

Evaluation of the usefulness, practicality and effectiveness of measles elimination indicators

EMRO 2009

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EMRO/VPI

The reporting rate at national and district level

Definition:

- At national level, a rate of 2 non-measles, **non-rubella** suspected cases per 100,000 population per year. These cases must have been investigated and discarded as non-measles **(and non-rubella)** cases using laboratory testing and/or epidemiologic-linkage.
- At least 1 non-measles, non-rubella reported annually per 100,000 population per year in the administrative units at the lowest level
- *Rate of 2 per 100,000 population per year cannot be reached at national level with 1 per 100,000 in the administrative units at the lowest level*
- *Defining lowest level*
- *Discarded as non-measles and NON-RUBELLA*

Number of countries that are meeting the target of measles reporting rate

Reporting rate at Regional level
2009*

▪ Suspect cases

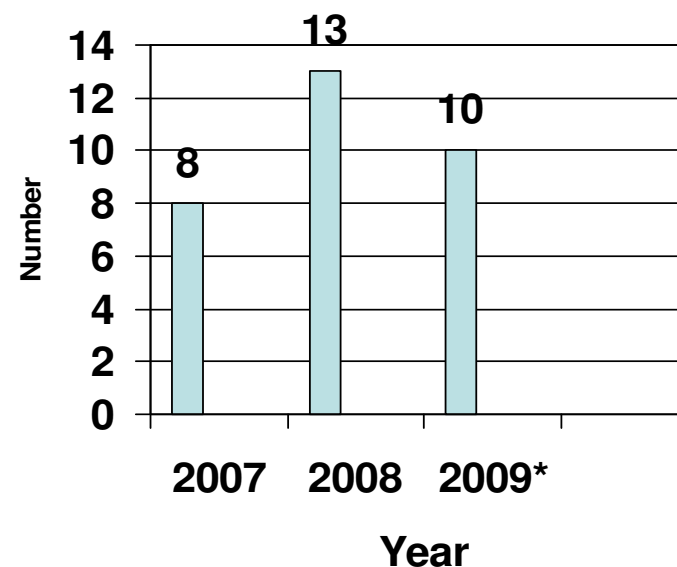
- Total: 18,834
- Median: 257
- Range: (25-9398)

(Morocco-Iraq)

▪ Discarded rate at Regional level

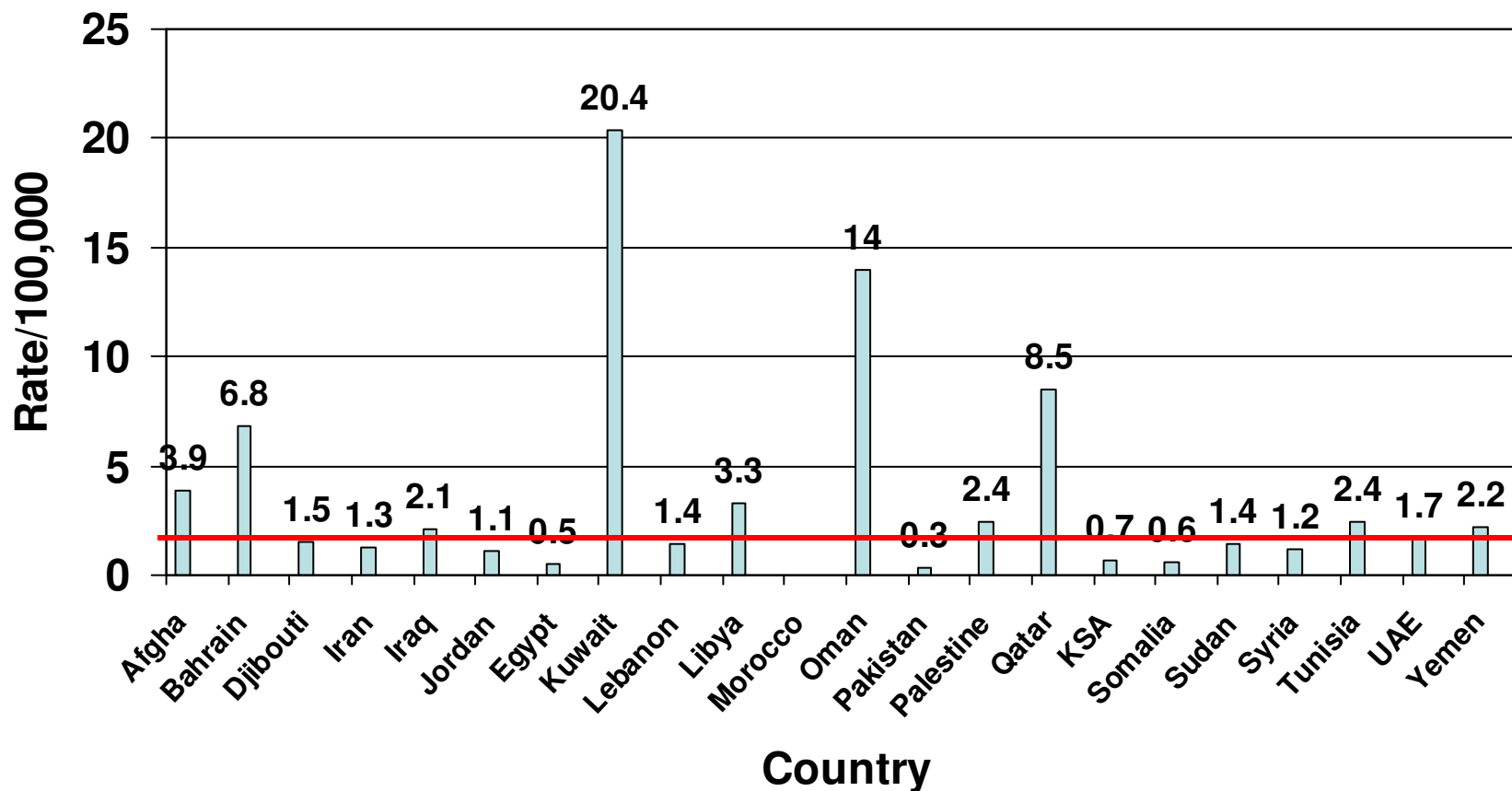
- Total: 6454 (34%)
- Median: 80%
- Range (6%-100%)

(Iraq-Jordan)



*: 2009: Jan.-July

Reported rates of non-measles per 100,000 population, EMRO 2009*



*: Jan.-July 2009

Countries not meeting the target of measles reporting rate, EMRO 2009

- **Sentinel surveillance:**
Morocco, Pakistan, Somalia, South Sudan
- **Under-reporting and close to elimination phase**
 - Iran, Jordan, Syria
 - Three countries use the classic case definition of suspected measles
- **Low performing surveillance systems:**
Djibouti, Egypt, Lebanon, KSA, Sudan, UAE

Country	Number of suspected cases reported, Jan.-July 2008-2009 (reporting rate)		Target*
	2008	2009	
Iran	777 (1.0)	794 (1.0)	1464
Jordan	135 (2.1)	61 (1.0)	126
Syria	125 (0.7)	263 (1.2)	418
Country	Number of suspected cases reported, Jan.-July 2008-2009 (reporting rate)		Target*
	2008	2009	
Djibouti	14 (1.0)	34 (1.5)	17
Egypt	2091 (0.9)	537 (0.47)	1563
Lebanon	45 (1.1)	59 (1.4)	84
KSA	618 (2.1)	238 (0.72)	517
Sudan	323 (0.5)	542 (1.39)	807
UAE	70 (1.1)	120 (1.75)	93

Discarded rate
2008: 64%
2009: 41%

*: Number of suspect cases with 100% Discarded rate

Number of suspected cases to meet the reporting rates at different discarded rates

Country	Discarded rates (%)					
	100	90	80	70	60	50
Iran	1464	1626	1830	2091	2440	2928
Jordan	126	140	158	180	210	252
Syria	418	464	522	597	697	836

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Comparison of reporting rates using non-M and non-M, non-R criteria EMRO, 2009*

Country	M lab. neg.	Rep. rate	Non M, non R	Rep. rate
DJI	15	1.7	13	1.5
IRAN	786	1.07	780	1.06
JORDAN	63	1	63	1
EGYPT	341	0.44	331	0.42
LEB	27	0.6	26	0.6
KSA	171	0.7	163	0.6
Sudan	392	0.97	282	0.7
UAE	71	1.6	52	1.12

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*: Jan.-July 2009

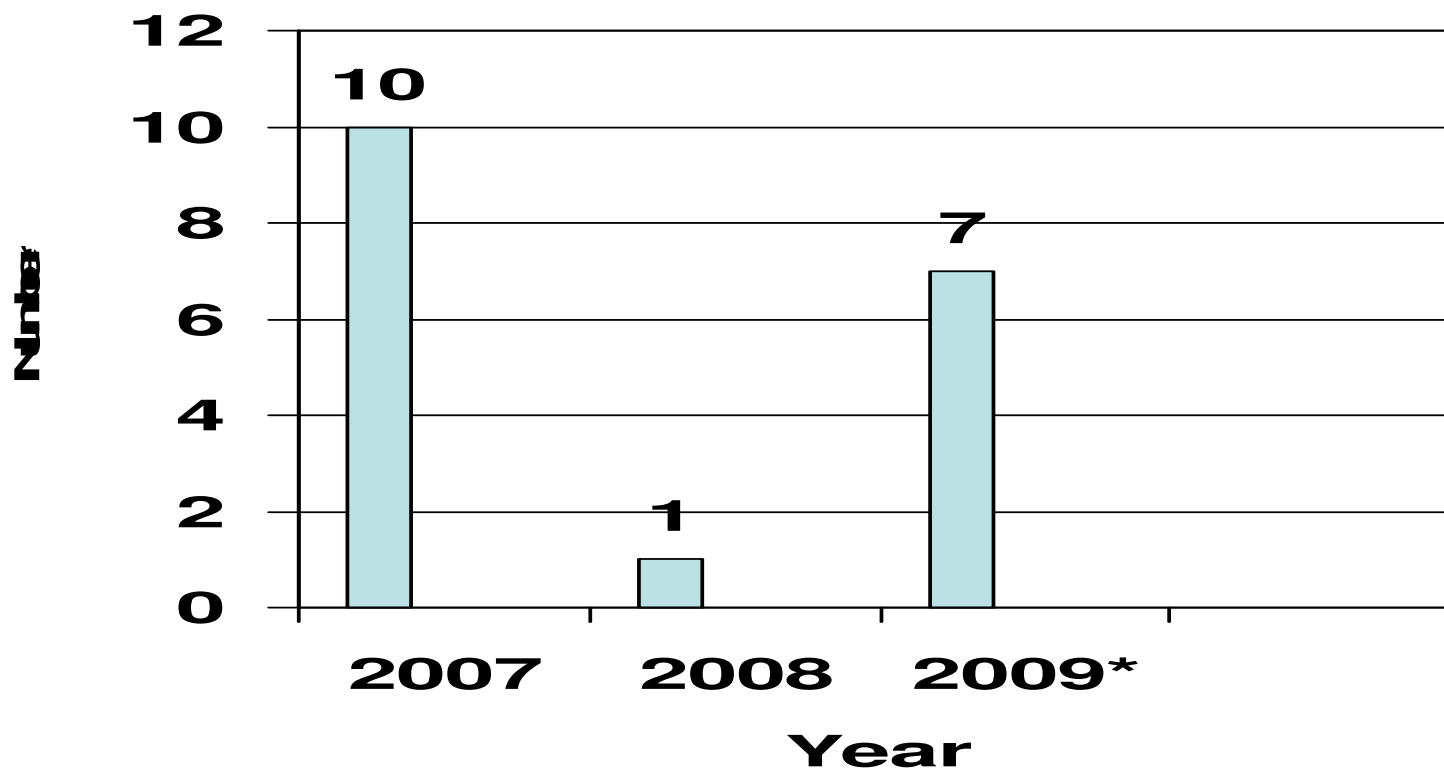
Regional issues related to reporting rate

- Most of the countries are using the classical case definition of measles
- The lowest sub-national level is not well defined
- Some districts have less than 100,000 population
- As number measles decreases, the number of rubella increases, may lead to decrease in reporting rates
- Private sector is not included in reporting

Measles cases investigation

- At least 80% of all reported cases should have had an adequate investigation within 48 hours of notification. The numerator is the number of suspected cases for which an adequate investigation was carried out within 48 hours of notification, and the denominator is the total number of suspect cases.
- Minimum data to be collected: District, age, gender, date of onset, vaccination status, date of last measles/rubella vaccination, date specimen collected.

Number of countries with more than 80% of suspected measles cases with complete investigation, EMR, 2007-09*



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*: Jan.-July 2009

Percent of laboratory testing and completeness of case investigations

Country	% Tested	% case inv. completed
KSA	100	3
DJI	100	59
UAE	100	68
JORDAN	100	77
IRAQ	100	79
EGYPT	100	99
BAHRAIN	100	100
LIBYA	100	100

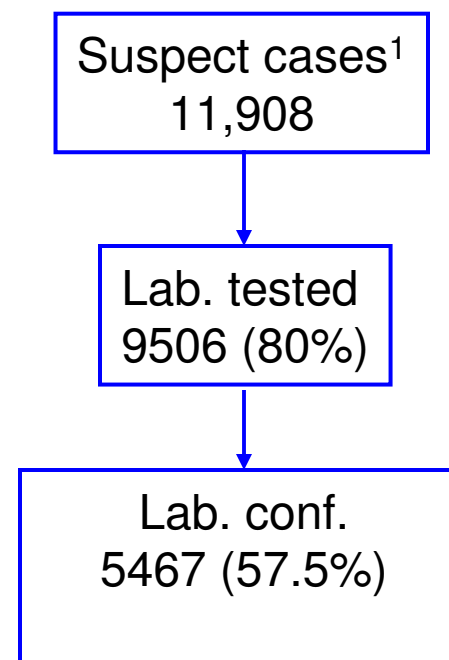
Issues related to measles case investigation in EMRO

- EMRO is not monitoring “case conducted within 48 hours”
- Incompleteness of data: vaccination status, date of last vaccination, date of onset
- Reporting of lab data only
- No standard protocols on conducting case investigation: home visits, by phone, interview of parents
- EMRO does not monitor confirmed cases with follow-up of contacts for 30 days
- Plan to include: travel history, case status (sporadic, linked to an outbreak), nationality
- Some countries do not classify their cases

Laboratory confirmation of measles suspect cases, EMRO, 2009*

Laboratory Confirmation.

Specimens adequate for detecting measles IgM should be collected from at least 80% of suspected measles cases and tested in a proficient laboratory. Any cases that are epidemiologically linked to a laboratory-confirmed case of measles or other communicable disease should be excluded from the denominator

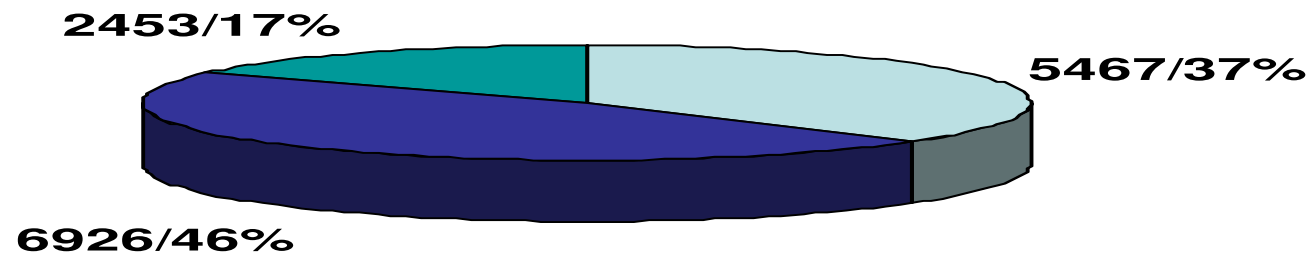


*: Jan.-July 2009

¹: Excluding epi-linked cases

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Total measles cases, EMRO, 2009*



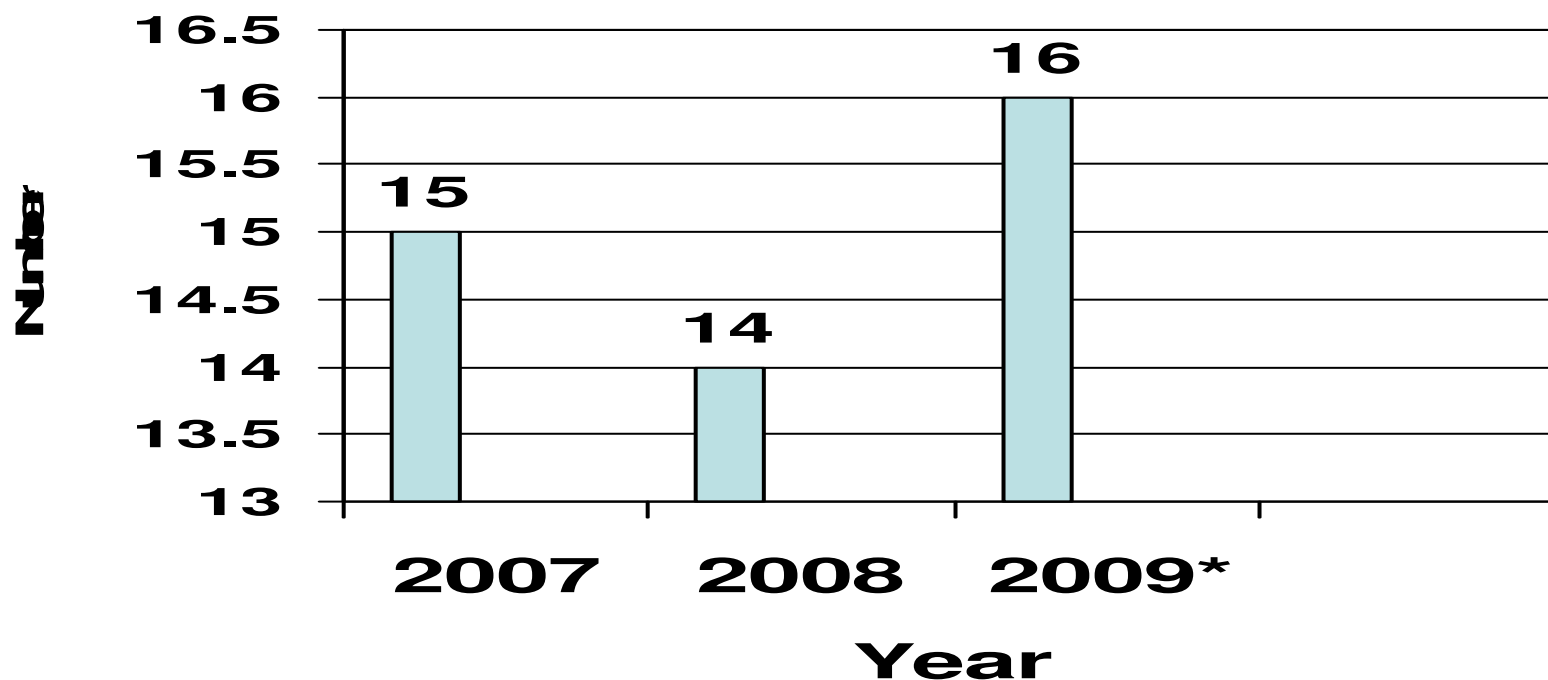
■ Lab.conf ■ Epi-link ■ Clinical

*: Jan.-July 2009

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Laboratory confirmation, EMRO, 2009*

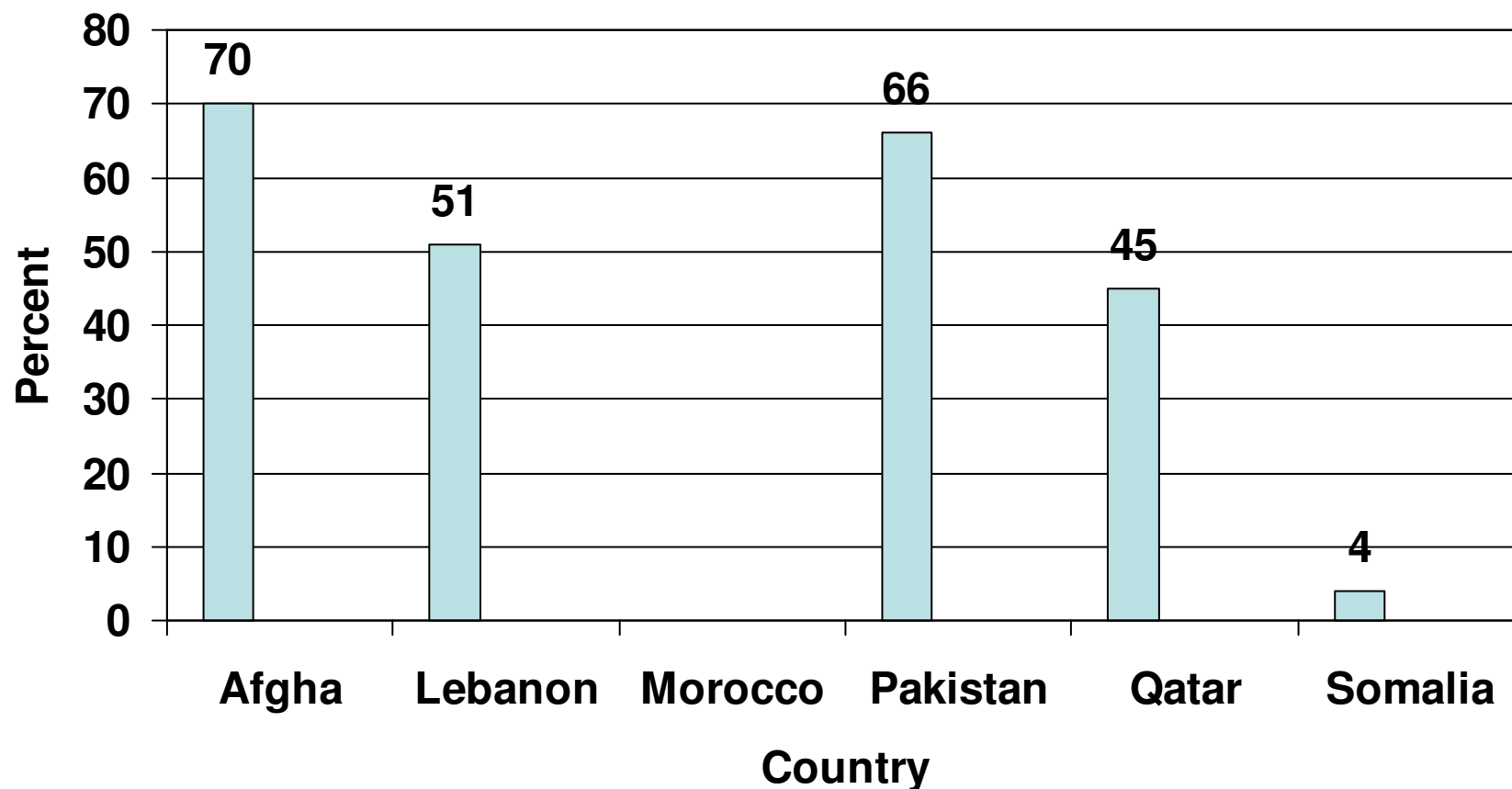
Number of countries with more than 80% of suspected measles cases tested, EMR, 2007-09*



*: Jan.-July 2009

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Countries with low performance of laboratory testing EMRO, 2009*



*: Jan.-July 2009

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Other laboratory indicators

- Specimen received at the lab. within 7 days:
Regional: 86%. **not met in** Iraq (60%),
Lebanon (39%), Saudi Arabia (8%)
- Adequate specimen: **not met in** Afghanistan
(53%)
- Specimen received in good condition: 98%
- Results reported back within 7 days: 87%

Regional issues related to lab. testing of measles suspected cases

- Afghanistan: **security issues**
- Lebanon: **Surveillance issues** (lack of supervision, monitoring, review meetings) and **no communication between EPI/SURV/LAB staff**
- Pakistan, Morocco & Somalia: **sentinel surveillance**
- Qatar: private physicians **do not refer the patient for sample collection**
- **Lab not linked to field surveillance**

*: Jan.-July 2009

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Viral detection

- Samples should be collected for virus detection from 80% of identified transmission chains (outbreaks) and tested in an accredited laboratory.
- The numerator is the number of transmission chains with sufficient samples for viral detection and the denominator is the number of transmission chains identified

*: Jan.-July 2009

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Viral detection

- Chain of transmission: two or more confirmed cases are temporarily-related (with at 7-21 days between rash of onset of cases) and are epidemiologically or genetically linked)

*: Jan.-July 2009

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Table of Genotypes in the EMR

Country	2007	2008	2009
Afghanistan	Not Done	D4	D4
Bahrain	D4	D4	D4
Djibouti	Not Done	B3	B3
Iran	D4	D4	D4,H1
Iraq	D4	D4	D4
Jordan	D4	Not Done	Not Done
Egypt	D4	Not Done	D4
Kuwait	B3	B3	Not Done
Lebanon	Not Done	Not Done	Not Done
Libya	Not Done	B3	B3
Morocco	Not Done	D4,D8	D4,D8
Oman	D5,D8	D4,D8	B3,D8
Pakistan	D4	D4	D4
Palestine	Not Done	Not Done	Not Done
Qatar	D4	D4	Not Done
Saudi Arabia	Not Done	Not Done	Not Done
Somalia	Not Done	Pending	Pending
Sudan	B3	D4,B3	Pending
Syria	Not Done	D4	D4
Tunisia	Not Done	Not Done	Not Done
UAE	Not Done	Not Done	Not Done
Yemen	Not Done	B3	B3

Outbreak size

- At least 80% of outbreaks with less than 10 cases
- The outbreak size data may be misleading in the absence of thorough outbreak investigation that includes active search case finding and epidemiological linkages of cases

Outbreak size

- Countries do not report complete information on outbreaks to EMR Office
- No information on outbreaks size/duration
- Field test of guidelines of validation of measles elimination showed gap in data of outbreak investigation

Measles incidence

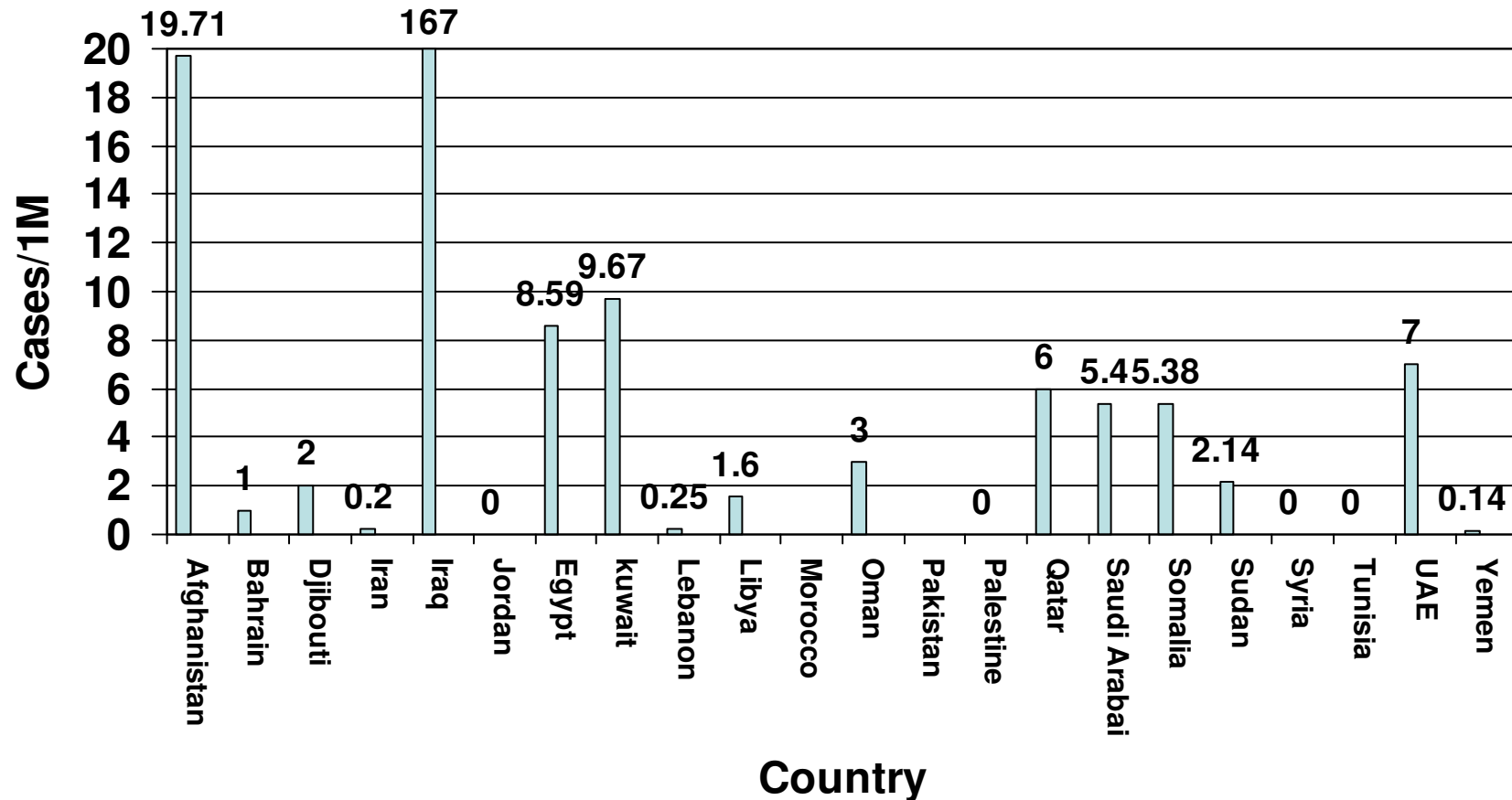
- Numerator:
 - lab. confirmed + Epi-linked+ Clinical cases
 - Exclude imported cases but include imported-related cases
- Denominator:
 - Reported per million population
 - 2 EMRO country population < 1 million:
Djibouti: 847,716 & Qatar: 869,855

Thank you

Incidence of Measles

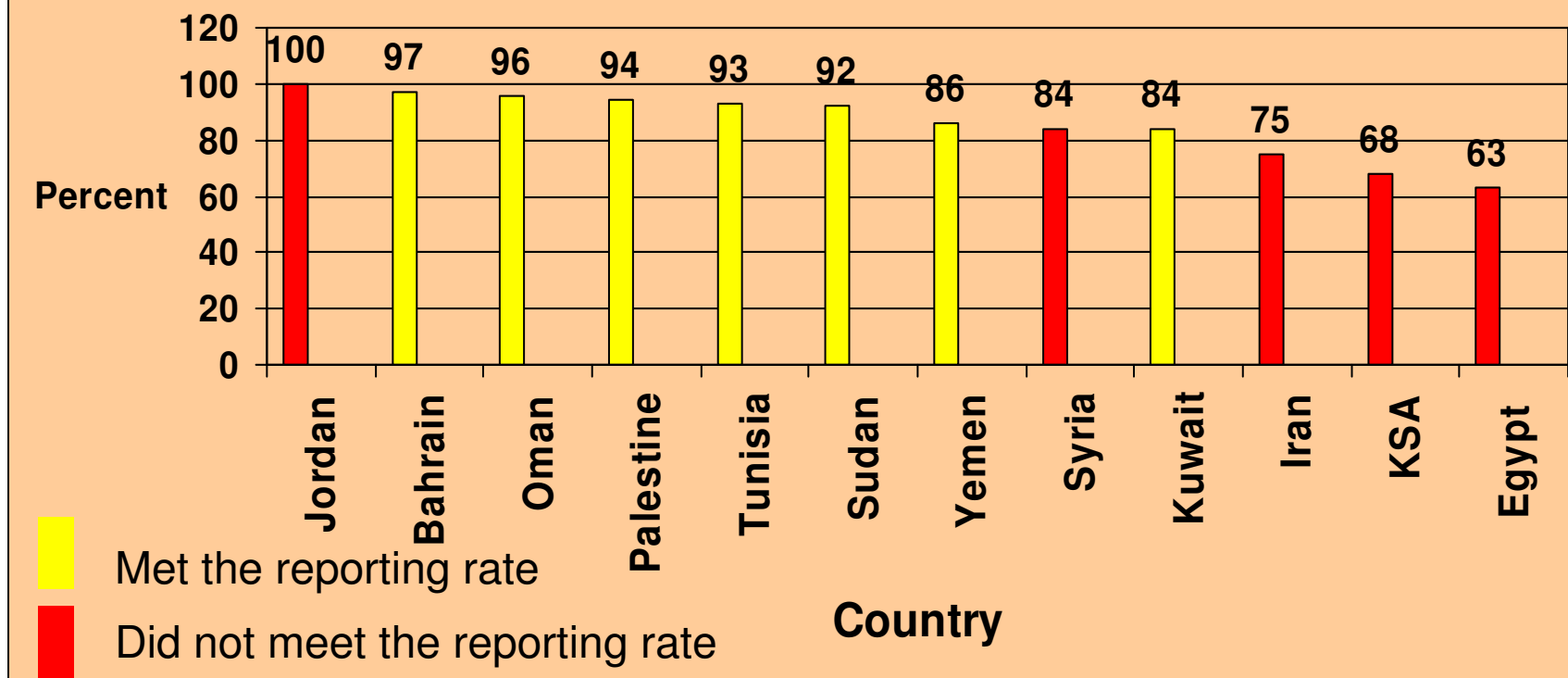
Confirmed cases/1 million, EMR, 2008

Rate of confirmed cases/1 Million



Discarded cases as measles

The highest 12 proportions of the suspected cases as discarded for measles, EMR, 2009*



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