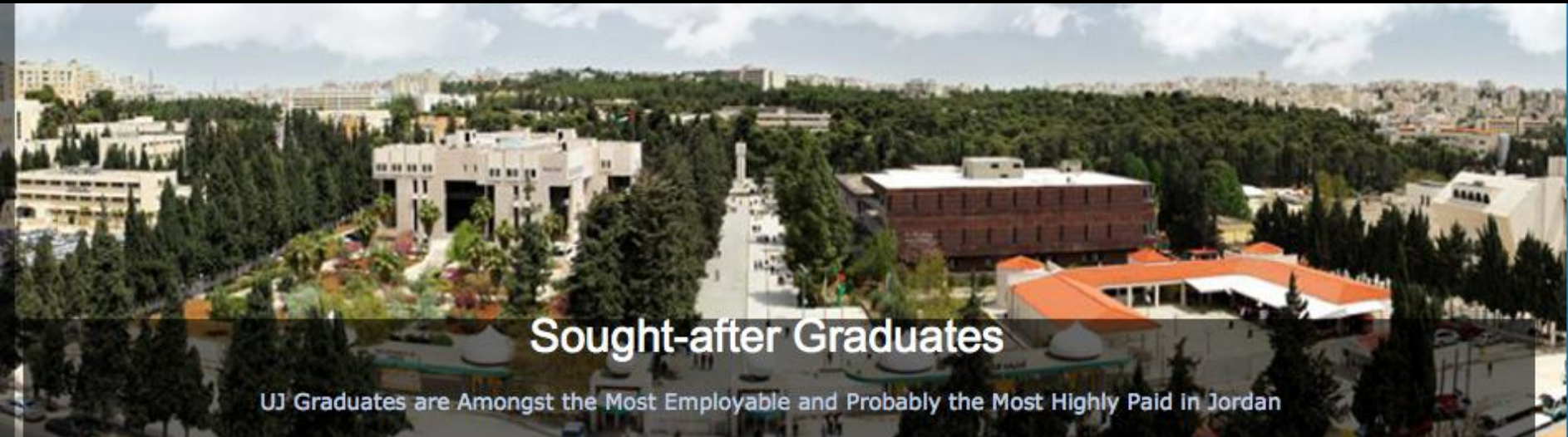


# Infectious Disease and Vaccine Center



Sought-after Graduates

UJ Graduates are Amongst the Most Employable and Probably the Most Highly Paid in Jordan

Najwa Khuri-Bulos MD, FIDSA  
Director Infectious Disease and Vaccine  
Center, University of Jordan  
November 17, 2015

# Outline

## Justification for an infectious disease center

- Major issues in infectious diseases
- Why a center for infectious Disease and vaccines in the region
- Available Resources
- Needs, strategy

# Why are IDs different

- Spread of disease and impact is societal
- Control within reach by vaccines, treatment or infection control
- Benefit not fulfilled though possible
- Implementation for control of ID so far poor
- Can be a major economic burden if uncontrolled
- “Health is wealth”

# Economic Cost of emergence of diseases

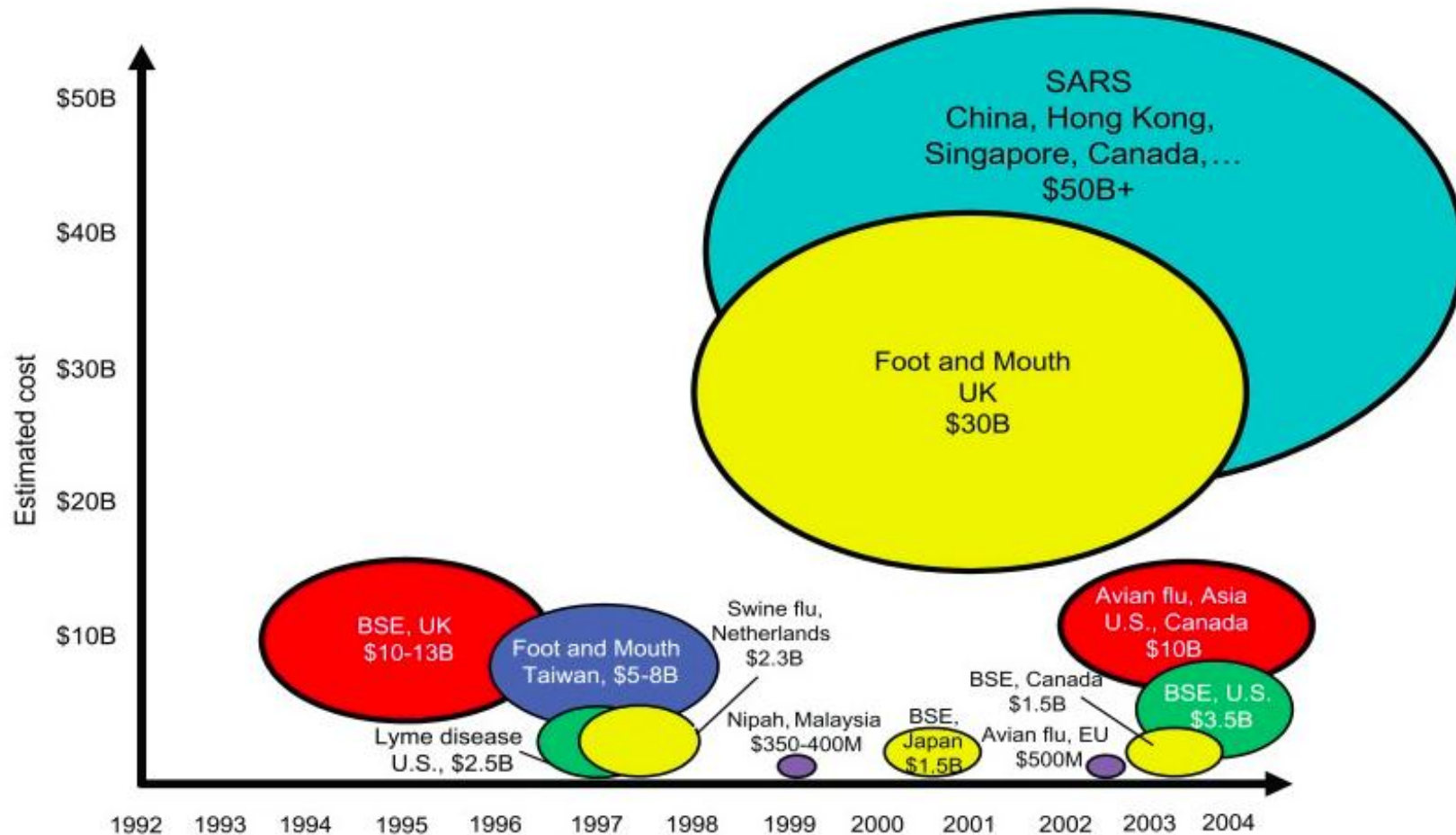


FIGURE SA-1 The economic impact of selected infectious diseases

# Major Issues in Infectious Disease

1. Childhood infections
2. Population changes, NCDs and infections
3. Hospital acquired infections
4. Antibiotic resistance
5. Emerging infections

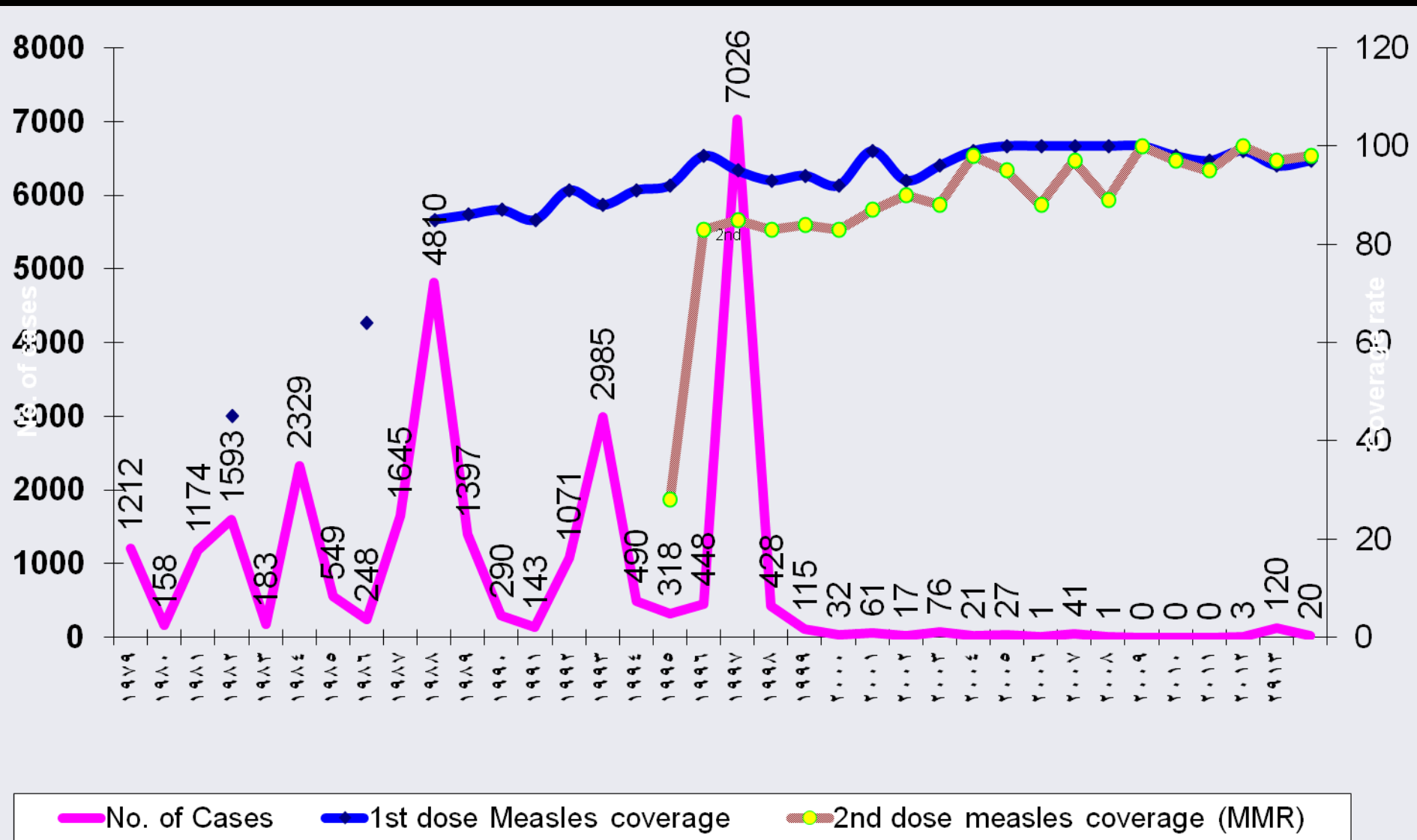
# Major Issues in infectious Disease

- Neonatal mortality, and infections
- Vaccination, an unfinished agenda
- Re emergence of ID possible especially with social unrest such as polio and measles outbreaks
- Health care related infections, impact increasing
- Antibiotic resistance increasing
- Emerging NEW infections such as MERS CoV

# Vaccine preventable diseases..out but not gone

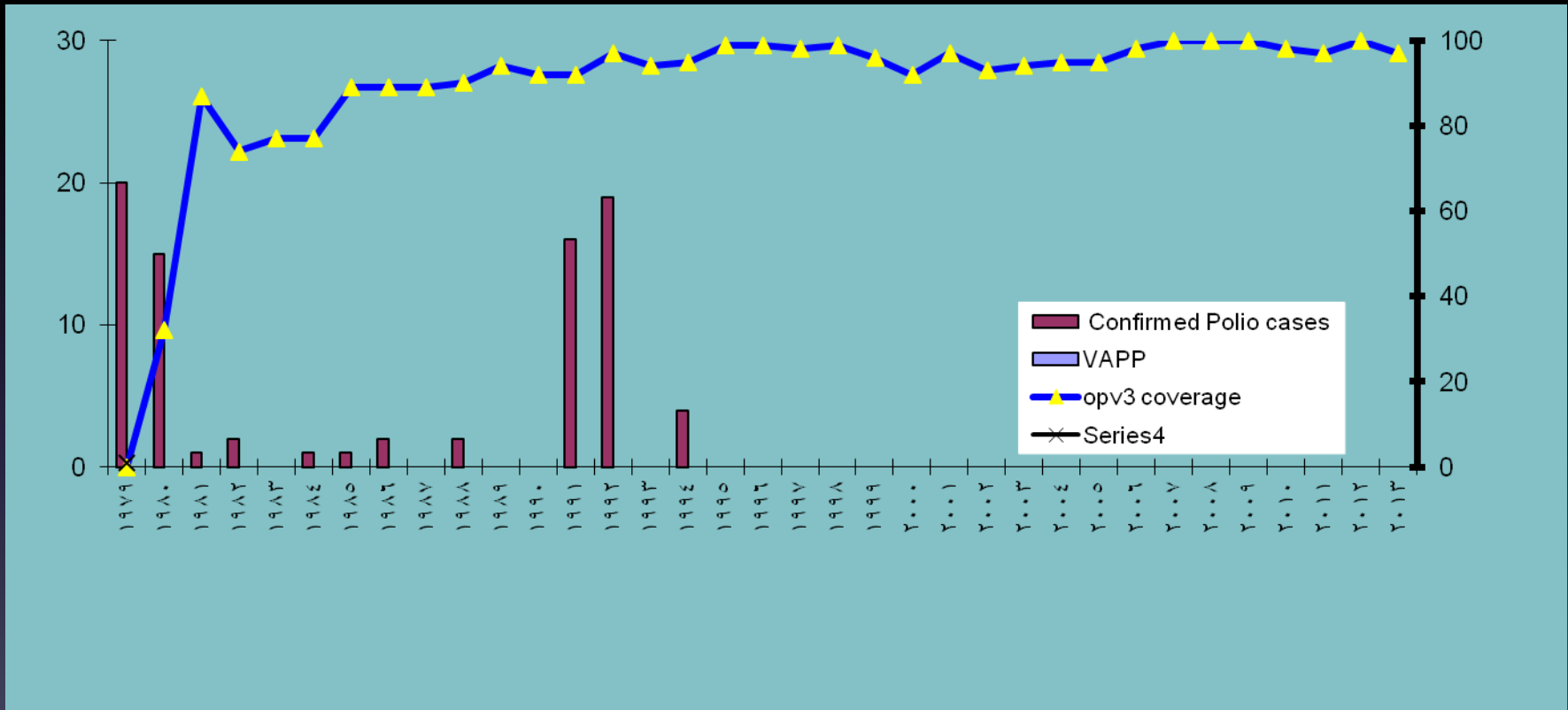
- Vaccination, a great success but
- New vaccine introduction is patchy in the region
- Political instability threatens the EPI
- Total dependence on other resources for vaccines and policy in the region
- Vaccine making capacity is also limited for animal diseases some of which do impact human health
- Communication on vaccines is increasingly a problem which can threaten well functioning programs

# Measles cases and coverage rates ,Jordan 1979 -2014

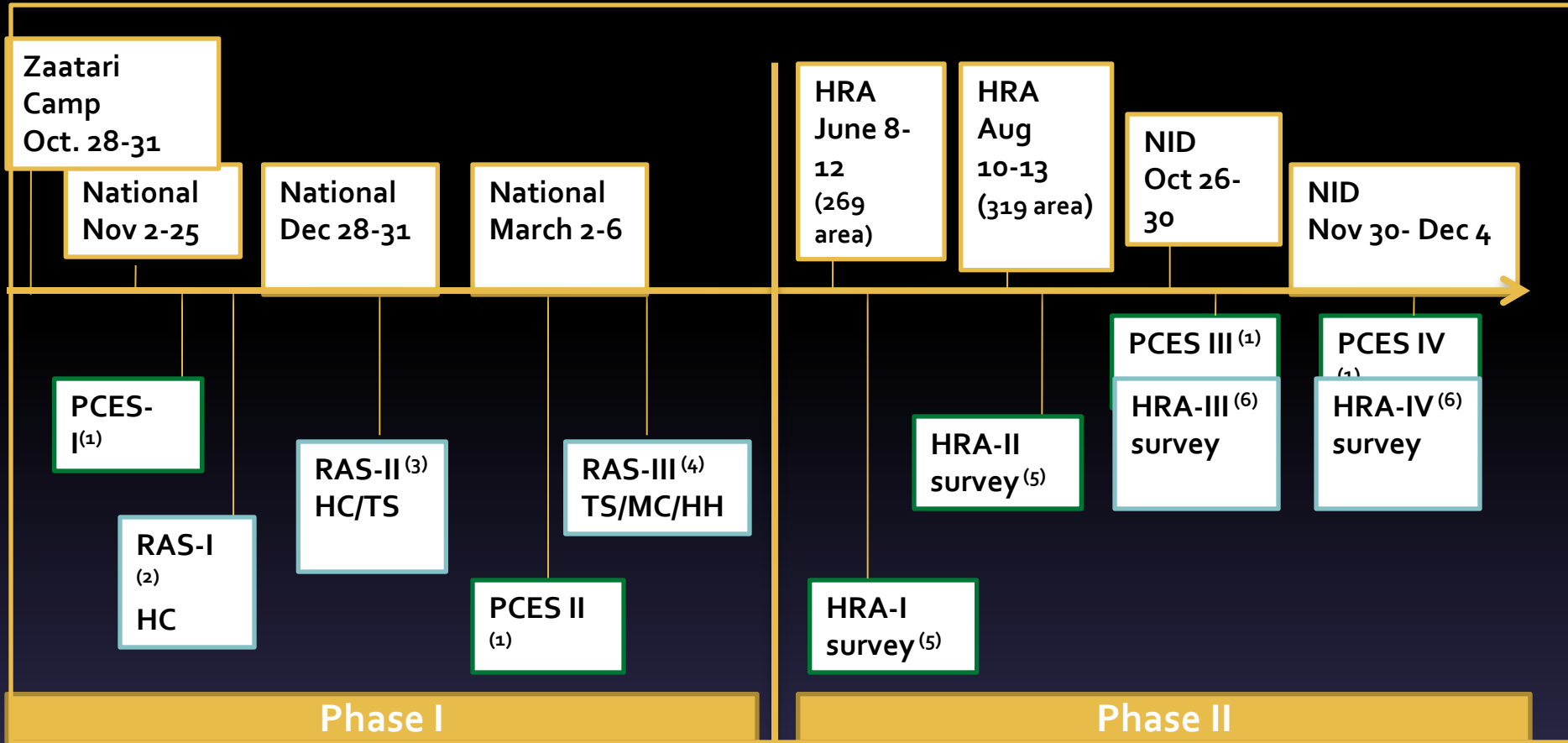




# Poliomyelitis 1979-2014 Jordan



# SIAs and Post-caSIAsmpaigns assignment/monitoring – Jordan, Polio



<sup>(1)</sup>Post Campaign Evaluation Survey conducted for November 2013 /March/ October/ November 2014 NIDs.

<sup>(2)</sup>Rapid Assessment Survey I in health centers serving Syrians in 4 governorates – for November 2013 NIDs.

<sup>(3)</sup>Rapid Assessment Survey II in health centers serving Syrians and Syrians residing in 12 tent settlements in 5 Governorates December 2013 NIDs.

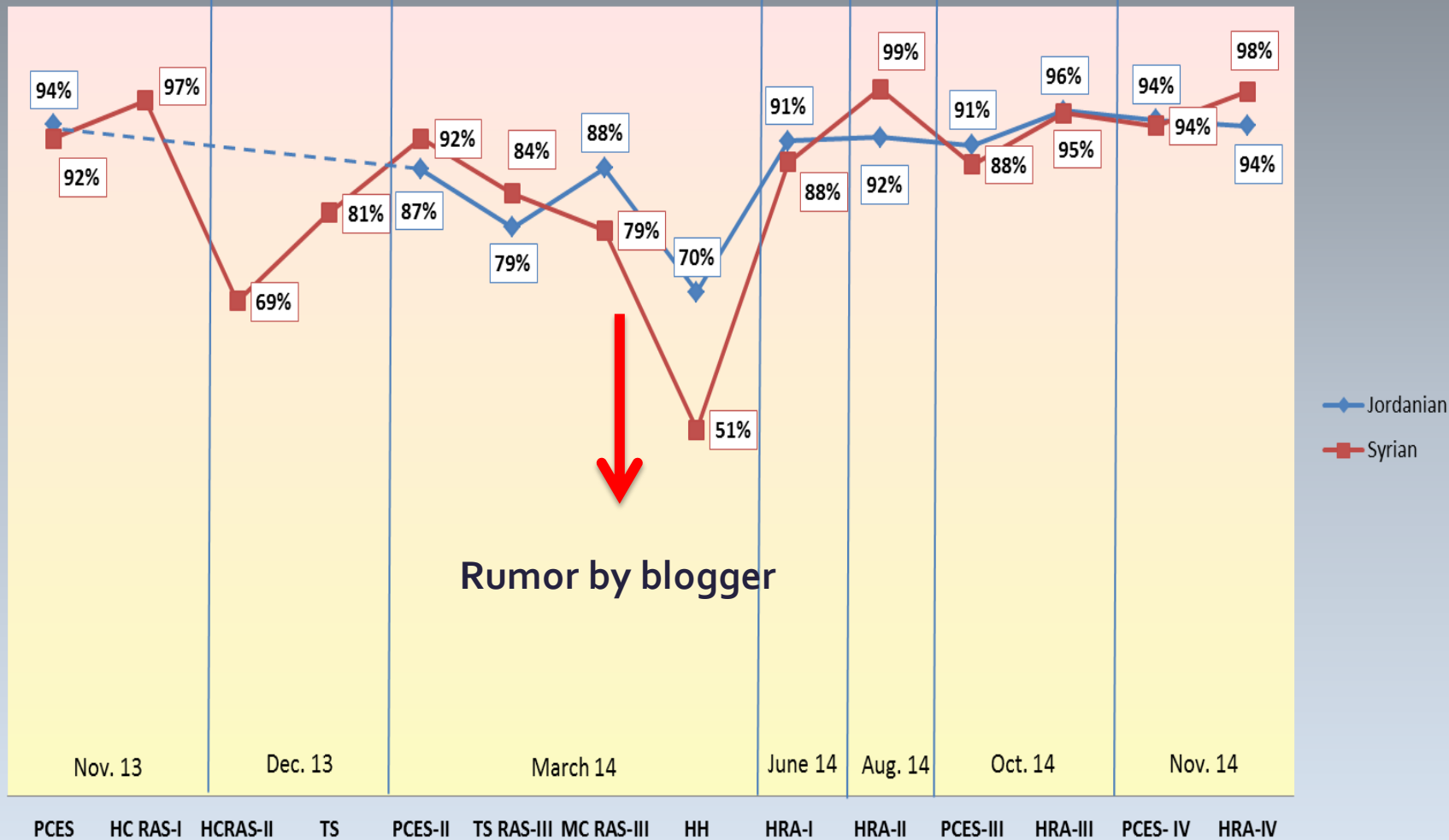
<sup>(4)</sup>Rapid Assessment Survey III by IOM in tent settlements 18-20 March 2014 and IMC in mobile clinics and adjacent neighborhoods 15-17 March 2014 NIDs.

<sup>(5)</sup>High risk areas/PCES conducted 23-26 June 2014 and 19-26 August 2014 SNIDs.

<sup>(6)</sup>Rapid assessment survey in High risk areas conducted in the same time with PCES of Oct/Nov NIDs.

# Impact of rumor spread by a blogger on polio vaccine uptake

Coverage by Recall of Polio SIAs from PCES,RAS by nationality 2013-2014, Jordan



# Other major ID issues

- Outbreaks of disease including influenza, MERS CoV and recently hepatitis a and brucella
- Increasing burden of hospital acquired infections
- Increasing antibiotic resistant bacteria
- HCW risk both from recognized and unrecognized sources, example MERS CoV
- Infection control practices still poorly implemented
- Human animal interaction and relation to infections to be defined

**TABLE SA-1 Animal Diseases Associated with Direct and Indirect Human Impacts**

<b>Infectious Disease</b>	<b>Affects Wildlife</b>	<b>Affects Domestic Animals</b>	<b>Affects Humans Directly</b>	<b>Affects Humans Indirectly</b>
Brucellosis	X	X	X	X
Canine Parvovirus	X	X		
Chagas	X	X	X	
Distemper	X	X		
Foot-and-mouth disease	X	X		X
Leishmania	X		X	
Leptospirosis	X	X	X	
Rabies	X	X	X	X
Scabies	X	X	X	
Toxoplasmosis	X	X	X	

SOURCE: [WCS \(2007\)](#)

MERS CoV not reported before that date , first reported from Jordan 2013

# Non communicable diseases and Infections

- Evidence that NCDs are increasing in Jordan and the Arab Region
- ?Infections play a major role in mortality
- Greater hospitalization and antibiotic use in pts with NCDs increases risk of antibiotic resistant bacteria
- Health expenditure much higher per patient spending on public health and less attention paid to IDs

# Health care related infections

- Patient population increasingly compromised and need devices.
- HCAI increased in impact and in occurrence
- Risk of infections spreading to HCWs also increased
- Infection control practice may not match the increased challenge

# Antibiotic resistance

- Antibiotic resistance worsening due to lack of new agents and indiscriminate use
- Antibiotic stewardship poorly developed.
- Poor diagnostics lead to increased usage of multiple agents while awaiting results of cultures



# Emerging infections

- Examples of SARS, MERS CoV and Ebola
- Brucella and Hepatitis a increased in Jordan following refugee influx from Syria.
- Lag in identifying MERS in Jordan was 5 mos due to lack of proper diagnostics in the region

# Aims of the center

- Act as a major resource for the study of infectious disease in Jordan.
- Help develop Translational research capacity in Jordan to treat and control infectious diseases
- Develop and implement s state-of-the-art **diagnostic platforms** for real-time detection of infectious agents
- Help Develop **vaccines** for the prevention of human, animal and zoonotic infectious diseases

# Specific aims

- Develop the capacity in performing research projects in basic and application sciences
- Develop the capacity for obtaining research funding
- Develop capacity for building teams of researchers across different health sectors

# Specific aims

- Introduce State of the art, Real-time diagnostic assays that test for syndromic conditions and help identify infectious agents in a timely manner leading to better management and control.
- Improve and centralize the data gathering capability of different partners with the aim of identifying infectious disease threats in the country

# Available resources

## **HUMAN and other resources**

- Five medical schools and four pharmacy schools, five major nursing schools, many microbiologists and medical technologists
- Advanced health sector, public and private
- Generous government health spending
- Advanced Pharmaceutical industry
- Forward looking and advanced private sector

# Strategy

- Identify the **available Human resources**
- Identify major equipment available in the country
- Identify current practices in grant writing capabilities, regulatory concerns, budgetary concerns, ethical issues in human research and data analysis

# Strategy

- Establish a research development office which is charged with helping researchers in grant writing as well as to identify collaborators, equipment needed and help support the implementation of the research
- Encourage collaborative research (by preferentially supporting research projects that have teams from different health providers)

Thank you





- Thank you