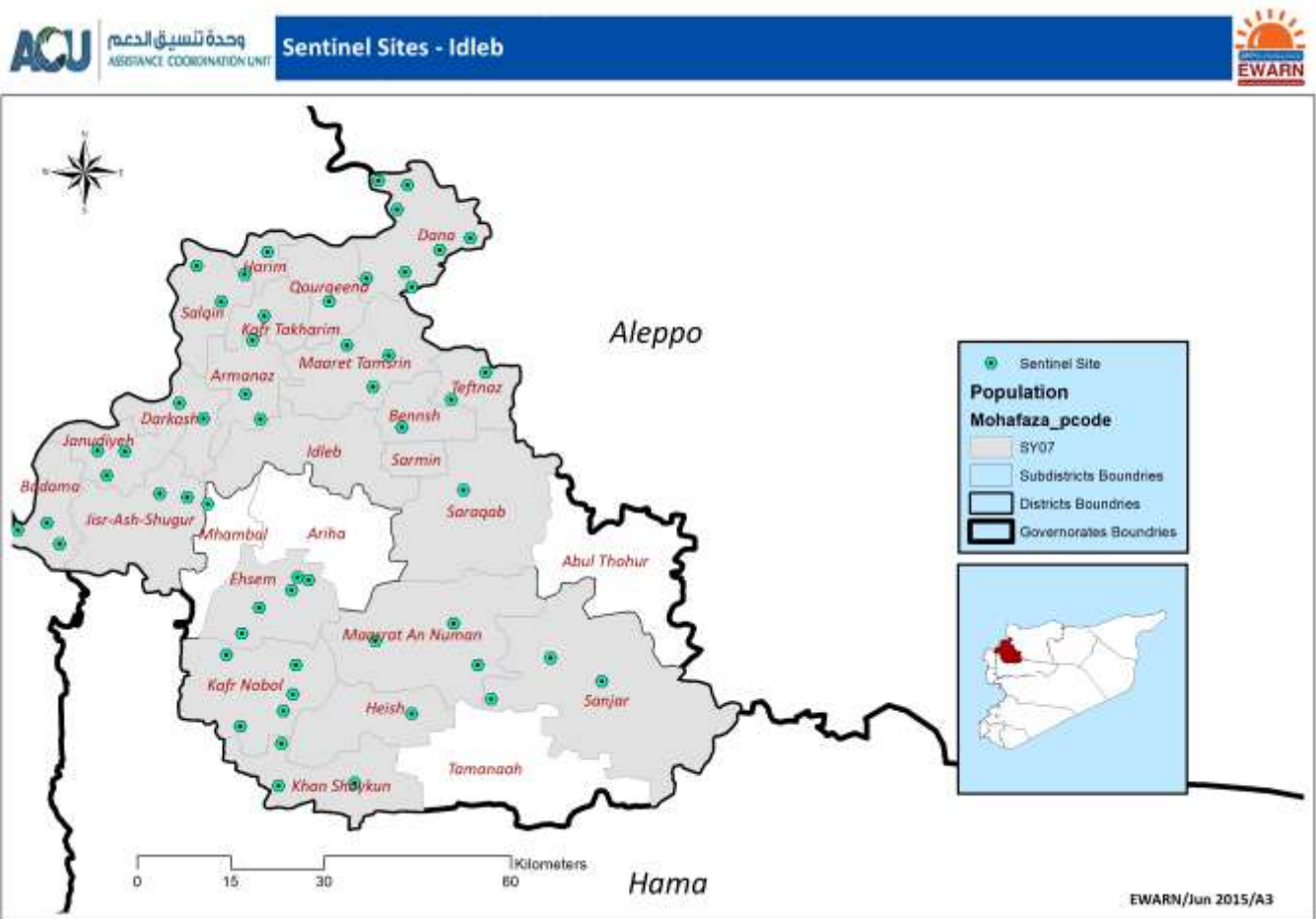


Brief Epidemiological review of Waterborne Diseases in Idlib Governorate between June 2014 and June 2015

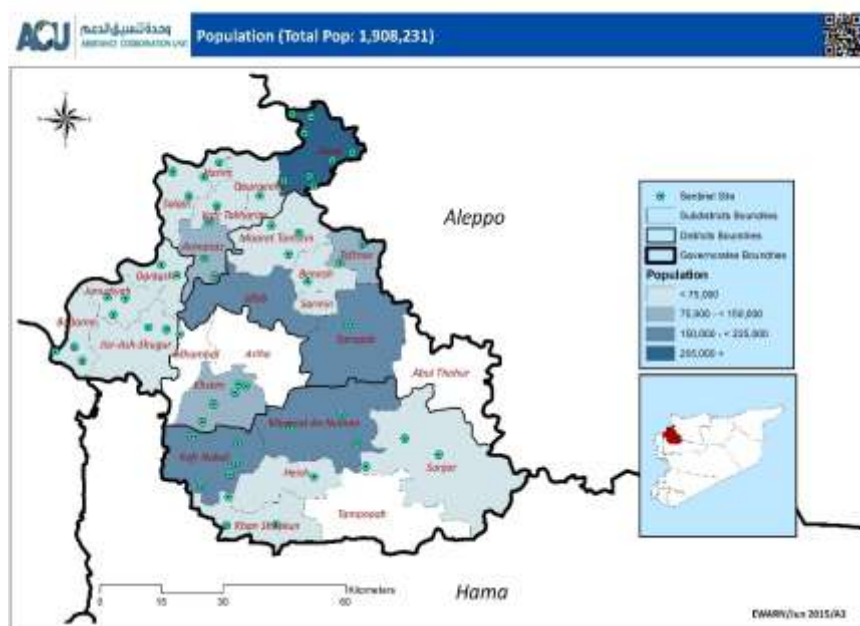


Geographical and Demographical overview:

Situated in north-western Syria, bordering Turkey. Its area depends on sources - estimated vary from 5,933 km² to 6,097 km². The Governorate has a population of 1,501,000 (2011 estimate) the estimated population now is 1.908.231. The capital is Idlib.

The governorate is divided into five districts (*manatiq*):

- Arihah
- Harem
- Idlib
- Jisr ash-Shugur
- Ma'arrat al-Numan



These are further divided into sub-districts (*nawahi*).

Now the highest concentration of population is noticed in Dana sub-district because of its closure to the Turkish borders, the camps concentrated in the area and lesser frequency of bombing and armed conflict.

Current Situation: most of the Governorate is now under the control of the opposition forces.

EWARN Situation:

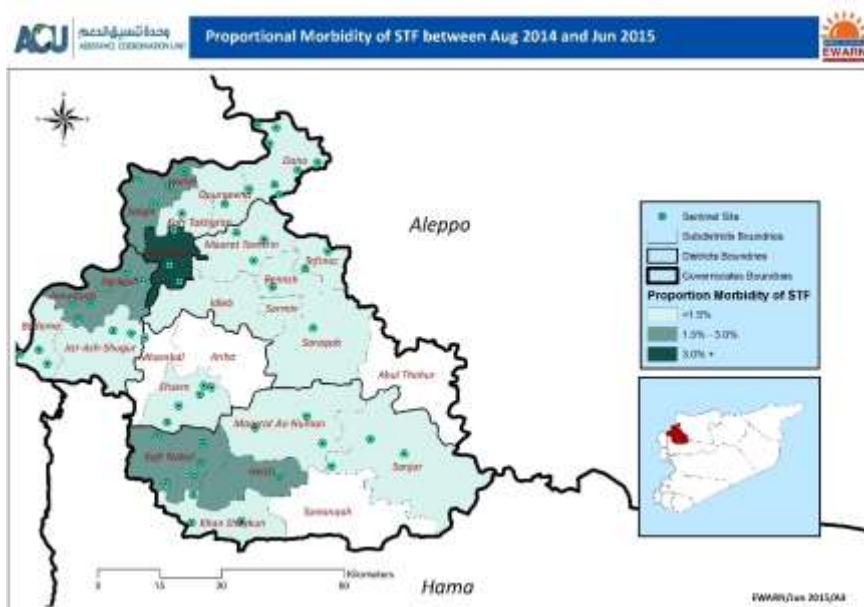
The program covered parts of Idleb Governorate since the beginning in mid-2013. It started with four District Level Officers (DLOs) and (55) Sentinel sites, now the number is still the same for the DLOs but the sentinel site numbers increased to 80 and increased areas of coverage. It is planned to add another DLO for Idleb city. In addition to that, the inclusion of Field Level Officers (FLOs) in mid-2014 helped expand the EWARN network, number of FLOs now is 30.

Water Borne Diseases in Idleb Governorate:

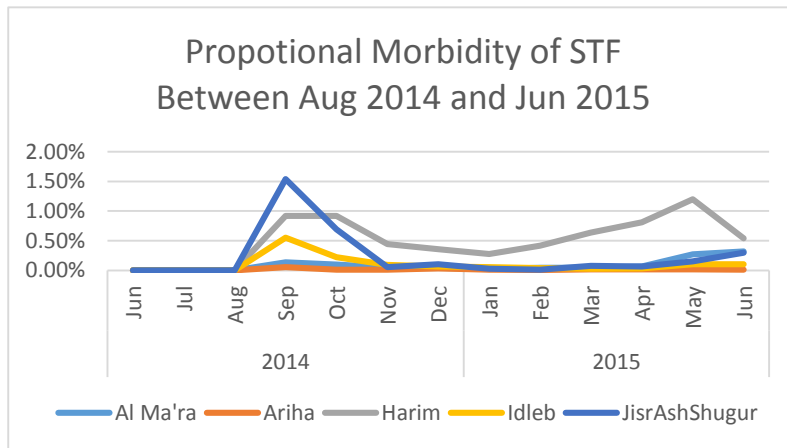
What follows is a general overview on the situation related to water borne diseases in Idleb governorate,

- **Suspected Typhoid Fever (STF):** children with fever $\geq 38.3^{\circ}\text{C}$ with (headache, malaise, anorexia, relative bradycardia, constipation or diarrhea and nonproductive cough) or symptomatic case contacted with confirmed case.

The noticed concentration with highest numbers over 12 months since June 2014 until June 2015 is in Armanaz and to a lesser degree in Salqin, Harim, Darkosh, Janudieh, Kafr Nobol and Heish.



| Reported Cases of STF | | | | | | | |
|-----------------------|-------|----------|-------|-------|-------|---------------|-------------|
| Year | Month | Al Ma'ra | Ariha | Harim | Idleb | JisrAshShugur | Grand Total |
| 2014 | Jun | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jul | 0 | 0 | 0 | 0 | 0 | 0 |
| | Aug | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sep | 74 | 30 | 492 | 297 | 827 | 1720 |
| | Oct | 49 | 7 | 458 | 111 | 346 | 971 |
| | Nov | 58 | 12 | 530 | 108 | 68 | 776 |
| Dec | 35 | 26 | 281 | 51 | 82 | 475 | |
| 2015 | Jan | 32 | 14 | 358 | 69 | 36 | 509 |
| | Feb | 57 | 10 | 523 | 47 | 16 | 653 |
| | Mar | 73 | 30 | 1001 | 41 | 123 | 1268 |
| | Apr | 86 | 26 | 1096 | 48 | 91 | 1347 |
| | May | 435 | 31 | 1916 | 164 | 247 | 2793 |
| | Jun | 96 | 4 | 164 | 31 | 90 | 385 |

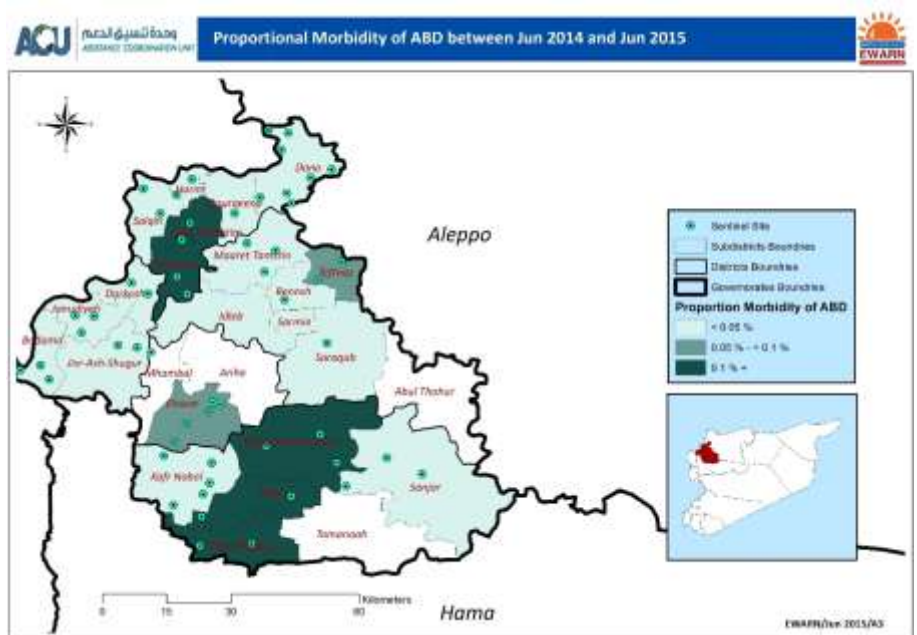


- **Acute Watery Diarrhea (Suspected Cholera):** any case with age of five years old or older with sudden onset of acute watery diarrhea with severe dehydration or death with or without vomiting.

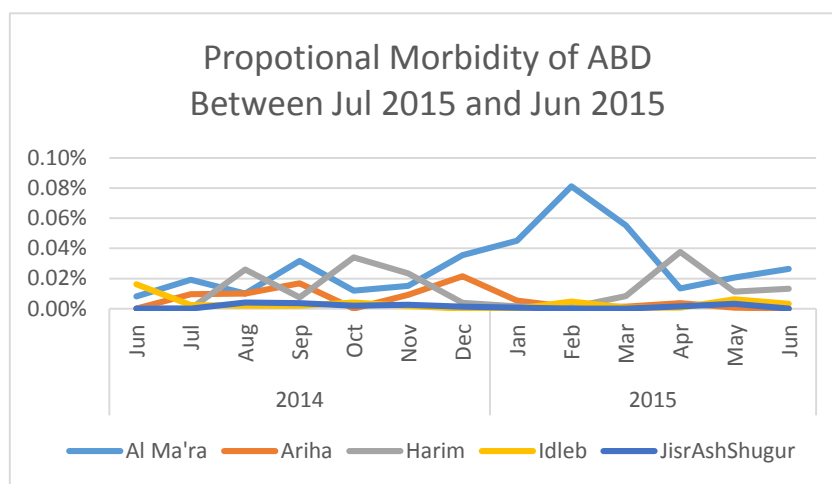
No cases were reported in Idlib Governorate in the period between June 2014 and June 2015.

- **Acute Bloody Diarrhea (Suspected Shigellosis):** Acute diarrhea (three or more abnormally loose or fluid stools in the past 24 hours) with visible blood in stool (preferably observed by the clinician).

It is noticed that the highest concentration of the cases were reported in Armanaz, Kafr Tacharim, Maarat An Numan, Heish and Khan Shaykun with proportion Morbidity of more than 0.1%. And to lesser content in Tefnaz and Ehsem with 0.05-0.1%.

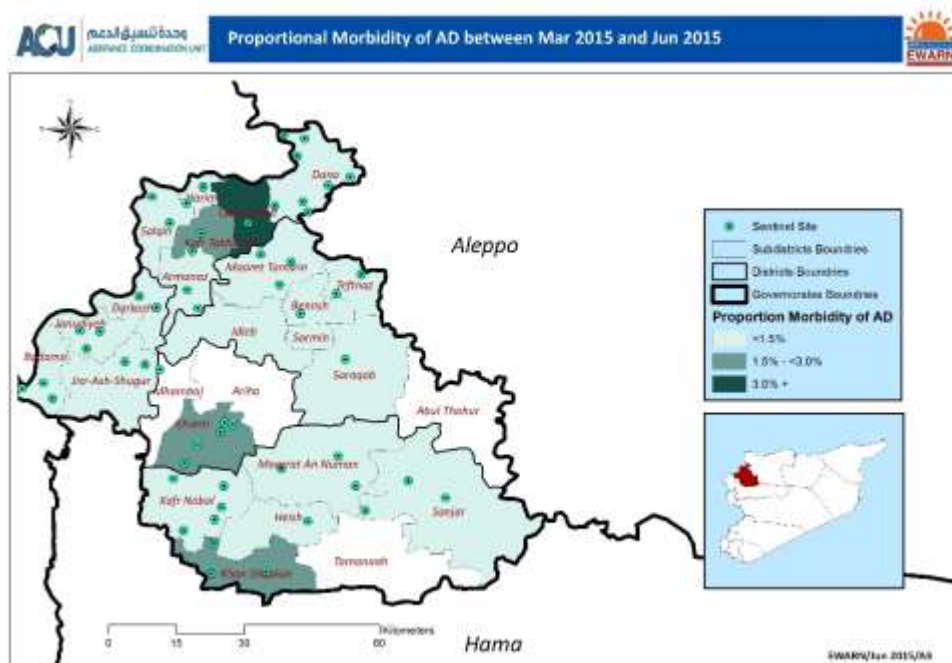


| Reported Cases of ABD | | | | | | | |
|-----------------------|-------|----------|-------|-------|-------|---------------|-------------|
| Year | Month | Al Ma'ra | Ariha | Harim | Idleb | JisrAshShugur | Grand Total |
| 2014 | Jun | 1 | 0 | 0 | 2 | 0 | 3 |
| | Jul | 8 | 4 | 0 | 1 | 0 | 13 |
| | Aug | 5 | 5 | 13 | 1 | 2 | 26 |
| | Sep | 17 | 9 | 4 | 1 | 2 | 33 |
| | Oct | 6 | 0 | 17 | 2 | 1 | 26 |
| | Nov | 18 | 11 | 28 | 2 | 3 | 62 |
| 2015 | Dec | 28 | 17 | 3 | 0 | 1 | 49 |
| | Jan | 59 | 7 | 2 | 0 | 1 | 69 |
| | Feb | 102 | 1 | 1 | 6 | 0 | 110 |
| | Mar | 87 | 2 | 13 | 1 | 0 | 103 |
| | Apr | 18 | 5 | 51 | 1 | 2 | 77 |
| | May | 33 | 1 | 18 | 10 | 5 | 67 |
| | Jun | 8 | 0 | 4 | 1 | 0 | 13 |

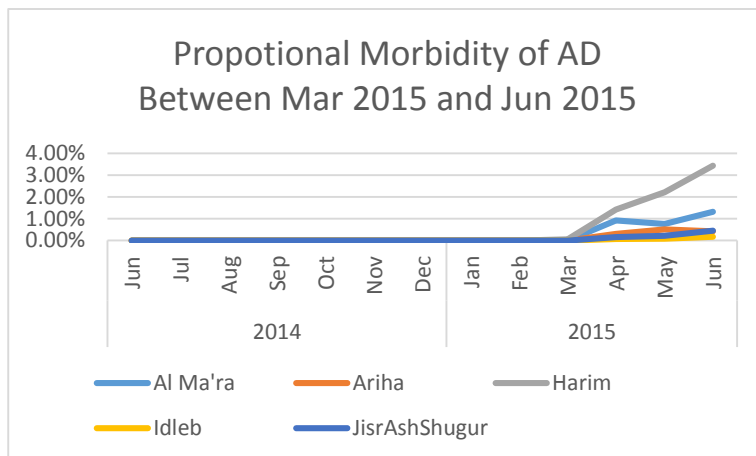


- **Acute Diarrhea:** three or more abnormally loose or fluid stools in the past 24 hours.

this a newly added syndrome to the EWARN and for now it is data collection about the AD but what is noticed is that the highest proportion morbidity in Qourqeena with more than 0.3% in the period between April 2015 and June 2015.

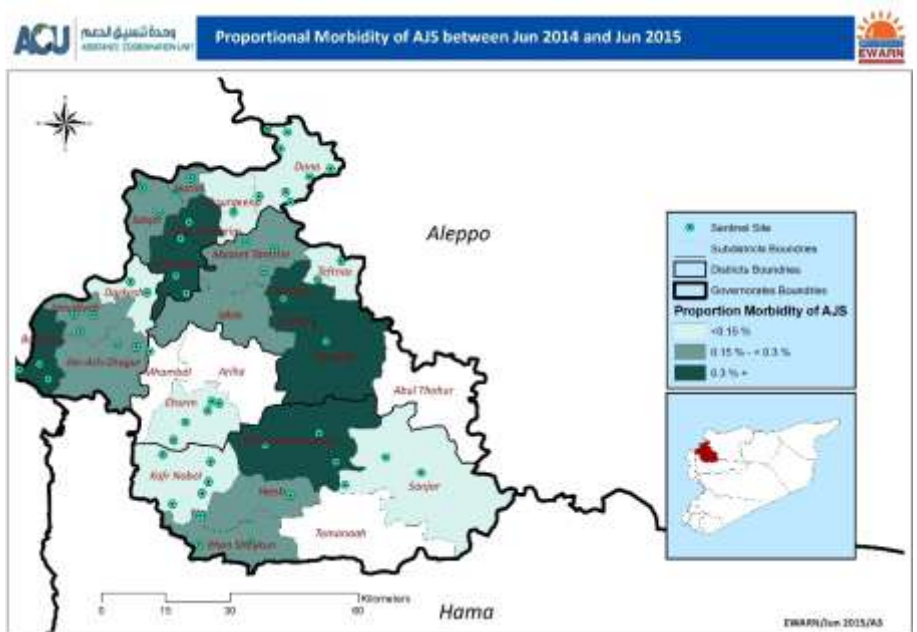


| Reported Cases of AD | | | | | | | |
|----------------------|-------|----------|-------|-------|-------|---------------|-------------|
| Year | Month | Al Ma'ra | Ariha | Harim | Idleb | JisrAshShugur | Grand Total |
| 2014 | Jun | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jul | 0 | 0 | 0 | 0 | 0 | 0 |
| | Aug | 0 | 0 | 0 | 0 | 0 | 0 |
| | Sep | 0 | 0 | 0 | 0 | 0 | 0 |
| | Oct | 0 | 0 | 0 | 0 | 0 | 0 |
| | Nov | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | Dec | 0 | 0 | 0 | 0 | 0 | 0 |
| | Jan | 0 | 0 | 0 | 0 | 0 | 0 |
| | Feb | 0 | 0 | 0 | 0 | 0 | 0 |
| | Mar | 0 | 0 | 84 | 0 | 0 | 84 |
| | Apr | 1238 | 412 | 1918 | 83 | 208 | 3859 |
| | May | 1209 | 805 | 3558 | 131 | 339 | 6042 |
| Jun | 398 | 128 | 1040 | 53 | 136 | 1755 | |

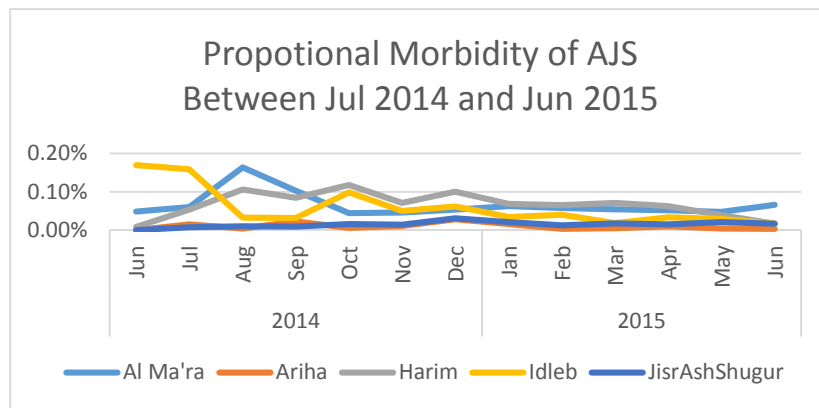


- Acute Jaundice Syndrome:** acute onset of jaundice (yellowing of sclera of the eyes or skin or dark urine). **AND** Severe illness with or without fever $\geq 38^{\circ}\text{C}$, **AND** The absence of any known precipitating factors.

The highest proportion morbidity was noticed in Armanaz, Kafr Takharim, Bensk, Sarmin, Saraqab, Badama and Maarat An Numan with more than 0.3%. Then to a lesser degree Harim, Salqin, Maaret Tamsrin, Janudiyeh, Idleb, Jisr-Ash-Shugur, Heish and Khan Shaykun with 0.15-0.3%



| Reported Cases of AJS | | | | | | | |
|-----------------------|-------|----------|-------|-------|-------|---------------|-------------|
| Year | Month | Al Ma'ra | Ariha | Harim | Idleb | JisrAshShugur | Grand Total |
| 2014 | Jun | 6 | 0 | 1 | 21 | 0 | 28 |
| | Jul | 25 | 6 | 22 | 66 | 3 | 122 |
| | Aug | 82 | 2 | 53 | 16 | 5 | 158 |
| | Sep | 55 | 12 | 45 | 17 | 5 | 134 |
| | Oct | 22 | 3 | 59 | 49 | 8 | 141 |
| | Nov | 55 | 13 | 85 | 60 | 17 | 230 |
| | Dec | 42 | 22 | 79 | 49 | 24 | 216 |
| 2015 | Jan | 82 | 20 | 89 | 45 | 27 | 263 |
| | Feb | 72 | 4 | 82 | 50 | 15 | 223 |
| | Mar | 85 | 8 | 111 | 28 | 27 | 259 |
| | Apr | 70 | 13 | 84 | 45 | 20 | 232 |
| | May | 76 | 6 | 62 | 46 | 33 | 223 |
| | Jun | 20 | 1 | 5 | 5 | 5 | 36 |



- In conclusion, most of the water borne disease related morbidity is noticed more frequently in Armanaz, Kafr Takharim. Abul Thuhur, Mhambal, Ariha and Tamanaah were not evaluated.
- We used the following formula to calculate the proportional morbidity:

Proportional Morbidity = No. of alerts of a disease * 100 / Total No. of consultations

Possible source:

From the table below we can see that generally bacterial pathogens offer low resistance to chlorination unlike viral, so there is a need to re-evaluate the chlorination percentage and the water sources in the area.

Significant food and waterborne microbial pathogens and their chlorine susceptibility*

| Pathogen | Health significance | Resistance to chlorination | Animal source |
|--------------------------------------|---------------------|----------------------------|---------------|
| Bacteria | | | |
| <i>Campylobacter jejuni, C. coli</i> | High | Low | Yes |
| <i>Escherichia coli</i> – Pathogenic | High | Low | Yes |
| <i>E. coli</i> – Enterohaemorrhagic | High | Low | Yes |
| <i>Legionella</i> spp. | High | Low | No |
| <i>Salmonella typhi</i> | High | Low | No |
| Other salmonellae | High | Low | Yes |
| <i>Shigella</i> spp. | High | Low | No |
| <i>Vibrio cholerae</i> | High | Low | No |
| <i>Yersinia enterocolitica</i> | High | Low | Yes |
| Viruses | | | |
| Enteroviruses | High | Moderate | No |
| Hepatitis A virus | High | Moderate | No |
| Hepatitis E virus | High | Moderate | Potentially |
| Noroviruses | High | Moderate | Potentially |
| Rotavirus | High | Moderate | No |

*Adopted from a WHO report (WHO 2008)

Action and recommendation:

- EWARN disseminated posters and brochures related to personal Hygiene and water management.
- It is recommended that intersections between WASH sector efforts and health data to know the weak points and gaps, so that proper response could be taken.