

Tracking Inter-Country Transmission of *Salmonella* Infantis using the Laboratory- Based Surveillance Network Established by MECIDS

Ravit Bassal, PhD

on behalf of MECIDS

CORDS Conference, Bangkok

30 January 2018

Establishment of MECIDS

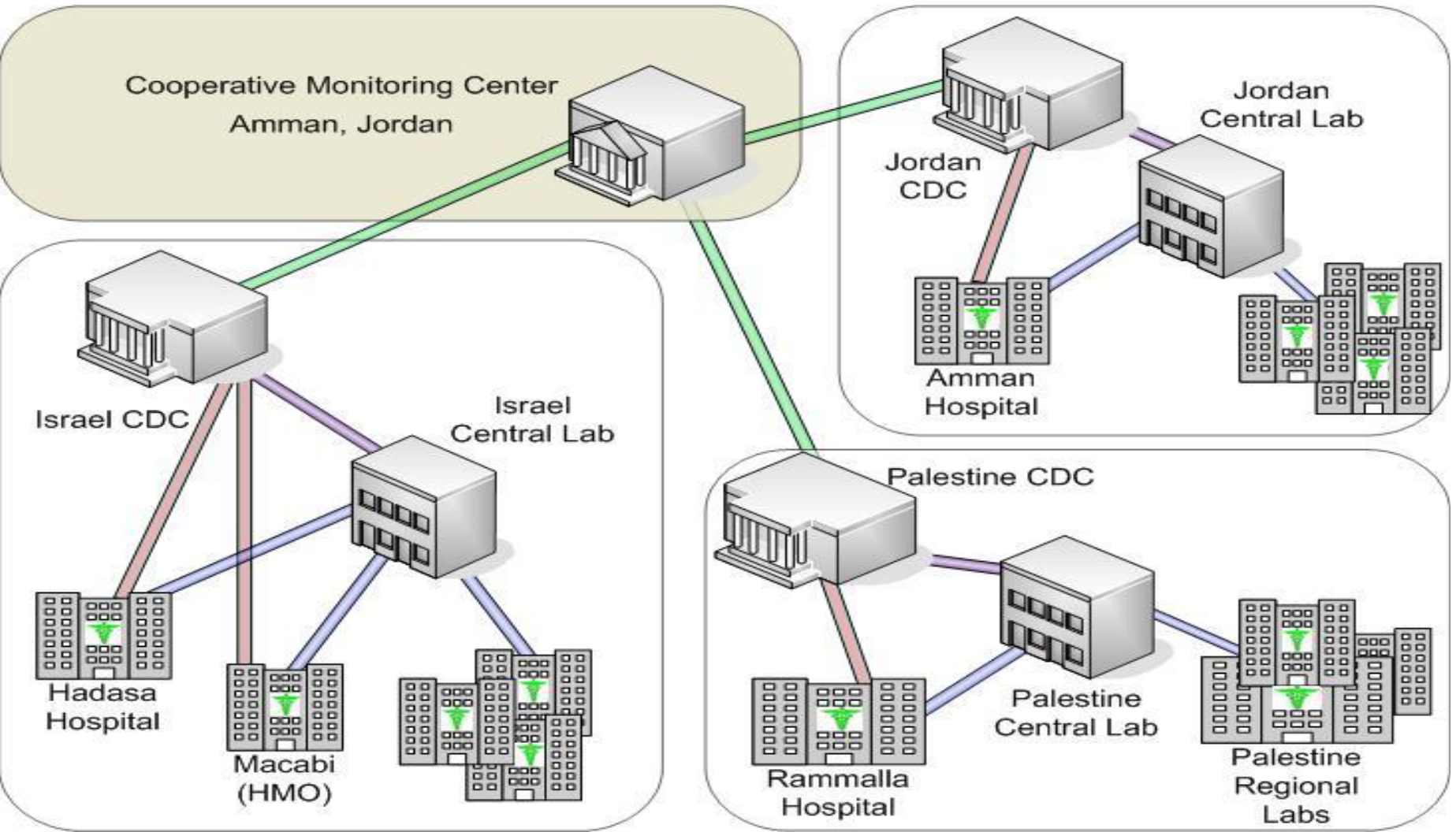
- ▶ In 2003, health professionals from the Ministries of Health and academia of Jordan, the Palestinian Authority and Israel, convened together by the US Search for Common Ground, and formed the Middle East Consortium for Infectious Disease Surveillance (MECIDS)
- ▶ The aim of the network was to facilitate trans-border collaboration in response to infectious disease outbreaks



MECIDS *Salmonella* Laboratory-Based Surveillance

- ▶ The MECIDS *Salmonella* laboratory-based surveillance:
 - Patients (stool/blood/urine)
 - Food-handlers (stool)
 - Food items
- ▶ Specimens are tested for the presence of *Salmonella* using harmonized standard operating procedures
- ▶ Organisms defined as *Salmonella* in sentinel laboratories are submitted to the National Reference Laboratories for confirmation and phenotype and genotype characterization

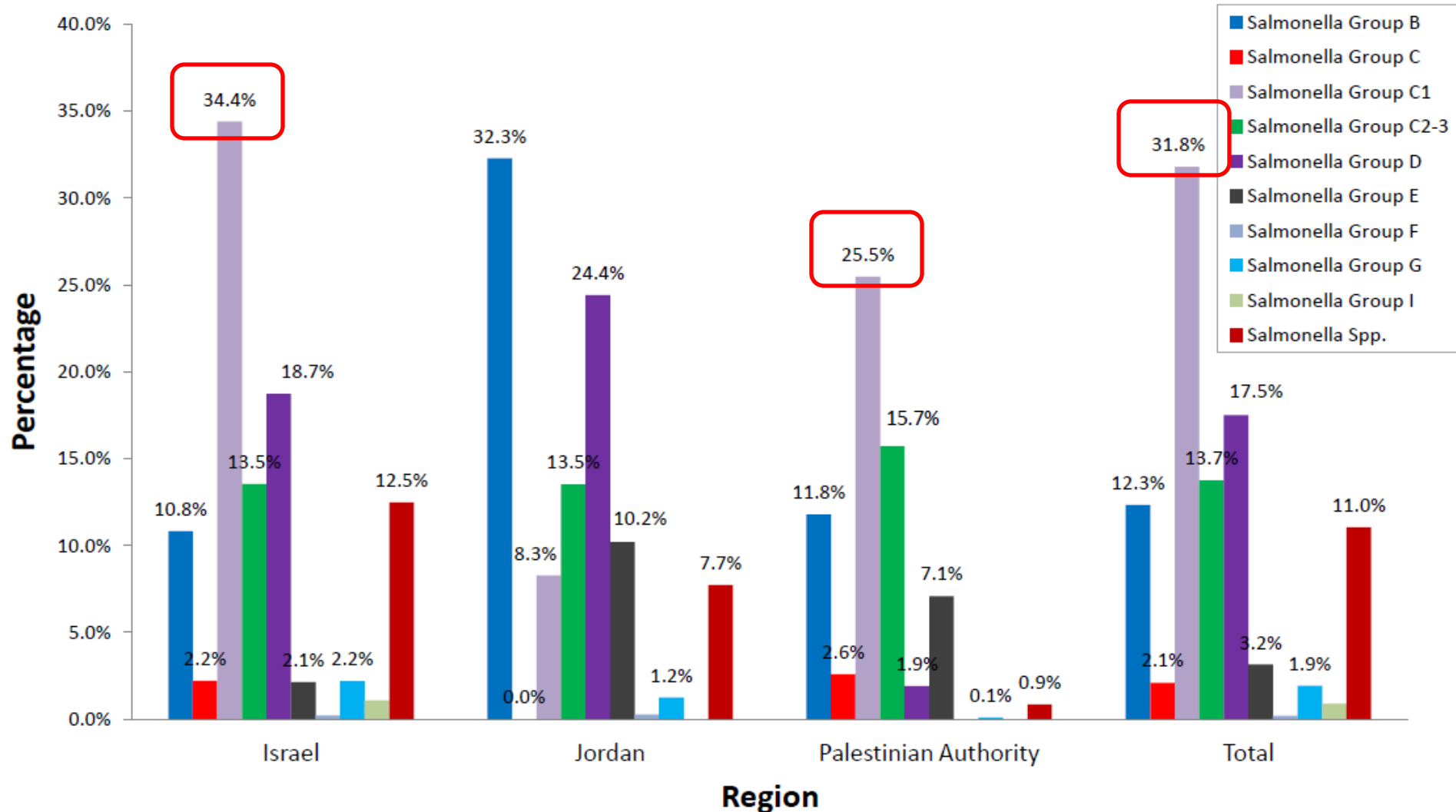
MECIDS *Salmonella* Laboratory-Based Surveillance Structure



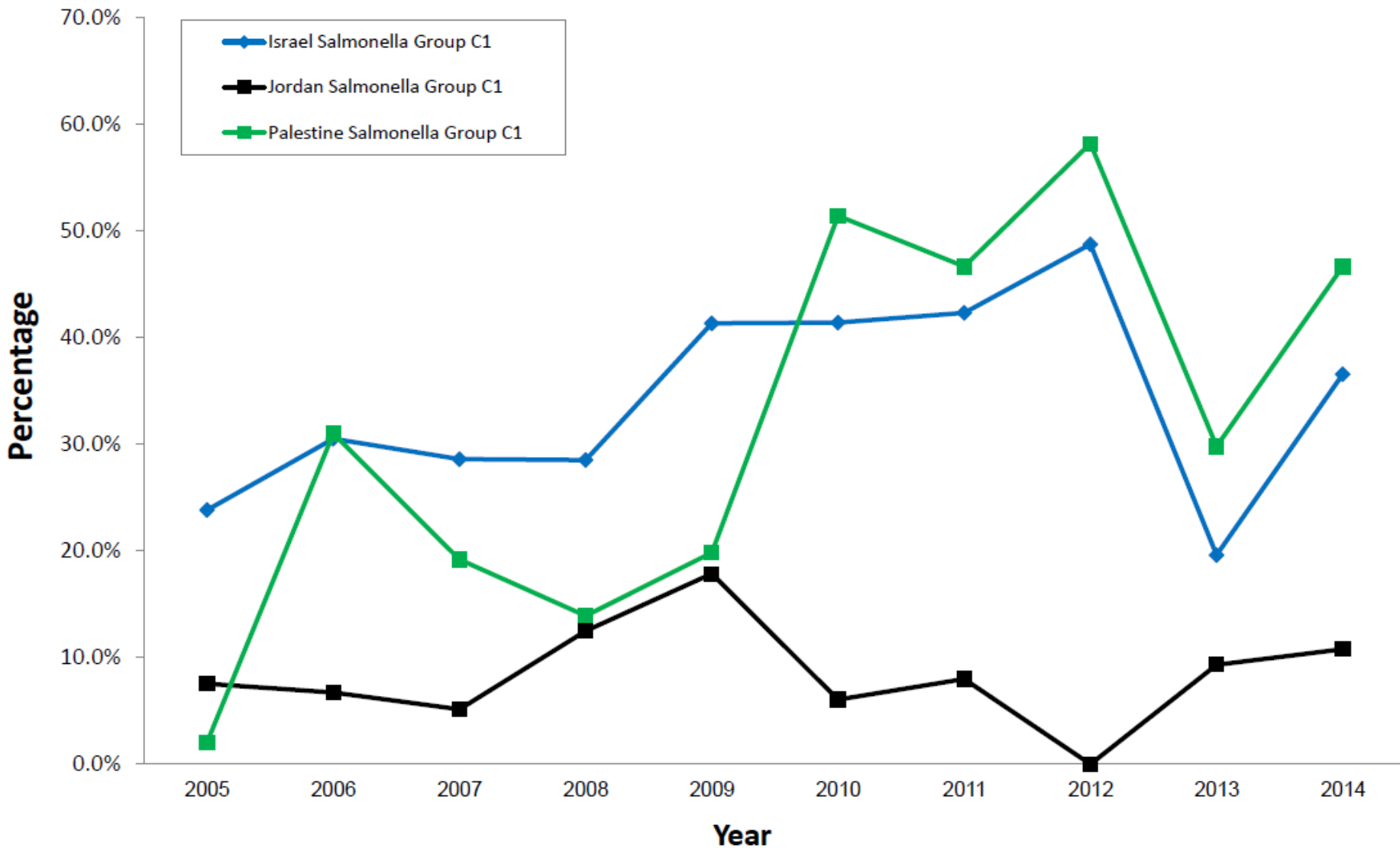
Results - Number of Isolates

- ▶ The total number of specimens (blood, stool, urine and food items) tested between 2005 and 2014 from all three partners was 885,040
- ▶ Of the samples tested, 10,855 (1.2%) were positive for *Salmonella*
- ▶ 9,902 (91.2%) of *Salmonella* isolates were human specimens (blood, stool or urine) and 953 (8.8%) were from non-human specimens (food items)

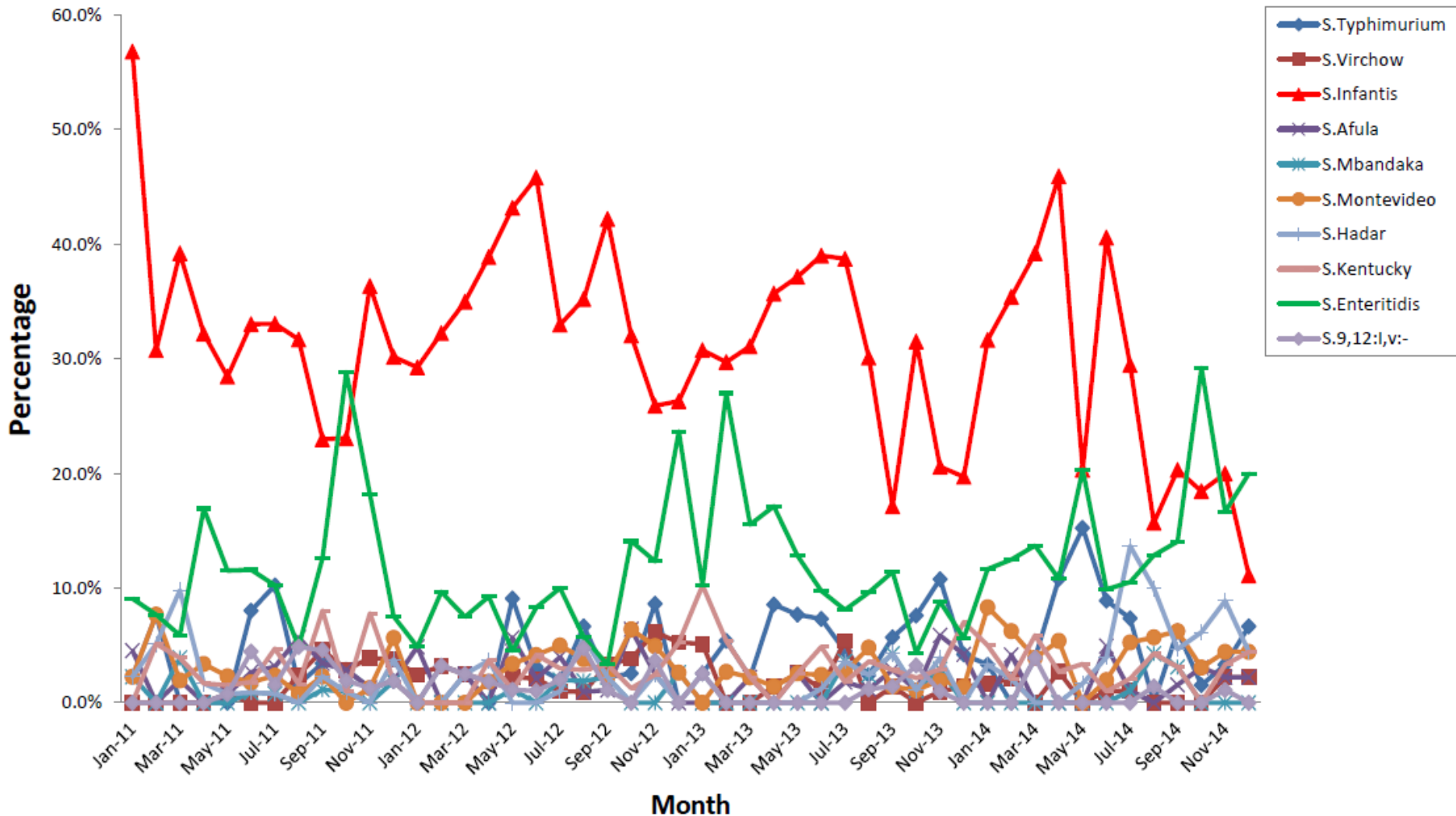
Total *Salmonella* Isolates from MECIDS Partners by Serogroups, 2005-2014



Salmonella C1 Isolates from MECIDS Partners, 2005-2014



Salmonella Serotypes Reports from Sentinel Laboratories in Israel, Percentage of *Salmonella* Isolates (Jan2011-March2014)



Salmonella Serotypes in Jordan and Palestinian Authority

▶ **In the Palestinian Authority:**

- Of 103 samples collected between 2005 and 2011, 41 (39.8%) were *Salmonella* Infantis (leading serotype)

▶ **In Jordan:**

- Of 277 samples collected between 2005 and 2011, 3 (1.1%) were *Salmonella* Infantis (leading serotypes: *Salmonella* Agona, *Salmonella* Anatum, *Salmonella* Blockley)

Conclusions & Lessons Learned

- ▶ The *Salmonella* laboratory-based surveillance established by MECIDS:
 - Sensitive and specific in the identification of regional trends in *Salmonella* species
 - Associated with the extent of food products exchange among the three countries and correspond to food-borne transmission of the pathogen

Conclusions & Lessons Learned

▶ Advantages:

- Advanced methods of electronic communication and exchange of information
- Represent important steps towards estimating the burden of foodborne diseases in the region
- Fundamental during disease outbreaks for the harmonization of public health interventions and prevention strategies

▶ Challenges:

- Lag time between isolation in the sentinel laboratories, characterization and reporting
- The use of the data for real-time interventions
- System attributes such as sensitivity and representativeness

Thanks

Israel:

Prof. Dani Cohen
Prof. Alex Leventhal
Prof. Tamy Shohat
Dr. Vered Agmon
Dr. Ruthi Yishai

Jordan:

Dr. Sami Sheikh Ali
Dr. Aktham Haddadin
Dr. Mohammad Mousa Al-Abdallat

Palesinian Authority:

Dr. Assad Ramlawi
Prof. Ziad Abdeen
Nisreen Al Shuaibi

MECIDS Secretariat

Sari Husseini

Activities supported by Nuclear Threat Initiative (NTI) along the years