

# Middle East Consortium on Infectious Disease Surveillance

## MECIDS

### Regional Technical Report 2005-2008



Middle East Consortium on  
Infectious Disease Surveillance

## Introduction

To facilitate trans-border cooperation in response to infectious disease outbreaks a regional project on food-borne diseases with a primary focus on *Salmonella* was conducted under the name of Middle East Consortium on Infectious Disease Surveillance (MECIDS).

MECIDS was formed initially from Jordan, Palestine and Israel.

The first mission of MECIDS was to establish a regional, laboratory-based surveillance network on food-borne diseases.

It was agreed upon the development of harmonized methodologies, the establishment of a common platform of communication, data sharing, analysis and coordination of intervention steps when needed.

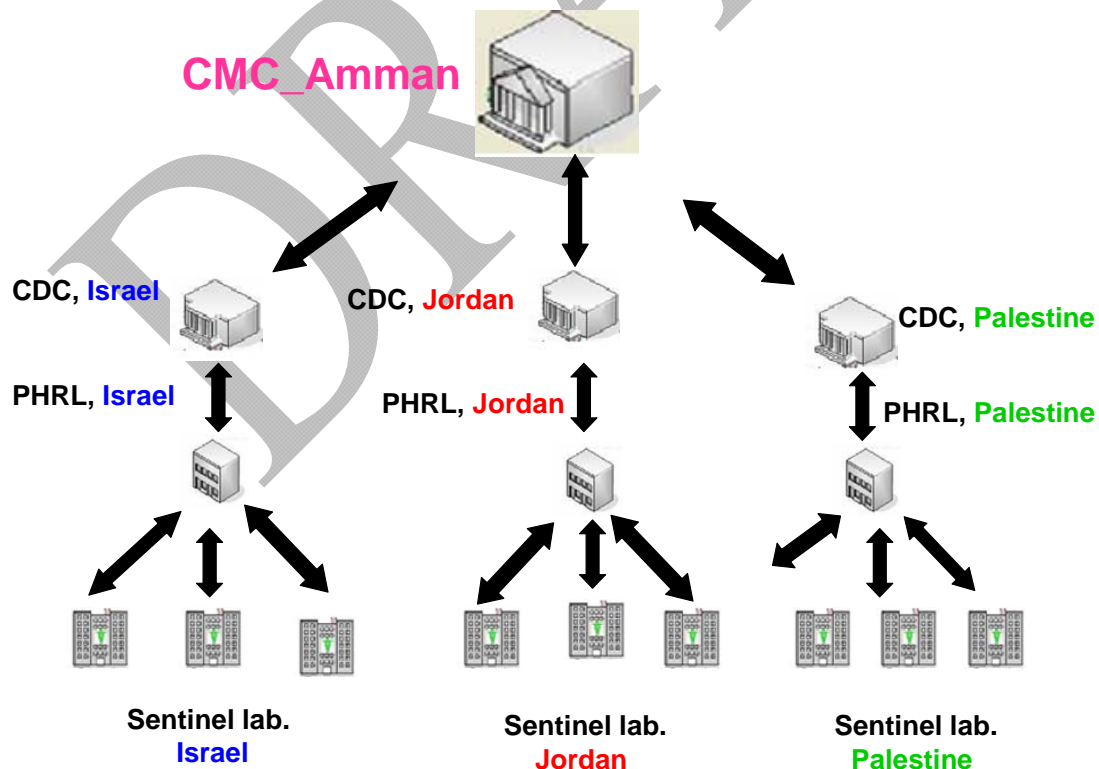
A network of selected sentinel microbiological labs and one National Reference Lab, from each of the three partners was formed.

Local Data Analysis Units have been established in each country to manage the data and serve as a central point of contact in each country.

Data from local data analysis units was sent to Regional Data Analysis Unit, at the Cooperative Monitoring Center (CMC) Amman, Jordan, to create a database for data sharing, analyzing and writing a comprehensive regional technical report.

Data collection started in July 2005 primary with surveillance of salmonellosis.

Data flow chart



## Regional Data analysis (2005-2008)

Cumulative specimens which were tested from the beginning of the project activities until the end of the year 2008 from all three partners were 389162 specimens, which yielded 4461 salmonella isolates.

**Table 1; Distribution of tested Specimens, all MECIDS partners by year**

Year	2005	2006	2007	2008	Grand Total
<b>Grand total specimens</b>	<b>106343</b>	<b>115814</b>	<b>85547</b>	<b>81458</b>	<b>389162</b>
<b>Total Salmonella Isolates</b>	<b>1022</b>	<b>1219</b>	<b>1112</b>	<b>1108</b>	<b>4461</b>

*Data collection in Israel began on January 2005; the total Number of specimens from Israel does not include the number of stool specimens*

*Data collection in Jordan began on July 2005*

*Data collection in Palestine began on January 2005; there is no data within the period August-December 2006*

Salmonella isolates were divided upon the source of isolates into human specimens which yielded 4050 isolates and non human specimens which yielded 411 isolates

Human specimens were collected from patient's blood which yielded 124 isolates; and from patient's and food handler's stool which yielded 3936 isolates.

Non human specimens were collected from food items, water, waste water and swimming pools and yielded 411 isolates.

The following table illustrates the distribution of the Salmonella isolates by source of specimens, by year and by MECIDS partners.

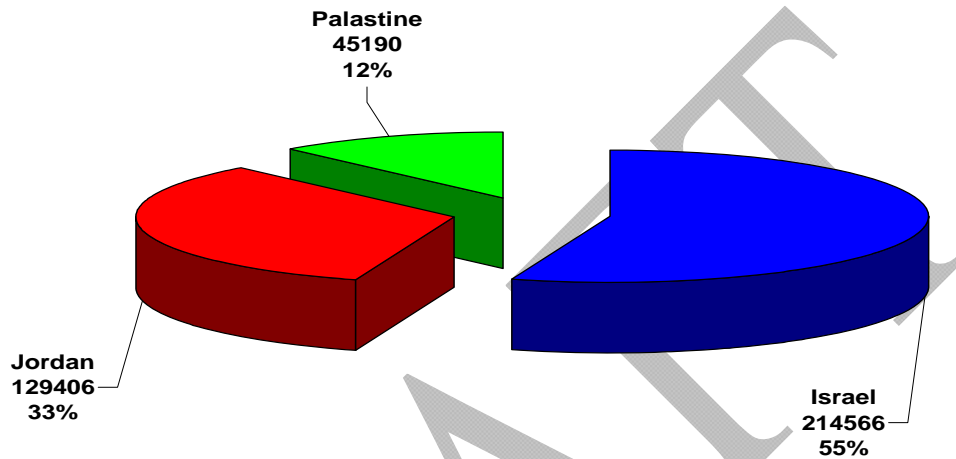
**Table 2; Distribution of Salmonella isolates, by MECIDS partners and by year**

	Human								Non Human specimens				Total
	Blood specimens				Stool specimens*								
	Israel	Jordan	Palestine	Total	Israel	Jordan	Palestine	Total	Israel	Jordan	Palestine	Total	
<b>2005</b>	23	6	0	29	753	47	80	880	0	0	113	113	1022
<b>2006</b>	32	2	0	34	954	92	52	1098	0	10	77	87	1219
<b>2007</b>	19	3	0	22	870	87	35	992	0	7	91	98	1112
<b>2008</b>	29	0	0	29	900	51	15	966	0	13	100	113	1108
<b>Total</b>	<b>103</b>	<b>11</b>	<b>0</b>	<b>114</b>	<b>3477</b>	<b>277</b>	<b>182</b>	<b>3936</b>	<b>0</b>	<b>30</b>	<b>381</b>	<b>411</b>	<b>4461</b>

*Include 26 isolates from urine. CSF, biopsy*

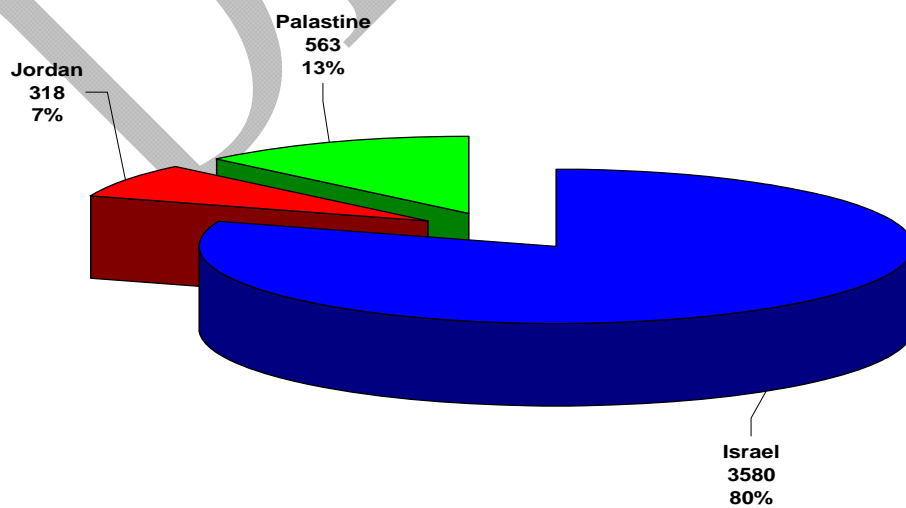
Of the total 389162 specimens which represents the cumulative number of tested specimens in the period 2005-2008 from MECIDS project partners; 214566 (55%) were from Israel which yielded 3580 isolates 129406 (33%) were from Jordan which yielded 318 isolates and 45190 (12%) from Palestine which yielded 563 isolates figure. 1

Figure 1; Distribution of human and non human Salmonella Specimens 2005-2008 by MECIDS partners



At the regional level 80% of isolates were from Israel, 13% of isolates were from Palestine and 7% of isolates were from Jordan figure 2.

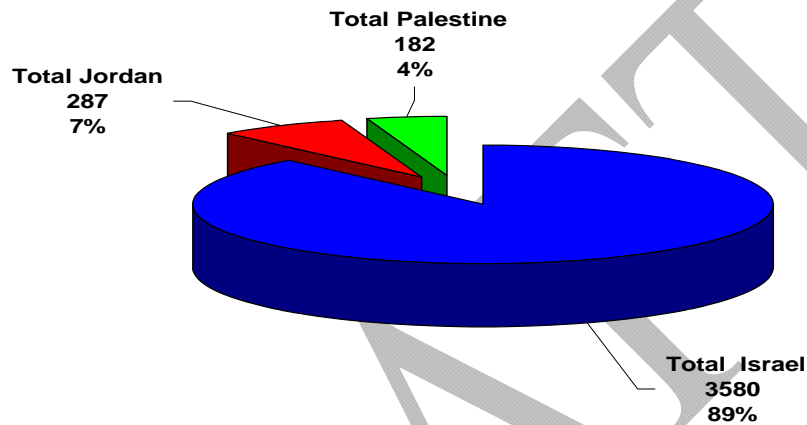
Figure 2; Distribution of human and non human Salmonella isolates, 2005-2008 by MECIDS partners



The human specimens for the period 2005-2008 represent 277849 and yielded 4049 isolates.

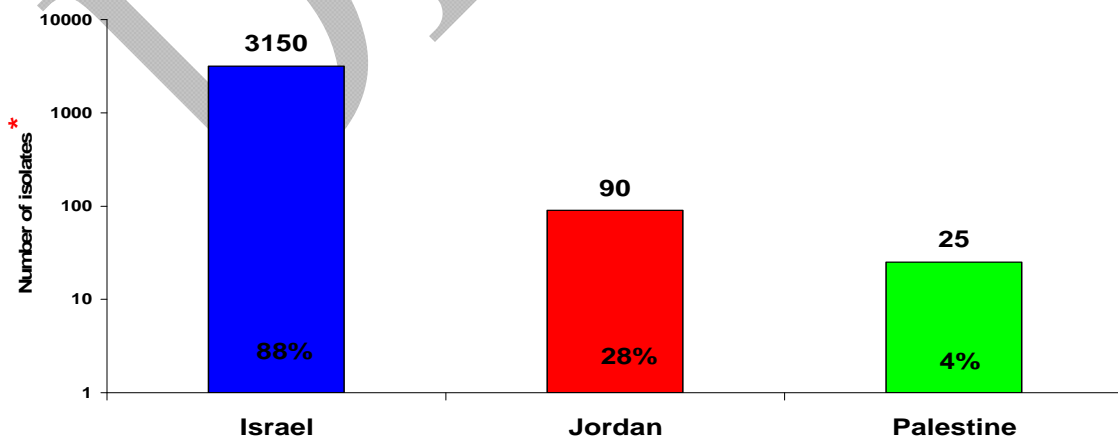
89% of the yielded isolates were from Israel, 7% from Jordan and 4% from Palestine; figure 2.

Figure 3; Distribution of Salmonella isolates from human specimens, 2005-2008 by MECIDS partners



88%, 28% and 4% of Salmonella isolates were serotyped in Israel, Jordan and Palestine respectively; figure 3.

Figure 3; Distribution of Serotyped Salmonella isolates, 2005-2008 by MECIDS partners

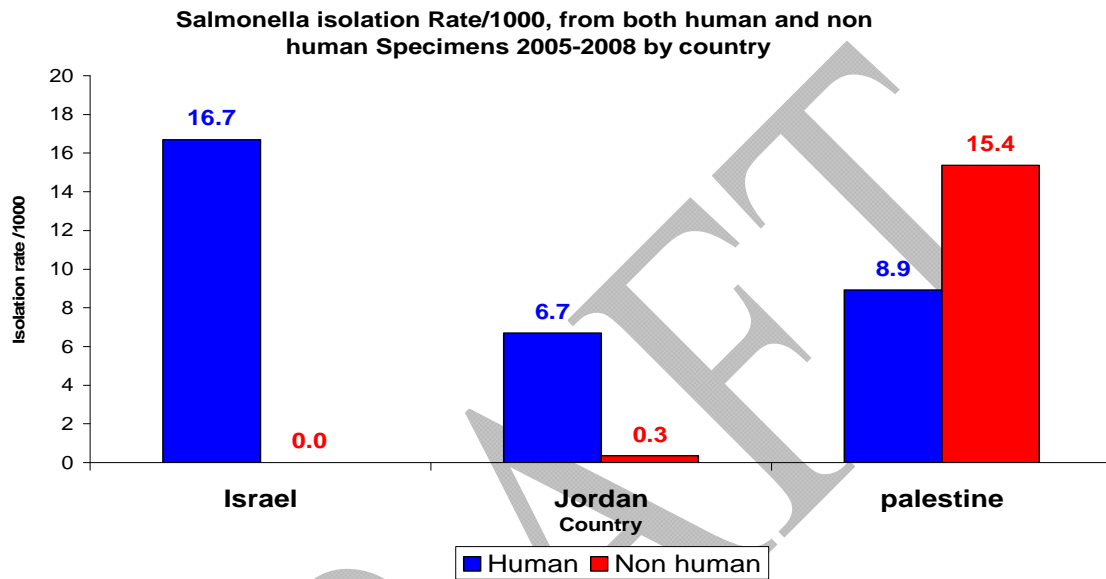


\* **Logarithmic scale**

The isolation rate for human specimens was 16.7, 6.7 and 8.9/ 1000 for Israel, Jordan and Palestine respectively.

The isolation rate for the non human specimens for Jordan was 0.3/1000 and 15.4 /1000 for Palestine; Israel didn't test non human specimens; figure 4.

Figure 4; Salmonella isolation Rate/1000, from both human and non human Specimens 2005-2008 by country



The following summary table illustrates total “human and non human” Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Table 3; Total “human and non human” Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Serogroups	Israel				Jordan				Palastine				Total Israel	Total Jordan	Total Palastine	Grand total
	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008				
Salmonella A	3	9	6	3	0	0	0	0	0	0	0	0	21	0	0	21
Salmonella B	144	141	89	110	11	33	10	18	3	18	18	14	484	72	53	609
Salmonella C	0	23	13	28	0	0	0	0	0	0	0	1	64	0	1	65
Salmonella C1	185	301	254	265	4	7	5	8	4	5	20	16	1005	24	45	1074
Salmonella C2	107	187	138	145	9	25	7	12	2	35	31	26	577	53	94	724
Salmonella C2-C3	5	1	2	4	0	0	0	0	0	0	0	0	12	0	0	12
Salmonella C3	12	6	6	1	0	0	0	0	6	0	0	0	25	0	6	31
Salmonella D	240	250	172	168	19	20	45	9	5	3	1	2	830	93	11	934
Salmonella D1	0	0	1	4	0	0	0	0	0	0	0	1	5	0	1	6
Salmonella E	13	20	24	35	4	12	17	9	0	0	0	1	92	42	1	135
Salmonella E1	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2
Salmonella F	1	1	0	1	0	0	0	1	0	3	14	18	3	1	35	39
Salmonella G	3	9	2	12	0	1	2	1	0	0	0	0	26	4	0	30
Salmonella H	0	1	2	0	0	0	2	0	0	0	0	0	3	2	0	5
Salmonella I	22	3	13	12	0	0	0	0	0	0	0	0	50	0	0	50
Salmonella K	1	1	0	0	0	0	1	1	0	0	0	0	2	2	0	4
Salmonella L	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella M	3	5	5	0	0	0	0	1	0	0	0	0	13	1	0	14
Salmonella O	1	1	3	4	0	0	0	0	0	0	0	0	9	0	0	9
Salmonella Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella Q	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella R	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2
Salmonella S	0	2	0	1	0	0	0	0	0	0	0	0	3	0	0	3
Salmonella spp.	34	22	158	131	6	6	8	4	0	0	0	1	345	24	1	370
Salmonella T	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella X	1	0	0	2	0	0	0	0	0	0	0	0	3	0	0	3
Salmonella Z	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total number of cultures	70272	69689	42617	31988	14422	33889	37943	43152	21649	12236	4987	6318	214566	129406	45190	389162
Total Salmonella Isolates	776	986	889	929	53	104	97	64	193	129	126	115	3580	318	563	4461
Isolation rate / 1000													16.7	2.5	12.5	11.5

The following summary table illustrates human Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Table 4; Total human Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Salmonella Serogroups	Israel				Jordan				palestine				Total Israel	Total Jordan	Total Palestine	Grand total
	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008				
Salmonella spp.	34	22	158	131	6	6	8	3	0	0	0	1	345	23	1	369
Salmonella A	3	9	6	3	0	0	0	0	0	0	0	0	21	0	0	21
Salmonella B	144	141	89	110	11	30	9	11	1	2	4	0	484	61	7	552
Salmonella C	0	23	13	28	0	0	0	0	0	4	21	0	64	0	25	89
Salmonella C1	185	301	254	265	4	6	5	6	0	35	4	0	1005	21	39	1065
Salmonella C2	107	187	138	145	9	24	7	11	0	4	0	1	577	51	5	633
Salmonella C3	12	6	6	1	0	0	0	0	2	0	0	0	25	0	2	27
Salmonella C2-C3	5	1	2	4	0	0	0	0	0	0	0	0	12	0	0	12
Salmonella D	240	250	172	168	19	15	39	9	0	2	4	0	830	82	6	918
Salmonella D1	0	0	1	4	0	0	0	0	1	0	0	0	5	0	1	6
Salmonella E	13	20	24	35	4	11	17	8	0	0	2	2	92	40	4	136
Salmonella E1	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2
Salmonella F	1	1	0	1	0	0	0	1	0	0	0	0	3	1	0	4
Salmonella G	3	9	2	12	0	1	2	0	0	1	0	0	26	3	1	30
Salmonella H	0	1	2	0	0	0	2	0	0	0	0	0	3	2	0	5
Salmonella I	22	3	13	12	0	0	0	0	0	0	0	0	50	0	0	50
Salmonella K	1	1	0	0	0	0	1	1	0	0	0	0	2	2	0	4
Salmonella L	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella M	3	5	5	0	0	0	0	1	0	0	0	0	13	1	0	14
Salmonella O	1	1	3	4	0	0	0	0	0	0	0	0	9	0	0	9
Salmonella Q	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella R	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2
Salmonella S	0	2	0	1	0	0	0	0	0	0	0	0	3	0	0	3
Salmonella T	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella X	1	0	0	2	0	0	0	0	0	0	0	0	3	0	0	3
Salmonella Z	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Salmonella Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total number of stool culture	70272	69689	42617	31988	5000	11599	13174	13102	12842	6921	302	343	214566	42875	20408	277849
Total Salmonella Isolates	776	986	889	929	53	93	90	51	80	52	35	15	3580	287	182	4049
Isolation rate / 1000													16.7	6.7	8.9	14.6



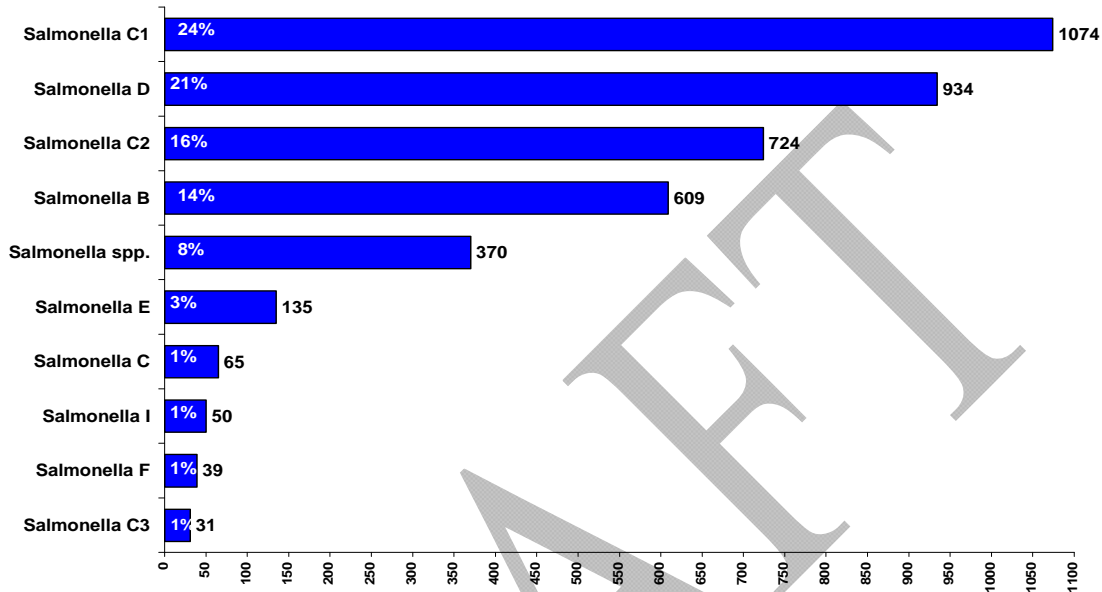
The following summary table illustrates non human Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Table 5; Total non human Salmonella isolates from MECIDS partners by Serogroups and year of isolation

Salmonella Serogroups	Israel				Jordan				palestine				Total Israel	Total Jordan	Total Palestine	Grand total
	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008	Total 2005	Total 2006	Total 2007	Total 2008				
Salmonella spp.	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Salmonella A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella B	0	0	0	0	0	2	1	7	3	18	18	14	0	10	53	63
Salmonella C	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Salmonella C1	0	0	0	0	0	1	0	2	4	5	20	16	0	3	45	48
Salmonella C2	0	0	0	0	0	1	0	1	2	35	31	25	0	2	93	95
Salmonella C3	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	6
Salmonella C2-C3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella D	0	0	0	0	0	5	6	0	5	3	1	2	0	11	11	22
Salmonella D1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Salmonella E	0	0	0	0	0	1	0	1	0	0	0	1	0	2	1	3
Salmonella E1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella F	0	0	0	0	0	0	0	0	0	3	14	18	0	0	35	35
Salmonella G	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1
Salmonella H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella X	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella Z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmonella Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total number of stool culture	0	0	0	0	9422	22290	24769	30050	8807	5315	4685	5975	0	86531	24782	111313
Total Salmonella Isolates	0	0	0	0	0	10	7	13	113	77	91	100	0	30	381	411
Isolation rate / 1000													0.0	0.3	15.4	3.7

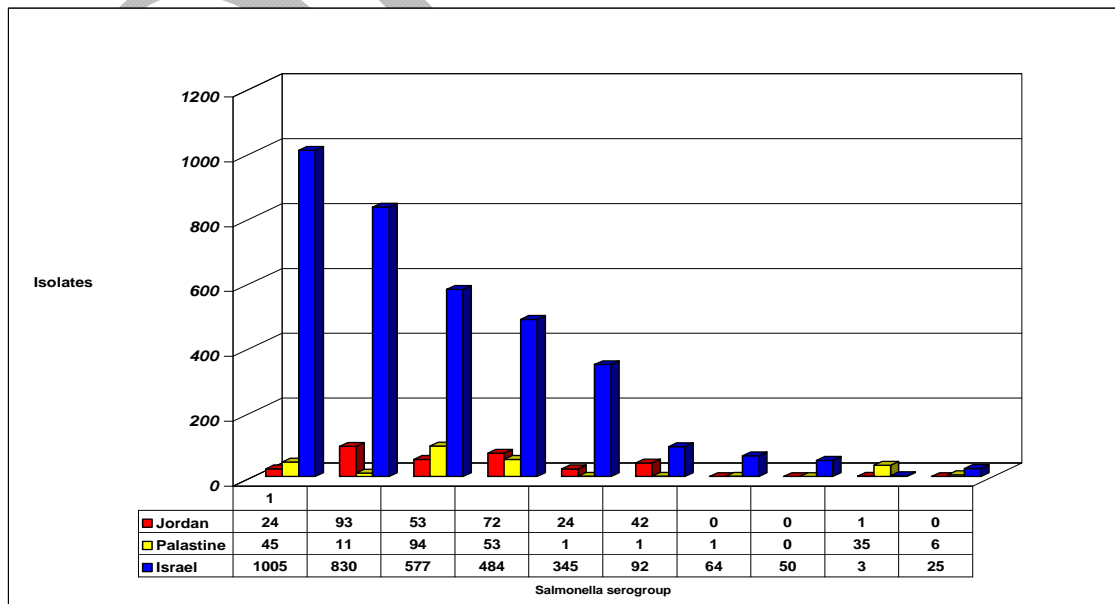
The most common Salmonella Serogroups at the regional level were Salmonella C1 (24%), Salmonella D (21%), Salmonella C2 (16%) and Salmonella B (14%) figure 5.

Figure 5; Top ten Sero-grouped Salmonella Isolates at MECIDS regional level 2005-2008



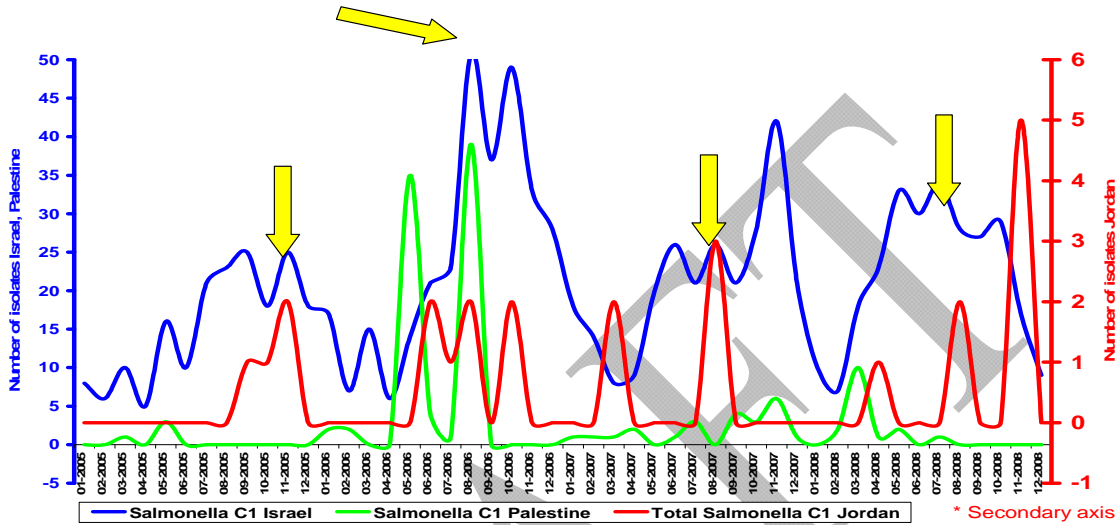
The most common Salmonella Serogroups in Israel were Salmonella C1 followed by Salmonella D; in Jordan Salmonella D followed by Salmonella B; and in Palestine Salmonella C2 followed by Salmonella C1, figure 6.

Figure 6; Top ten Sero-grouped Salmonella Isolates by MECIDS countries 2005-2008



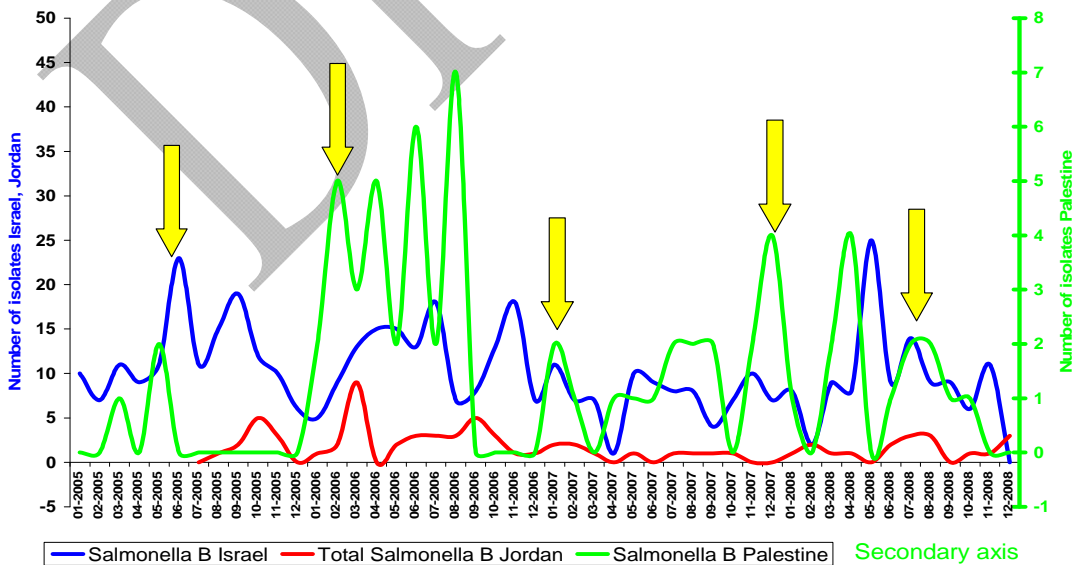
Although of the big variation in the number of specimens and isolates between MECIDS partners, a relation in the occurrence between them were observed as for Salmonella group C1 in November 2005, August 2006, August 2007, July – August 2008, figure 7.

Figure 7; Distribution of salmonella group C1 isolated from both human and non human specimens from MECIDS partners 2005-2008 by month of isolation



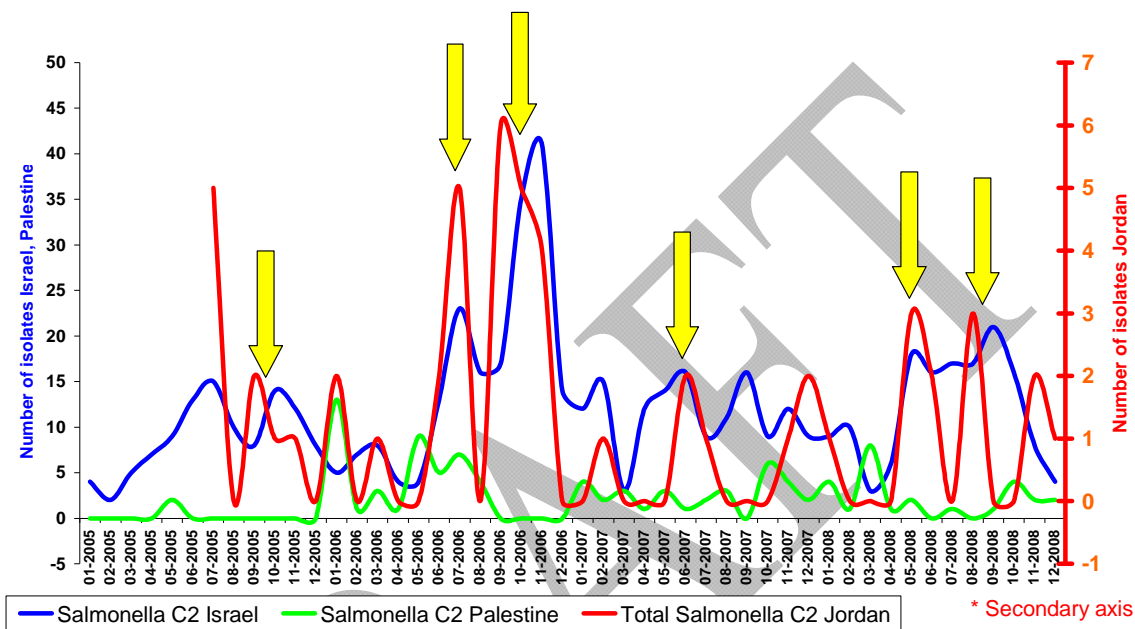
Same for Salmonella group B were observed that there could be a relation in the occurrence as in May – June 2005, February-March 2006, January 2007, December 2007, and July 2008, figure 8.

Figure 8; Distribution of salmonella group B isolated from both human and non human specimens from MECIDS partners 2005-2008 by month of isolation



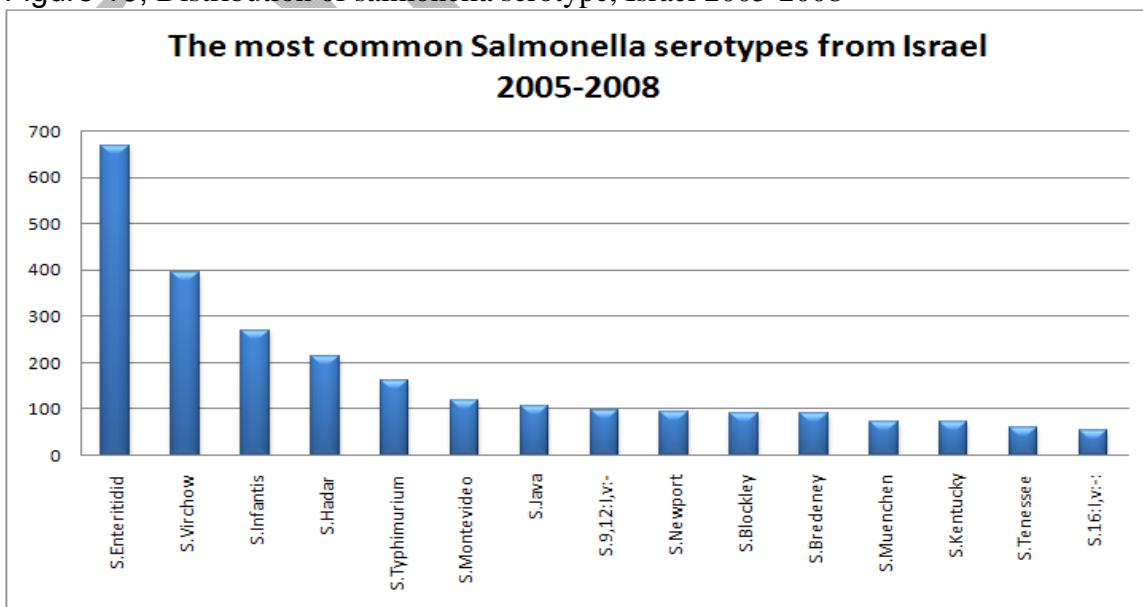
Same for Salmonella group C2 were observed that there could be a relation in the occurrence as in October– November 2005, July, September–November 2006, June 2007, May, August–September 2008, figure 9.

Figure 9, Distribution of salmonella isolation group C2 isolated from both human and non human specimens from MECIDS partners 2005-2008 by month of isolation



The total number of serotypes from Israel was 3612, the most common serotypes were Salmonella enteritidis, Salmonella virchow and Salmonella infantis figure 10;

Figure 10; Distribution of salmonella serotype, Israel 2005-2008



The total number of serotypes from Jordan was 90, the most common was Salmonella enteritidis, table 6;

Table number 6, Distribution of salmonella serotype, Jordan 2005-2008

Salmonella Serotypes	Cumulative 2005	Cumulative 2006	Cumulative 2007	Cumulative 2008	Total
S.B,Typhimurium	4	4	2	1	11
S.D,Enteritidid	13	13	37	7	70
S.D,Typhi	6	2	0	1	9
<b>Total serotyped Isolates</b>	<b>23</b>	<b>19</b>	<b>39</b>	<b>9</b>	<b>90</b>

The total number of serotypes from Palestine was 27; the most common was Salmonella Kentucky, table 7;

Table number 7, Distribution of salmonella serotype, Jordan 2005-2008

Year	Cumulative 2005	Cumulative 2006	Cumulative 2007	Cumulative 2008	Cumulative
S.Derby	1	0	0	0	1
S.Typhimurium	3	0	0	0	3
S.Virchow	1	0	0	0	1
S.Infantis	1	0	0	0	1
S.Oritamerin	1	0	0	0	1
S.papuana	0	0	3	0	3
S. infantis	0	0	1	0	1
S.Virchow	1	0	0	0	1
S.Newport	2	0	0	0	2
S.Kentucky	5	0	1	0	6
S.Emek	1	0	0	0	1
S.Enteritidis	5	0	0	0	5
S.Eastbourne	1	0	0	0	1
<b>Total serotypes</b>	<b>22</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>27</b>

Table 8-a Summary table for Salmonella sero-groups and sero-types by MECIDS partners and year

Serogroups	Country	Israel					Jordan					Palastine					Grand total
		Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	
Spp, Salmonella	S.Rough	2	2	0	1	5	0	0	0	0	0	0	0	0	0	0	10
	S.Rough:k:1,5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Rough:r:1,2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Rough:eh:1,2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
	S.Rough:b:enx	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.35 Rough	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	S.Rough:k:enx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A, Salmonella	S.Paratyphi A	3	5	4	2	14	0	0	0	0	0	0	0	0	0	0	28
B, Salmonella	S.Typhimurium	56	46	21	38	161	4	4	2	1	11	3	0	0	0	3	350
	S.Agona	6	11	10	11	38	0	0	0	0	0	0	0	0	0	0	76
	S.Bredeney	28	20	20	22	90	0	0	0	0	0	0	0	0	0	0	180
	S.Stanley	2	5	2	2	11	0	0	0	0	0	0	0	0	0	0	22
	S.Java	21	35	24	26	106	0	0	0	0	0	0	0	0	0	0	212
	S.Heidelberg	15	5	1	0	21	0	0	0	0	0	0	0	0	0	0	42
	S.Paratyphi B	4	3	0	1	8	0	0	0	0	0	0	0	0	0	0	16
	S.Indiana	5	1	0	0	6	0	0	0	0	0	0	0	0	0	0	12
	S.Saintpaul	5	2	1	2	10	0	0	0	0	0	0	0	0	0	0	20
	S.Abony	1	6	2	3	12	0	0	0	0	0	0	0	0	0	0	24
	S.duisburg	0	6	0	1	7	0	0	0	0	0	0	0	0	0	0	14
	S.Shubra	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Chester	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	6
	S.2[Sofia]	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Kingston	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Derby	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	4
	S.Schwarzengrund	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.4,12:-:1,7	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
S.4,12:i:-	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	8	
C1, Salmonella	S.Virchow	55	186	87	67	395	0	0	0	0	0	1	0	0	0	1	792
	S.Infantis	37	22	68	142	269	0	0	0	0	0	1	0	0	0	1	540
	S.Richmond	2	2	1	3	8	0	0	0	0	0	0	0	0	0	0	16
	S.Montevideo	31	35	37	15	118	0	0	0	0	0	0	0	0	0	0	236
	S.Singapore	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
	S.Afula	13	10	17	8	48	0	0	0	0	0	0	0	0	0	0	96
	S.Mbandaka	14	8	7	11	40	0	0	0	0	0	0	0	0	0	0	80
	S.Tennessee	20	15	23	2	60	0	0	0	0	0	0	0	0	0	0	120
	S.Concord	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8
	S.Isangi	1	3	1	1	6	0	0	0	0	0	0	0	0	0	0	12
	S.Irumu	1	1	2	0	4	0	0	0	0	0	0	0	0	0	0	8
	S.Lille	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
	S.Thompson	1	0	0	2	3	0	0	0	0	0	0	0	0	0	0	6
	S.Bareilly	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4
	S.Braenderup	0	6	1	0	7	0	0	0	0	0	0	0	0	0	0	14
	S.Edinburg	0	10	7	1	18	0	0	0	0	0	0	0	0	0	0	36
	S.Brazzaville	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
	S.Oranienburg	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	4
	S.6,7:r:-	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Rissen	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	S.Menden	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	S.OritamerinO:6,7:l:1,5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
	S. papuana	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	6
S.6,7:-:-	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	



Table 8-c Summary table for Salmonella sero-groups and sero-types by MECIDS partners and year

Country		Israel					Jordan					Palastine					Grand total
Serogroups	Salmonella Serotypes	Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	Total 2005	Total 2006	Total 2007	Total 2008	Grand Total	
M, Salmonella	S.telaviv	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
	S.Vitkin	1	4	1	0	6	0	0	0	0	0	0	0	0	0	0	12
	S.Halle	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	S.Umbilo	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	6
	S.Pomona	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
O, Salmonella	S.Alachua	1	1	3	4	9	0	0	0	0	0	0	0	0	0	0	18
Q, Salmonella	S.Wandsworth	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
R, Salmonella	S.Johannesburg	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	4
S, Salmonella	S.II(negev)	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	6
T, Salmonella	S.II (uphill)	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
X, Salmonella	S.II(Khami)	1	0	0	2	3	0	0	0	0	0	0	0	0	0	0	6
Z, Salmonella	S.II 50:b:z6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
<b>Total</b>		<b>744</b>	<b>940</b>	<b>718</b>	<b>748</b>	<b>3150</b>	<b>23</b>	<b>19</b>	<b>39</b>	<b>9</b>	<b>90</b>	<b>21</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>25</b>	<b>6530</b>

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## Conclusion

- A regional lab-based data set on Salmonella was created.
- After about three year of data collection the regional analysis unit began its activities by rearranging and reentering in a new format and sorting the data that were deposited at the CMC-Amman in different ways.
- Although of the diversity of the number of specimens and isolation between the three partners was observed that there is association between the incidence of certain Salmonella sero-groups among at least two MECIDS partners or among all three MECIDS partners. This is not reflect the real magnitude of the Salmonellosis in the region, but can identify the pattern of the salmonella Serogroups and serotypes.

## Recommendation

- Continue the data validation and data entry in the data set
- Perform the analysis on monthly base to identify any increase in a certain Serogroups or when a new serotype not known in the region was identified
- Notifying the three partners of any increase or suspicious Serogroups or serotypes were identified
- Creation a regular quarterly report for MECIDS partners