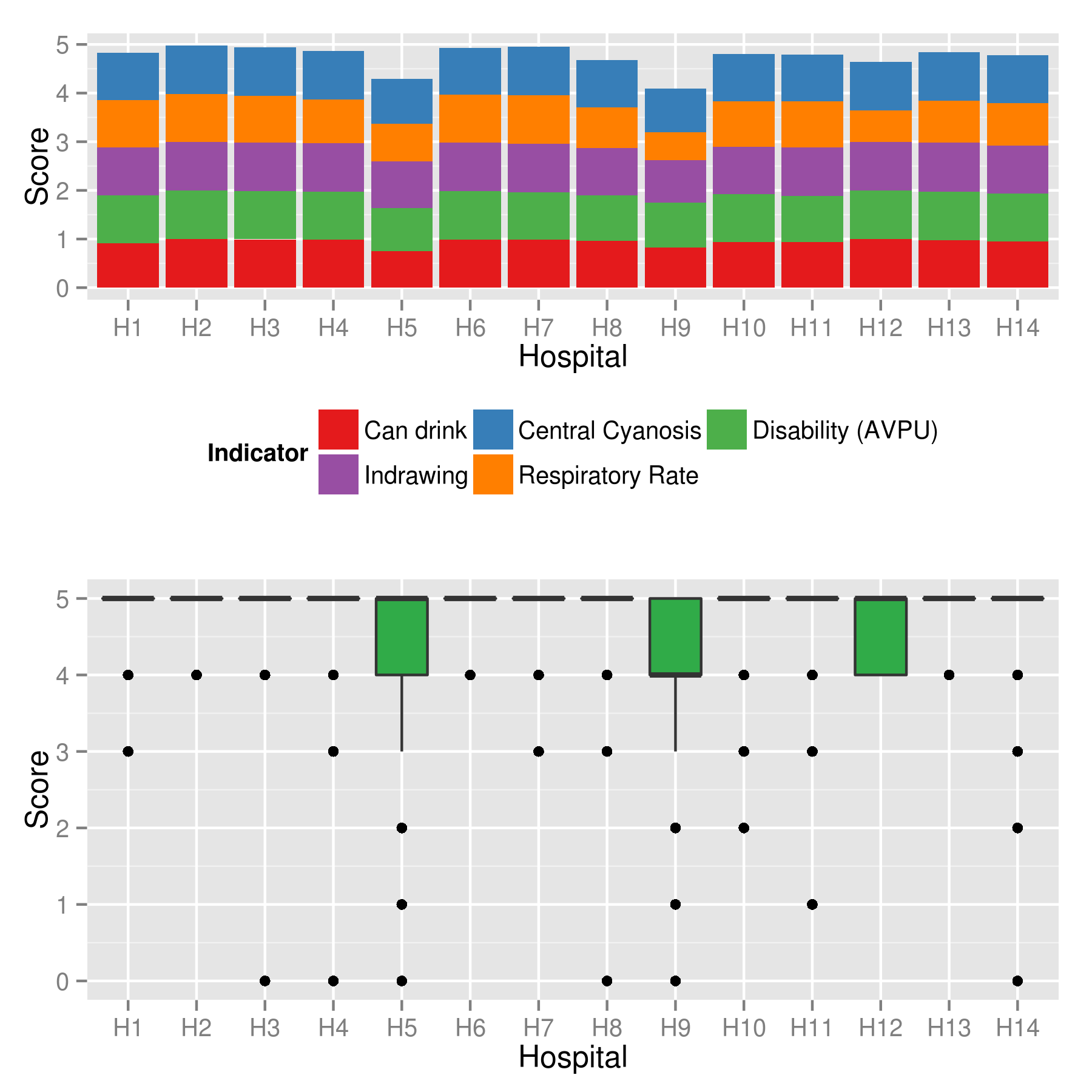
### Figure 6: Malaria Documentation Scores– summary documentation scores for key indicators



# PNEUMONIA

This subsection represents summary statistics for cases with a clinical admission diagnosis of pneumonia.

### Figure 7: Pneumonia assessment – summary documentation scores for key indicators



# DIARRHOEA/ DEHYDRATION

This subsection represents summary statistics for cases with a clinical admission diagnosis of diarrhoea / dehydration excluding:

1. Those with severe malnutrition as admission diagnosis.
2. Those with Diarrhoea duration for more than 14 days.
3. Those with bloody Diarrhoea (History **OR** Diagnosis).

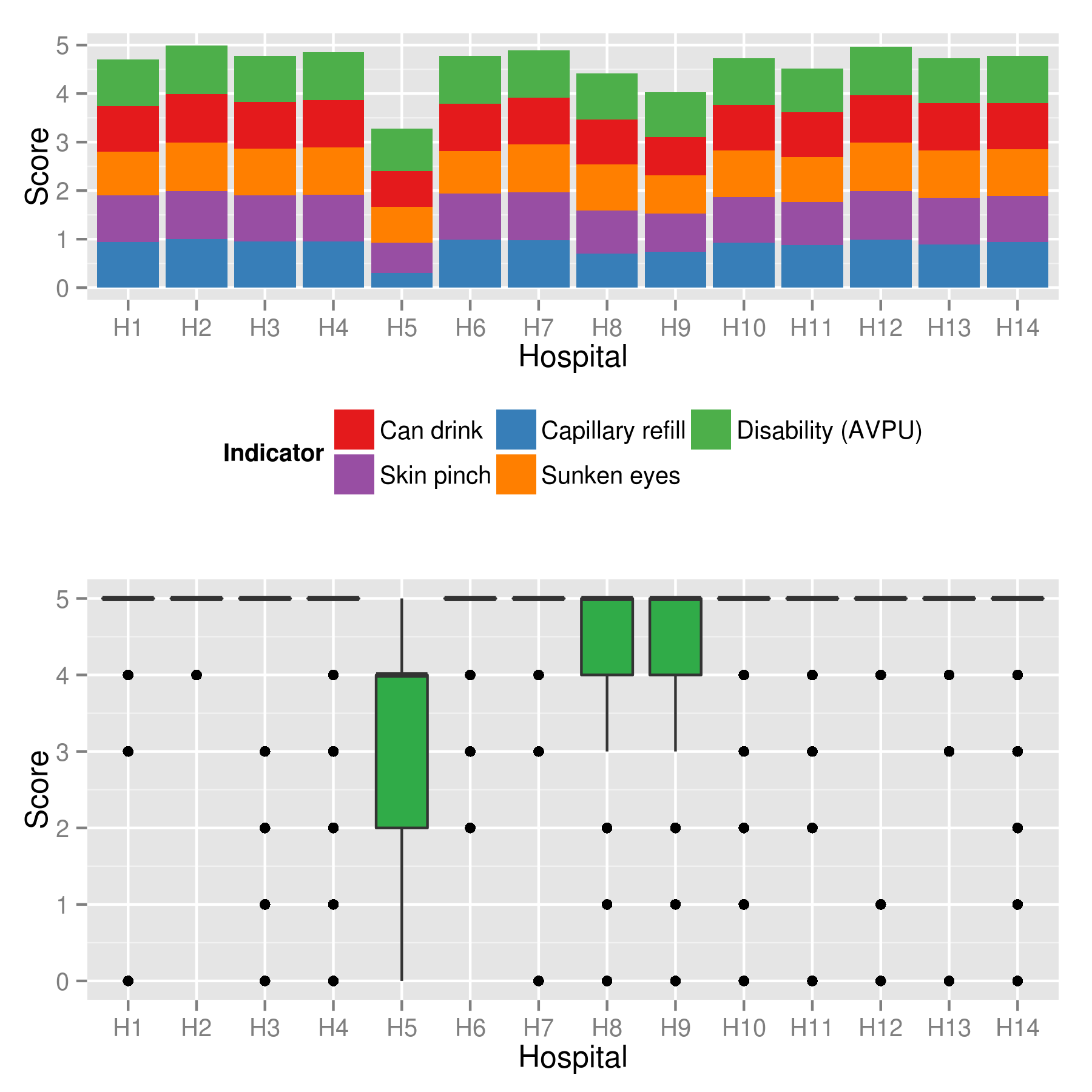
## Table 7: Diarrhoea & Dehydration admission diagnosis classification

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Diarrhoea | Cases\* | n = 900 | n = 49 | n = 57 | n = 131 | n = 73 | n = 41 | n = 41 | n = 44 | n = 55 | n = 103 | n = 42 | n = 65 | n = 98 | n = 4 | n = 97 |
| Classified | 648/900 (72%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dehydration | Cases\*\* | n = 934 | n = 43 | n = 43 | n = 129 | n = 123 | n = 53 | n = 30 | n = 49 | n = 42 | n = 83 | n = 27 | n = 56 | n = 128 | n = 7 | n = 121 |
| Classified | 900/934 (96.36%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

\*Cases include all admission diagnosis of Diarrhoea

\*\*Cases include the exclusion criteria mentioned at the begining of this section (16)

### Figure 8: Diarrhoea & Dehydration assessment - summary documentation scores for key indicators



## Table 8: Zinc prescription for Diarrhoea/Dehydration cases

Cases include children with admission diagnosis of Diarrhoea with the following exclusion criteria:

1. Admission diagnosis of severe malnutrition
2. Bloody diarrhoea (History **OR** Diagnosis)
3. Diarrhoea longer than 14 days in history
4. Children with prescription of ReSoMal or F75

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Admission Diagnosis of Diarrhoea/GE | n = 710 | n = 34 | n = 41 | n = 108 | n = 65 | n = 33 | n = 34 | n = 40 | n = 44 | n = 80 | n = 32 | n = 50 | n = 72 | n = 3 | n = 74 |
| Zinc prescribed | 505/710 (71.13%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Table 9: IV fluid analysis for bolus recipients

Children with the following excluded from the analyses:

1. Severe malnutrition as admission diagnosis
2. Cases with no admision diagnosis of Dehydration
3. Patients with severe pallor or severe anaemia
4. With a history of Diarrhoea that has
   1. Bloody diarrhoea OR
   2. Dairrhoea more that 14 days

## 

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IVF bolus given | n = 924 | n = 42 | n = 43 | n = 129 | n = 123 | n = 52 | n = 30 | n = 49 | n = 42 | n = 78 | n = 27 | n = 53 | n = 128 | n = 7 | n = 121 |
| Dehydration Cases with IVF bolus | 42/924 (4.55%) | 0/42 (0%) | 0/43 (0%) | 7/129 (5.43%) | 11/123 (8.94%) | 0/52 (0%) | 0/30 (0%) | 5/49 (10.2%) | 0/42 (0%) | 2/78 (2.56%) | 5/27 (18.52%) | 6/53 (11.32%) | 3/128 (2.34%) | 0/7 (0%) | 3/121 (2.48%) |
| Normal saline / Ringer Lactate fluid for bolus | 36/42 (85.71%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## IV fluid analysis for no bolus recipients (PLAN C)

Children with the following excluded from the analyses:

1. Severe malnutrition as admission diagnosis
2. Cases with no admision diagnosis of Dehydration
3. With a history of Diarrhoea that has
   1. Bloody diarrhoea OR
   2. Dairrhoea more that 14 days

### Table 10: PLAN C assessment for patients between 1- 11 months

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IVF No bolus given | Dehydration Cases prescribed Plan C | 100/356 (28.09%) | 2/19 (10.53%) | 1/12 (8.33%) | 30/60 (50%) | 9/40 (22.5%) | 0/12 (0%) | 0/16 (0%) | 4/24 (16.67%) | 7/15 (46.67%) | 11/27 (40.74%) | 3/6 (50%) | 10/20 (50%) | 9/41 (21.95%) | 2/2 (100%) | 12/62 (19.35%) |
| Adequate Presc | 81/100 (81%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Vol ( 80-120 mls/KG) | 63/81 (77.78%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Fluid (Ringers L) | 84/100 (84%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Duration (<=8Hrs) | 88/100 (88%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Cases with Step 1 & 2 | 65/100 (65%) | 2/2 (100%) | 0/1 (0%) | 22/30 (73.33%) | 5/9 (55.56%) | 0/0 (0%) | 0/0 (0%) | 1/4 (25%) | 2/7 (28.57%) | 4/11 (36.36%) | 3/3 (100%) | 9/10 (90%) | 9/9 (100%) | 2/2 (100%) | 6/12 (50%) |
| IVF for rehydration + Oral fluids | 40/100 (40%) | 2/2 (100%) | 1/1 (100%) | 8/30 (26.67%) | 1/9 (11.11%) | 0/0 (0%) | 0/0 (0%) | 2/4 (50%) | 5/7 (71.43%) | 2/11 (18.18%) | 2/3 (66.67%) | 8/10 (80%) | 3/9 (33.33%) | 0/2 (0%) | 6/12 (50%) |

Adequate IVF prescription\*- Information available on body weight, total volume prescribed and duration prescribed in hours

### Table 11: PLAN C assessment for patients between 12- 59 months

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IVF No bolus given | Dehydration Cases prescribed Plan C | 121/467 (25.91%) | 7/23 (30.43%) | 2/26 (7.69%) | 33/57 (57.89%) | 13/56 (23.21%) | 2/35 (5.71%) | 0/13 (0%) | 1/21 (4.76%) | 11/21 (52.38%) | 17/45 (37.78%) | 3/13 (23.08%) | 14/30 (46.67%) | 9/69 (13.04%) | 3/4 (75%) | 6/54 (11.11%) |
| Adequate Presc | 71/121 (58.68%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Vol ( 80-120 mls/KG) | 50/71 (70.42%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Fluid (Ringers L) | 109/121 (90.08%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct Duration (<=4Hrs) | 77/121 (63.64%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Cases with Step 1 & 2 | 45/121 (37.19%) | 3/7 (42.86%) | 1/2 (50%) | 11/33 (33.33%) | 2/13 (15.38%) | 1/2 (50%) | 0/0 (0%) | 0/1 (0%) | 9/11 (81.82%) | 3/17 (17.65%) | 2/3 (66.67%) | 10/14 (71.43%) | 3/9 (33.33%) | 0/3 (0%) | 0/6 (0%) |
| IVF for rehydration + Oral fluids | 45/121 (37.19%) | 3/7 (42.86%) | 1/2 (50%) | 11/33 (33.33%) | 2/13 (15.38%) | 1/2 (50%) | 0/0 (0%) | 0/1 (0%) | 9/11 (81.82%) | 3/17 (17.65%) | 2/3 (66.67%) | 10/14 (71.43%) | 3/9 (33.33%) | 0/3 (0%) | 0/6 (0%) |

Adequate IVF prescription\*- Information available on body weight, total volume prescribed and duration prescribed in hours

# ORAL FLUIDS ADMINISTRATION

## Table 12: Oral fluids analysis

Children in the analysis had an admission diagnosis of Dehydration and Diarrhoea **BUT** children with the following were excluded from analyses:

1. Admission diagnosis of severe malnutrition
2. Those with a history of Diarrhoea that has:
   1. Bloody Diarrhoea OR
   2. Diarrhoea longer than 14 days
3. Those with primary or secondary admission diagnosis of Diarrhoea with classification of bloody Diarrhoea
4. Those with IV fluid treatment

### Table 12: Oral rehydration therapy excluding children with severe malnutrition (PLAN B)

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Oral fluids prescribed | Dehydration prescribed Plan B | 463/934 (49.57%) | 22/43 (51.16%) | 32/43 (74.42%) | 46/129 (35.66%) | 18/123 (14.63%) | 31/53 (58.49%) | 25/30 (83.33%) | 32/49 (65.31%) | 29/42 (69.05%) | 27/83 (32.53%) | 19/27 (70.37%) | 36/56 (64.29%) | 99/128 (77.34%) | 1/7 (14.29%) | 46/121 (38.02%) |
| ORS prescribed | 197/463 (42.55%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Adequate presc\*\* | 179/197 (90.86%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct ORS duration (3-5 hrs) | 168/197 (85.28%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct ORS volume | 152/179 (84.92%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct ORS vol & duration | 148/179 (82.68%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Dehydration Cases\* - Cases with prescription of IV fluids have been excluded from this population.

Adequate ORS prescription\*\*- Information available on body weight, total volume prescribed and duration prescribed (3-5) hours

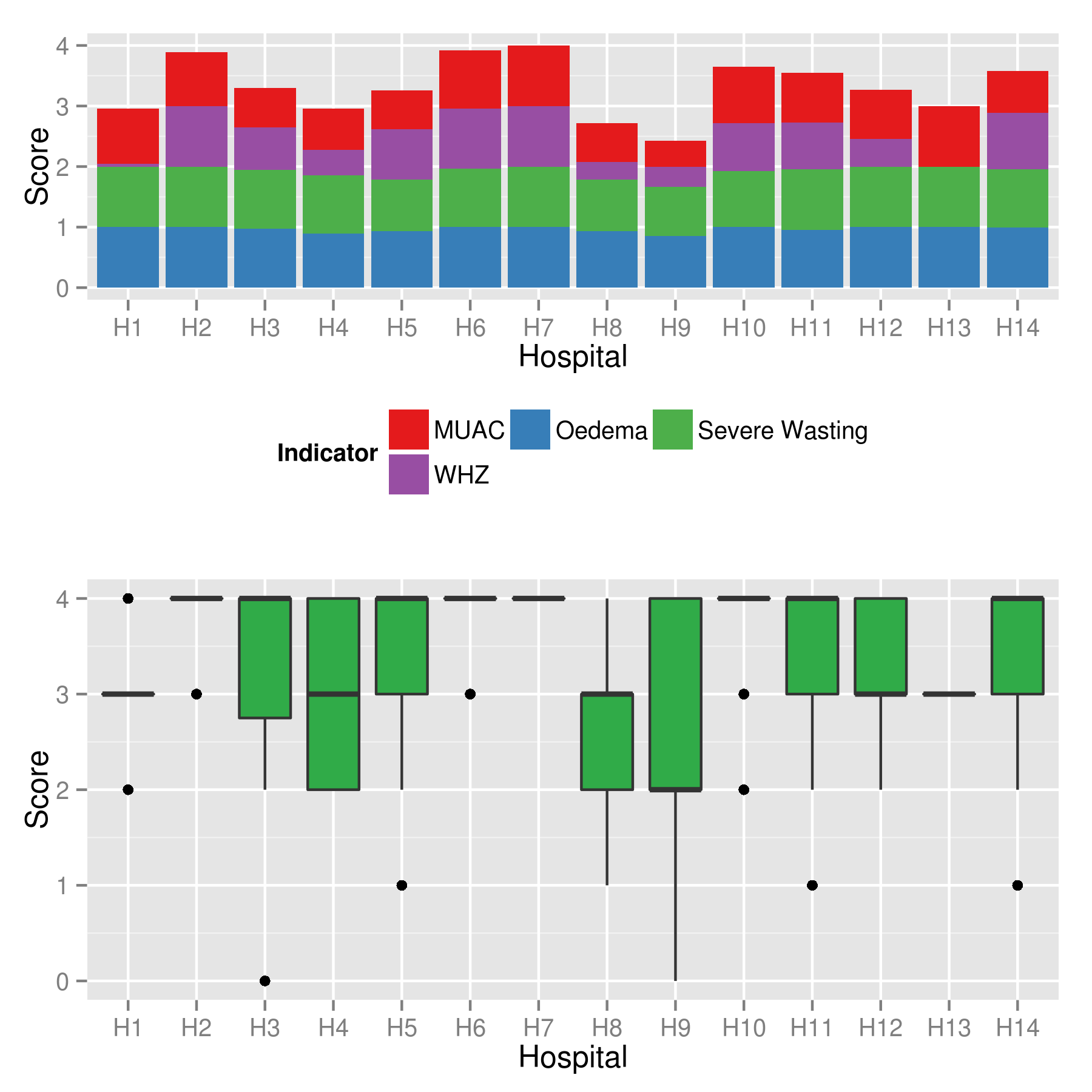
### Table 13: Oral rehydration therapy for each loose stool (PLAN A)

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dehydration Cases | n = 934 | n = 43 | n = 43 | n = 129 | n = 123 | n = 53 | n = 30 | n = 49 | n = 42 | n = 83 | n = 27 | n = 56 | n = 128 | n = 7 | n = 121 |
| ORS for Plan A | 235/934 (25.16%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Fluid given for every loose stool | 212/235 (90.21%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Correct volume for each loose stool (8-12 mls/KG) | 197/212 (92.92%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# MALNUTRITION

This subsection represents summary statistics for cases with a clinical admission diagnosis of malnutrition.

## Figure 9: Malnutrition assessment – summary documentation scores for key indicators



# ANALYSIS FOR SEVERE MALNUTRITION

This section includes summary statistics for all cases with either an admission diagnosis of severe malnutrition (Kwashiakor, Marasmus and Marusmus/Kwashiokor) or a prescription of F75. Exlusion criteria for this section includes:

1. Patients who vomit everything
2. AVPU indicator classifies patient as Unresponsive
3. Patients with bloody Diarrhoea (History **OR** Diagnosis)
4. Patients with Diarrhoea history longer than 14 days.

### Table 14: F75 Prescription assessment for severe malnutrition cases

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Eligible Cases\* | n = 264 | n = 15 | n = 19 | n = 19 | n = 34 | n = 28 | n = 9 | n = 6 | n = 8 | n = 11 | n = 12 | n = 18 | n = 24 | n = 1 | n = 60 |
| Severe malnutrition cases with admission feed prescribed | 162/264 (61.36%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| All F75 Presc. | 150/162 (92.59%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Feed chart avail | 136/162 (83.95%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F75 Cases (excl: avpU, ReSoMal, Vomits=Everything) | n = 95 | n = 3 | n = 5 | n = 12 | n = 2 | n = 22 | n = 3 | n = 0 | n = 6 | n = 1 | n = 9 | n = 12 | n = 2 | n = 0 | n = 18 |
| Vol per feed indicated | 88/95 (92.63%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Frequency in 24 hrs indicated | 87/95 (91.58%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Adequate prescription\* | 84/95 (88.42%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F75 Correct dose(80-156mls/kg)\*\* | 84/84 (100%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# SELECTED MALNUTRITION TREATMENT

This section includes summary statistics for all cases with either an admission diagnosis of severe malnutrition (Kwashiakor, Marasmus and Marusmus/Kwashiokor), a prescription of F75 or ReSoMal. Exlusion criteria for this section includes:

1. Patients who vomit everything
2. AVPU indicator classifies patient as Unresponsive

### Table 15: Selected treatments for severely malnourished children

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cases | n = 270 | n = 15 | n = 20 | n = 20 | n = 34 | n = 30 | n = 10 | n = 6 | n = 8 | n = 11 | n = 12 | n = 19 | n = 24 | n = 1 | n = 60 |
| RBS test done | 17/58 (29.31%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IV Glucose given | 0/58 (0%) | 0/2 (0%) | 0/5 (0%) | 0/4 (0%) | 0/9 (0%) | 0/7 (0%) | 0/2 (0%) | 0/0 (0%) | 0/2 (0%) | 0/1 (0%) | 0/3 (0%) | 0/8 (0%) | 0/2 (0%) | 0/1 (0%) | 0/12 (0%) |
| Proportion with symptoms of diarrhoea or diagnosis(1 or 2) of diarrhoea | 138/270 (51.11%) | 11/15 (73.33%) | 12/20 (60%) | 12/20 (60%) | 18/34 (52.94%) | 6/30 (20%) | 5/10 (50%) | 2/6 (33.33%) | 4/8 (50%) | 5/11 (45.45%) | 6/12 (50%) | 12/19 (63.16%) | 16/24 (66.67%) | 1/1 (100%) | 28/60 (46.67%) |
| Step 3 | Diarrhoea cases excluding bloody diarrhoea,vomiting everything OR AVPU=Unresponsive | 75/138 (54.35%) | 7/11 (63.64%) | 6/12 (50%) | 6/12 (50%) | 8/18 (44.44%) | 4/6 (66.67%) | 3/5 (60%) | 1/2 (50%) | 2/4 (50%) | 4/5 (80%) | 3/6 (50%) | 5/12 (41.67%) | 9/16 (56.25%) | 0/1 (0%) | 17/28 (60.71%) |
| Proportion with diarrhoea who were prescribed ResoMal on admission | 28/75 (37.33%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Step 5 | Proportion with crystalline AND Gentamicin prescribed on admission day\* | 203/252 (80.56%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

\* Cases with Meningitis diagnosis **OR** hospital readmissions have been excluded from this population

\*\* Cases with bloody Diarrhoea (History OR Diagnosis) **OR** with Diarrhoea history longer than 14 days have been excluded

# MENINGITIS

### Table 16: Meningitis assessment

|  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Meningitis | n = 608 | n = 14 | n = 30 | n = 56 | n = 47 | n = 64 | n = 40 | n = 9 | n = 5 | n = 139 | n = 75 | n = 7 | n = 30 | n = 4 | n = 88 |
| Microbiology Test / LP ordered | 382/608 (62.83%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CSF Results available | 214/382 (56.02%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# OTHER TREATMENTS AND INVESTIGATIONS

### Table 17: Malaria assessment in Febrile patients

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Febrile Patients | Cases | n = 3405 | n = 114 | n = 202 | n = 257 | n = 278 | n = 248 | n = 144 | n = 181 | n = 122 | n = 574 | n = 283 | n = 301 | n = 304 | n = 95 | n = 302 |
| Malaria Test Ordered | 2296/3405 (67.43%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Malaria Test Result Available | 1738/2296 (75.7%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Malaria Tested Positive | 956/1738 (55.01%) | 1/8 (12.5%) | 2/130 (1.54%) | 20/119 (16.81%) | 22/58 (37.93%) | 0/7 (0%) | 0/6 (0%) | 1/12 (8.33%) | 56/108 (51.85%) | 281/340 (82.65%) | 179/256 (69.92%) | 164/234 (70.09%) | 167/249 (67.07%) | 61/90 (67.78%) | 2/121 (1.65%) |

### Table 18: HB measurement and transfusion practices

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total Cases\*\* | n = 4340 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HB Investigations | Cases with Hb ordered | 1964/4340 (45.25%) | 13/149 (8.72%) | 127/261 (48.66%) | 308/348 (88.51%) | 299/365 (81.92%) | 159/336 (47.32%) | 92/199 (46.23%) | 86/252 (34.13%) | 77/161 (47.83%) | 221/691 (31.98%) | 84/319 (26.33%) | 145/367 (39.51%) | 142/391 (36.32%) | 9/104 (8.65%) | 202/397 (50.88%) |
| Hb results available | 1084/1964 (55.19%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Severe Anaemia / Pallor with Hb Result | 289/1084 (26.66%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Blood Transfusion | Blood Transfusion given (at admission) | n = 79 | n = 0 | n = 0 | n = 8 | n = 5 | n = 0 | n = 0 | n = 0 | n = 4 | n = 27 | n = 4 | n = 22 | n = 5 | n = 0 | n = 4 |
| Severe Anaemia / Pallor Cases transfused | 162/79 (205.06%) | 1/0 (0%) | 0/0 (0%) | 7/8 (87.5%) | 4/5 (80%) | 0/0 (0%) | 0/0 (0%) | 2/0 (0%) | 11/4 (275%) | 71/27 (262.96%) | 7/4 (175%) | 47/22 (213.64%) | 8/5 (160%) | 0/0 (0%) | 4/4 (100%) |

### Table 19: Analysis plan for blood glucose / IV measurement

|  |  | All | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Glucose Test | Cases (Ordered)\* | n = 803 | n = 7 | n = 170 | n = 71 | n = 104 | n = 43 | n = 28 | n = 207 | n = 13 | n = 6 | n = 5 | n = 3 | n = 26 | n = 0 | n = 120 |
| Results available | 597/803 (74.35%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Cases\*\* | n = 757 | n = 21 | n = 31 | n = 88 | n = 132 | n = 89 | n = 13 | n = 21 | n = 23 | n = 57 | n = 76 | n = 62 | n = 68 | n = 15 | n = 61 |
| Blood glucose assesed OR given dextrose | 191/757 (25.23%) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Cases\* - All admissions between 1 month and 5 years.

Cases Required\*\*- This excludes cases that have evidence that they did not require emergency blood sugar done (AVPU was equal to Alert OR can drink/breastfeed was YES)