

EIOS Global Technical Meeting  
Seoul, Republic of Korea, 12 – 14 November 2019

# EIOS use in the WHO European Region: past and future

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# WHY?

- **IHR** provisions and **Global Health Security**
- **WHO GPW13** (2019-2023) with ‘triple billion’ targets and outcome 2.3.1
- **Action plan** to improve public health preparedness and response in the WHO European Region 2018–2023

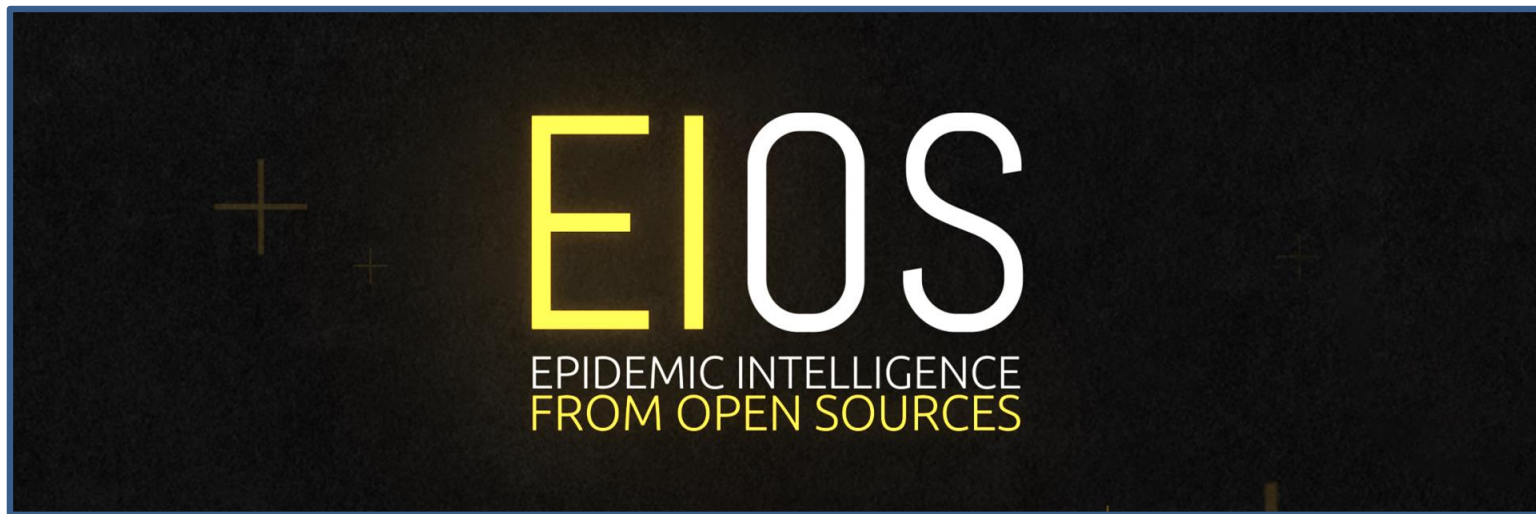


FIFA WORLD CUP  
**RUSSIA 2018**

# HOW?

- IHR event-related communications
- Indicator-based surveillance (IBS)
- Event-based surveillance (EBS)
- Enhanced EBS (EIOS)





# **PAST: EIOS USE IN MASS GATHERINGS**

# FIFA 2018 World Cup



# WHO?

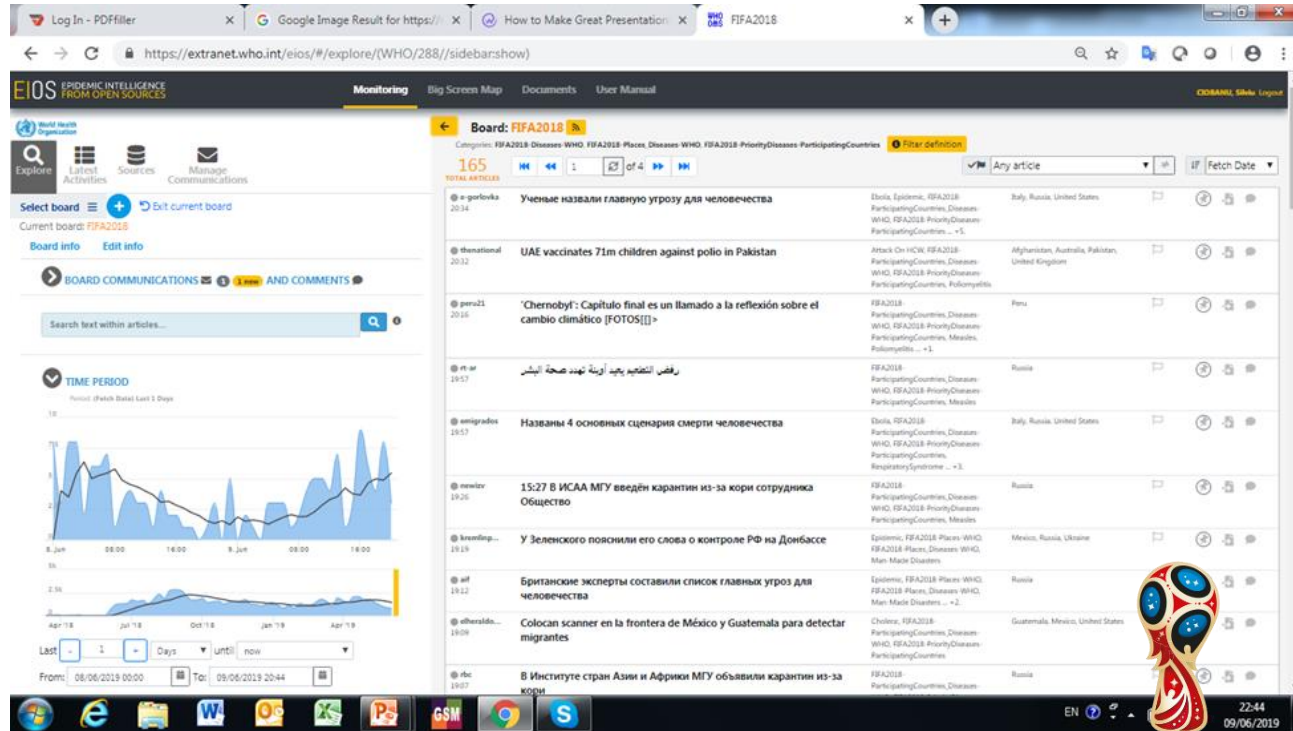
- WHO/HQ (WHE/HIM/DVA) – daily routine
- WHO/EURO – mass gathering events
- Partners (ECDC, GPHIN etc.)





# EIOS for FIFA'18

- WHO community
- FIFA 2018 board



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RUSSIA 2018

# WHEN?

- 1 week before
- 4 weeks (14 Jun – 15 Jul)
- 1 week after

➤ Daily reporting







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**RUSSIA 2018**

# Search Categories, 1

- Signals / events / alerts in either of **11 FIFA cities** / **13 venues** in the Russian Federation

OR



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**RUSSIA 2018**

# Search Categories, 2

- Selected / relevant major public health threats in any of **32 participating countries**

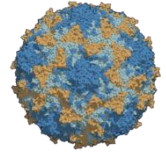


# Prioritization

- MERS CoV
- Polio
- Yellow fever
- Ebola
- Hemorrhagic fever
- Measles
- Cholera
- Nipah
- Terrorism
- ...



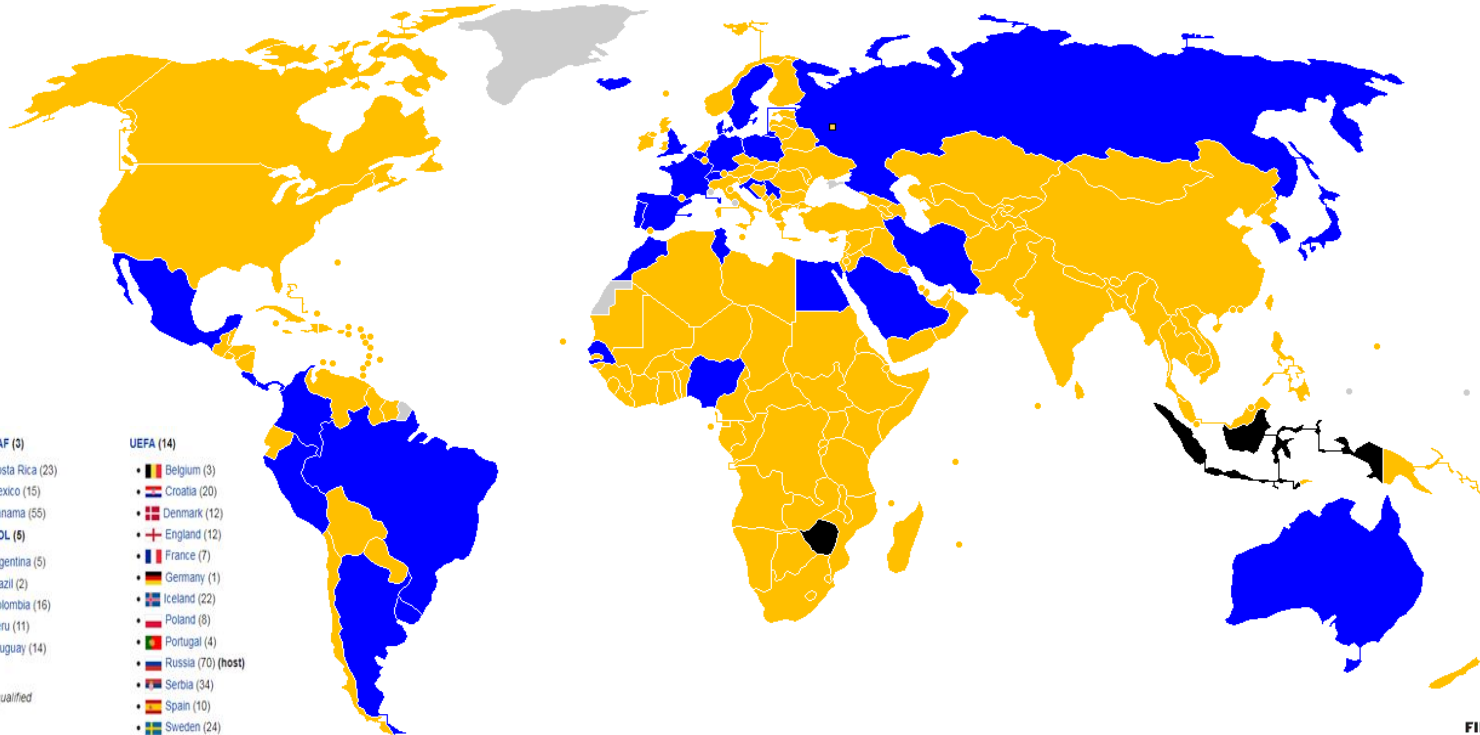
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# Participating Countries



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## AFC (5)

- Australia (36)
- Iran (37)
- Japan (61)
- Saudi Arabia (67)
- South Korea (57)

## CAF (5)

- Egypt (45)
- Morocco (41)
- Nigeria (48)
- Senegal (27)
- Tunisia (21)

## CONCACAF (5)

- Costa Rica (23)
- Mexico (15)
- Panama (55)

## CONMEBOL (5)

- Argentina (5)
- Brazil (2)
- Colombia (16)
- Peru (11)
- Uruguay (14)

## OFC (0)

- None qualified

## UEFA (14)

- Belgium (3)
- Croatia (20)
- Denmark (12)
- England (12)
- France (7)
- Germany (1)
- Iceland (22)
- Poland (8)
- Portugal (4)
- Russia (70) (host)
- Serbia (34)
- Spain (10)
- Sweden (24)
- Switzerland (6)

# Alerts

Date	Signals
11 June	<b>Planned terrorist attacks in St Petersburg and Moscow</b>
13 June	<b>Rabies quarantine declared in Nekrasovka district of Moscow city</b>
17 June	<b>A taxi drove into a crowd in the central Moscow</b>
19 June	<b>Swarms of mosquitoes and midges cause chaos in Volgograd</b>
20 June	<b>Russia Reporting Avian Influenza Outbreaks in Poultry (3 updates)</b>
21 June	<b>40 fans got intestinal infections in St Petersburg</b>
21 June	<b><i>Dirofilaria repens</i> infection on a Russian woman 's face</b>
21 June	<b>Measles in the Vsevolozhsk district of the Leningrad Region (1 update)</b>
22 June	<b>Notification of a single case of Legionnaires' disease that may be related to an accommodation in Moscow (1 update)</b>
22 June	<b>Food poisoning in three Sweden football players</b>
12 July	<b>Flu in Mexican football squad</b>
13 July	<b>Reported deaths from tick-borne encephalitis (TBE) in St Petersburg</b>
16 July	<b>In the cities of France there were unrest</b>



# Description

- Summary of signal
- Country
- City / venue
- Other countries involved
- Hazard type
- Date of detection
- Source
- Aggregate public health risk with justification





# Results

# RESULTS



Surveillance period	8 June -20 July 2018
Total signals screened	8,748
Signals further investigated	2,766 / 8748 ( <b>31.6%</b> )
Relevant 'significant' alerts detected	13 / 2,766 ( <b>0.47%</b> )
Relevant significant alerts updated	5 / 13 (38.4%)



# Lessons Learned

- **Overall useful tool**
- Resource-intensive (manpower, time)
- Right balance (sensitivity vs specificity)
- In-depth training is needed



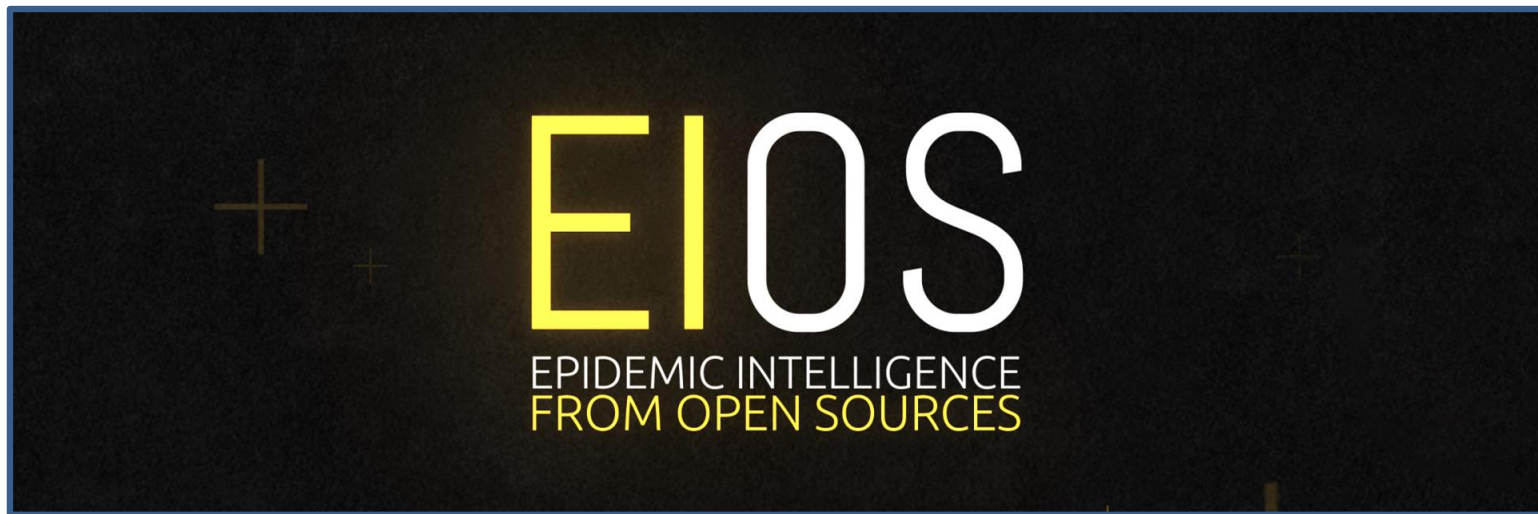
**No significant event was missed as cross-checked against other surveillance approaches / partners**





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**FUTURE:  
EIOS DAILY USE**

# Towards SOPs

- Systematic and collaborative approach
- Collected input on required system objectives and parameters
- Looked to expertise from regional and global partners



## EIOS Surveillance System Concept Note

Daily Surveillance with EIOS (Epidemic Intelligence from Open Sources) Media Screening Platform

Health Emergency Information and Risk Assessment  
WHO Regional Office for Europe

### Purpose:

EIOS is a web-based media screening tool that collects news and other media reports available in the English language from a wide range of sources and monitors them for potential health threats.

# Objectives

- To detect **signals early** - with focus on health threats of greatest priority to the WHO European Region
- To be **simple** and **efficient**
- To be **useful**

# Search Parameters, 1

- Iterative approach
- Assessed report volume by search strategy
- Collaborative discussion to determine final search parameters for 2<sup>nd</sup> step assessment

## First Step Assessment

EURO All Countries - HP Diseases – Non-bio HE	# of Reports
Total Articles as of 23Sept2019 @ 16:00h	5.02M
Day 1 (Sun 15 Sept)	2,537
Day 2 (Mon 16 Sept)	2,286
Day 3 (Tues 17 Sept)	2,150
Day 4 (Wed 18 Sept)	5,908
Day 5 (Thurs 19 Sept)	7,078
Day 6 (Fri 20 Sept)	10,197
Day 7 (Sat 21 Sept)	4,804
Total Number over 1 week	34,960
<b>Daily Average</b>	<b>4,994</b>



# Search Parameters, 2

- Four diseases directly notifiable under IHR (2005)

Smallpox	Poliomyelitis due to wild-type poliovirus <sup>β</sup> or vaccine derived (VDPD)	Human influenza caused by a new subtype <sup>ζ</sup>	Severe acute respiratory syndrome (SARS)
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- Disease X

Unknown  
disease

# Search Parameters, 3

- Other CDs identified as WHE Europe's high threat pathogens

Anthrax	Botulism	Brucellosis	Campylobacter	Chikungunya virus disease	Cholera
Crimean-Congo Haemorrhagic Fever (CCHF)	Dengue fever	Diphtheria	Ebola	Enterohaemorrhagic Escherchia coli infection (EHEC)	Enterovirus (non-polio)
Hepatitis A	Hepatitis B	Influenza	Legionellosis	Leishmaniasis, cutaneous	Leishmaniasis, Visceral
Leptospirosis	Listeriosis	Measles	Malaria	MERS-CoV	Meningococcal, Invasive
Norovirus	Plague	Pertussis	Q-fever	Rabies	Rift valley fever
Rotavirus	Rubella	Salmonella	Shigellosis	Tick-borne encephalitis	MDR/XDR Tuberculosis
Tularaemia	Viral haemorrhagic fever(s)	Yellow fever	Zika virus		

# Search Parameters, 4

- Other Non-biological Health Events of Interest

All Chemical (including radionuclear)	Humanitarian Aid	Natural Disasters	IHRrelated Measures	Travel Restrictions
Trade Ban	Societal - Attack on HCW			

# Search Parameters, 5

- 15 priority countries of the European Region

Albania	Armenia	Azerbaijan	Bosnia and Herzegovina	Georgia
Kazakhstan	Kyrgyzstan	Moldova (Republic of)	North Macedonia	Serbia (including Kosovo)
Tajikistan	Turkey	Turkmenistan	Ukraine	Uzbekistan

- Countries not on priority list, and who are not members of the European Union/European Economic Area

Andorra	Belarus	Israel	Monaco	Montenegro
Russian Federation	San Marino	Switzerland		

# Search Parameters, 6

- Overseas Countries and Territories (OCT)

Anguilla (UK)	Aruba (NL)	Azores (PT)	Bermuda (UK)	Bonaire (NL)
British Antarctic territory (UK)	British Indian Ocean Territory (BIOT)	British Virgin Islands (UK)	Canary Islands (ES)	Cayman Islands (UK)
Curacao (NL)	Falkland Islands (UK)	French Guiana (FR)	French Polynesia (FR)	French Southern +Antarctic Territories (FR)
Guadeloupe (FR)	Greenland (DK)	Madeira (ES)	Martinique (FR)	Mayotte (FR)
Montserrat (UK)	Netherlands Antillies (NL)	New Caledonia and Dependencies (FR)	Pitcairn Islands (UK)	Reunion Island (FR)
Saba (NL)	Saint Barthelemy (FR)	Saint-Martin (FR)	Saint Helena, Ascension Island, Tristan da Cunha (UK)	Sint Eustatius (NL)
Sint Maarten (NL)	South Georgia and the Sandwich Islands (UK)	St. Pierre + Miquelon (FR)	Turks & Caicos Islands (UK)	Wallis & Futuna Islands (FR)

# Final Assessment Results

Relevant signal meets at least 1 of the following criteria:  
Following 1 week of daily screening.

Final Test Board for Daily Screening	# of Reports
Total Articles as of 23Sept2019 @ 16:00h	1.07M
Day 1 (Sun 15 Sept)	316
Day 2 (Mon 16 Sept)	298
Day 3 (Tues 17 Sept)	357
Day 4 (Wed 18 Sept)	966
Day 5 (Thurs 19 Sept)	1,284
Day 6 (Fri 20 Sept)	2,884
Day 7 (Sat 21 Sept)	798
Total Number over 1 week	6,587
Daily Average	1,098
Daily Median	798

- (1) Reports on notifiable events under IHR (2005)  
  - Average # of reports: **1,097 / day**  
 (i.e., smallpox, novel influenza, SARS, VHF)
- (2) Time to completion: **2.25 hours / day**  
  - Represents an event which is known or suspected to be a public health emergency of international concern
  - 8 relevant signals were detected
- (3) Meets at least ONE of the four IHR Annex 2 criteria  
  - **4 were unique** (not received via other sources)
- (4) Would garner heightened media attention and/or become a public health risk to the organization or country office  
  - 2 of these were sent to internal and/or external stakeholders
  - 05 country office
  - None were sent for official IHR verification

# Lessons Learned

- Account for longer screening time on Mondays
- Time to completion is also dependent on volume of 'media of interest'
- Time of day impacts 'uniqueness'
- When does an event warrant halted screening or communication?



## Draft a Final SOP

(including Event Tracking and Communication Protocols)



# Next Steps

- EIOS use in mass gathering events in the European Region
- EIOS routine use
- EIOS expansion strategy
- Training and Support (ALB, MDA, ...)

