

# Building capacities for influenza surveillance in Republic of Macedonia, 2014-2017

Connecting Organizations for Regional Disease Surveillance  
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# Introduction

# Surveillance of communicable diseases



-  Institute of Public health
-  Centre for Public health
-  Local unit of CPH

- Macedonia – 2,069,172 inhabitants
- Surveillance network for CD consist of:
  - **All Medical doctors**
  - 64 mandatory notifiable CD
  - 21 Local Units of Public Health Centres
  - 10 Regional Centres of PH
  - Institute of PH
- Paper based

# Influenza non-sentinel surveillance

- Part of mandatory notifiable diseases
- ≈1320 GPs reporting
- Individual reporting during weeks 21-39
- Aggregated weekly reports during weeks 40-19
- Case definition according EU/ECDC
- *No set criteria for sampling suspected cases*
- *No SARI surveillance*

# Sentinel Influenza Surveillance

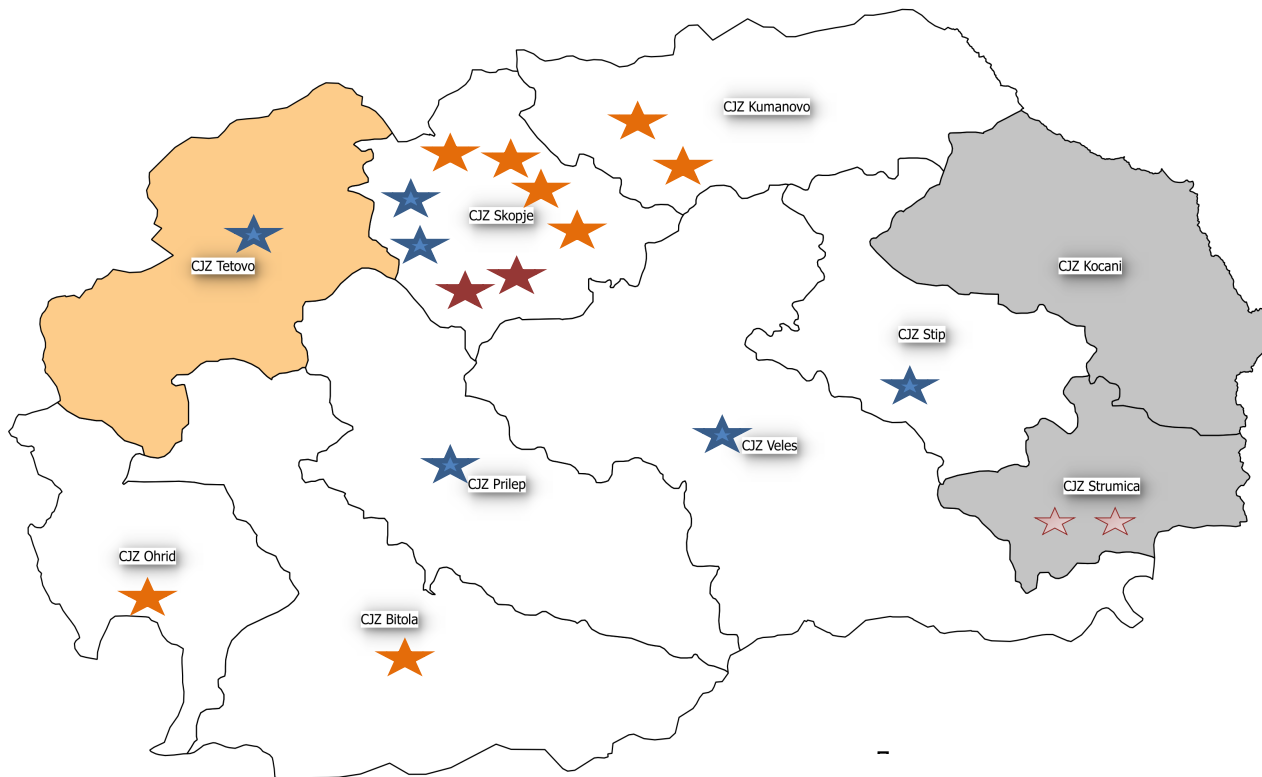
Introduced in 2014/2015 as pilot (SECID support)

## Objectives

- Timely identification of circulating viruses
- Collecting more precise EPI and Virological data
  - Estimate intensity and burden of disease (SARI and ILI),
- Implement preventive Public Health measures

# Methods

# Sentinel ILI/ARI surveillance



## 2014/2015

- 6 sentinel sites
- 1.0% population

## 2015/2017

- 14 sentinel sites
- 1.7% population

## 2017/2018

- 16 sentinel sites
- 2.0% population

- Email- weekly aggregated reports through the year
- 2 samples per week per site
- Individual reports for sampled cases

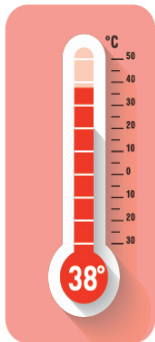
# Case definitions

## ILI

Acute respiratory infection with:



Cough



Measured fever  
 $\geq 38\text{ C}^{\circ}$

With symptoms' onset within last 10 days

## ARI

Sudden onset

At least one of the following symptoms:

Cough, Sore throat, Shortness of breath, Coryza

And a clinician's judgement that the illness is due to an infection

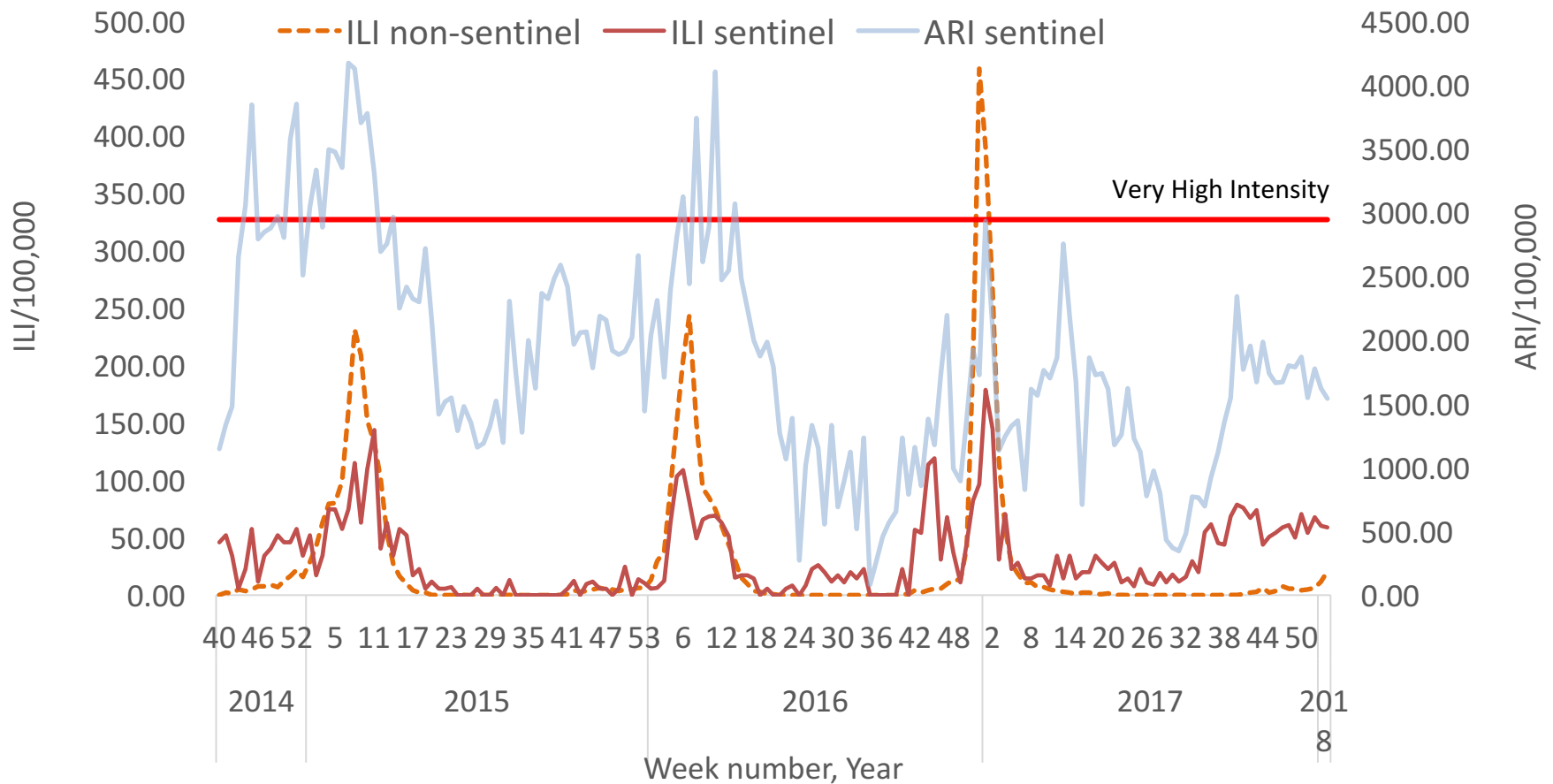


**Important:** ARI can be with or without fever!

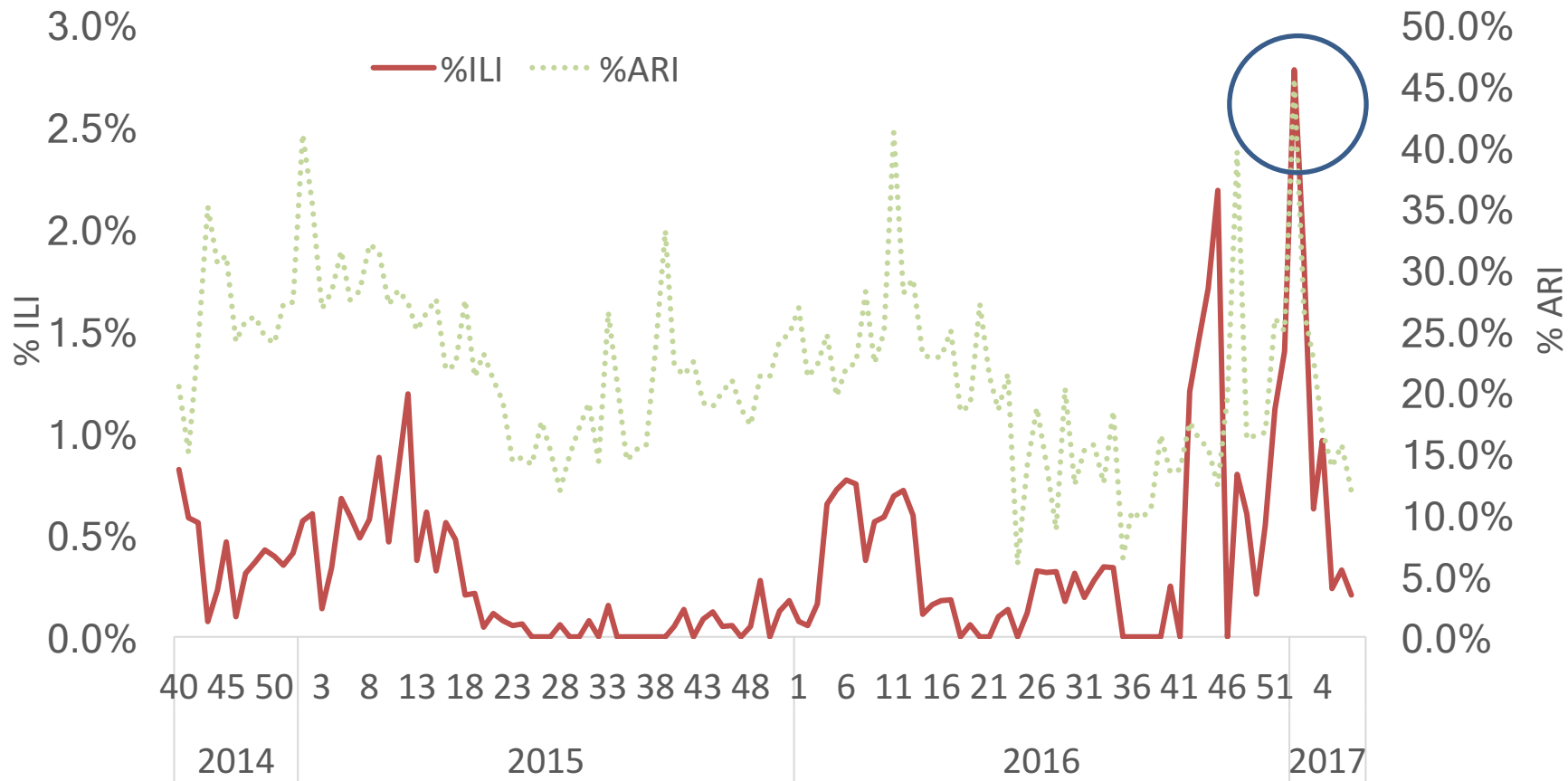


# Results

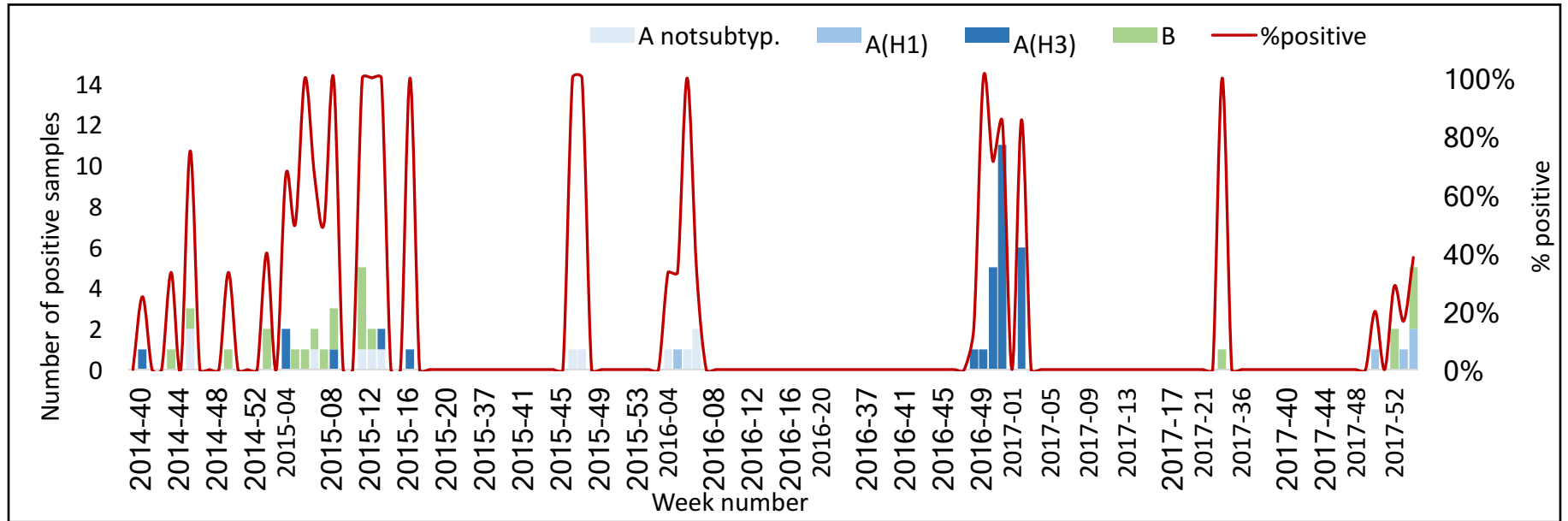
# Weekly ILI/ARI incidence 2014-2018



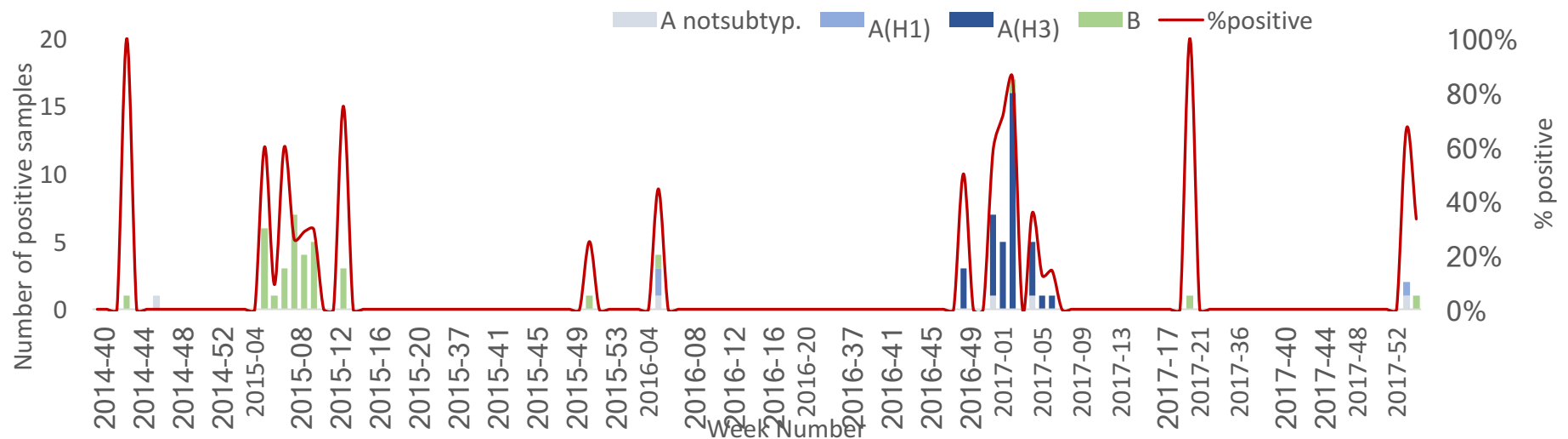
# Weekly ILI/ARI proportion in all sentinel consultations 2014-2017



## Sentinel virological surveillance 2014-2018 week 2, n=301



## Non-sentinel virological surveillance 2014-2018 week 2, n=245



# Evaluation of the sentinel influenza surveillance

We used CDC guide to evaluate 38 indicators for 9 attributes

Overall score for quantitative indicators - 79.9%

Good performance: Data quality and completeness; Representativeness

Moderate performance: Timeliness; Flexibility

Overall score for quantitative indicators – 78.6%

Good performance: Utility, Sustainability

Moderate performance: Stability; Simplicity; Acceptability

Trainings provided for more than 72 health professionals

# Conclusions and recommendations

# Conclusions

- Well accepted by GPs
- Quality and timely EPI and Virological data with less resources:
  - Early detection of circulating viruses
  - Crude estimates of burden (proportion of ILI/ARI)
- But, sentinel EPI data did not match intensity levels observed in non-sentinel surveillance

# Conclusions cont.

- Sentinel surveillance can be replicated for other priority diseases
- It can fill the gaps in disease surveillance
- Can be adopted or scaled up among other network member states



# What we changed for 2017/2018 (lessons learned)

- We improved database and lab feedback reports
- Increased number of specimens per site/week
- Made specimen pick-up schedules more frequent
- Started working on e-reporting
- Provide more trainings



# Acknowledgements

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We would like to express our gratitude to the epidemiologists from Centres for Public Health

Last but not the least, gratitude to the GPs, whose participation made this project possible!

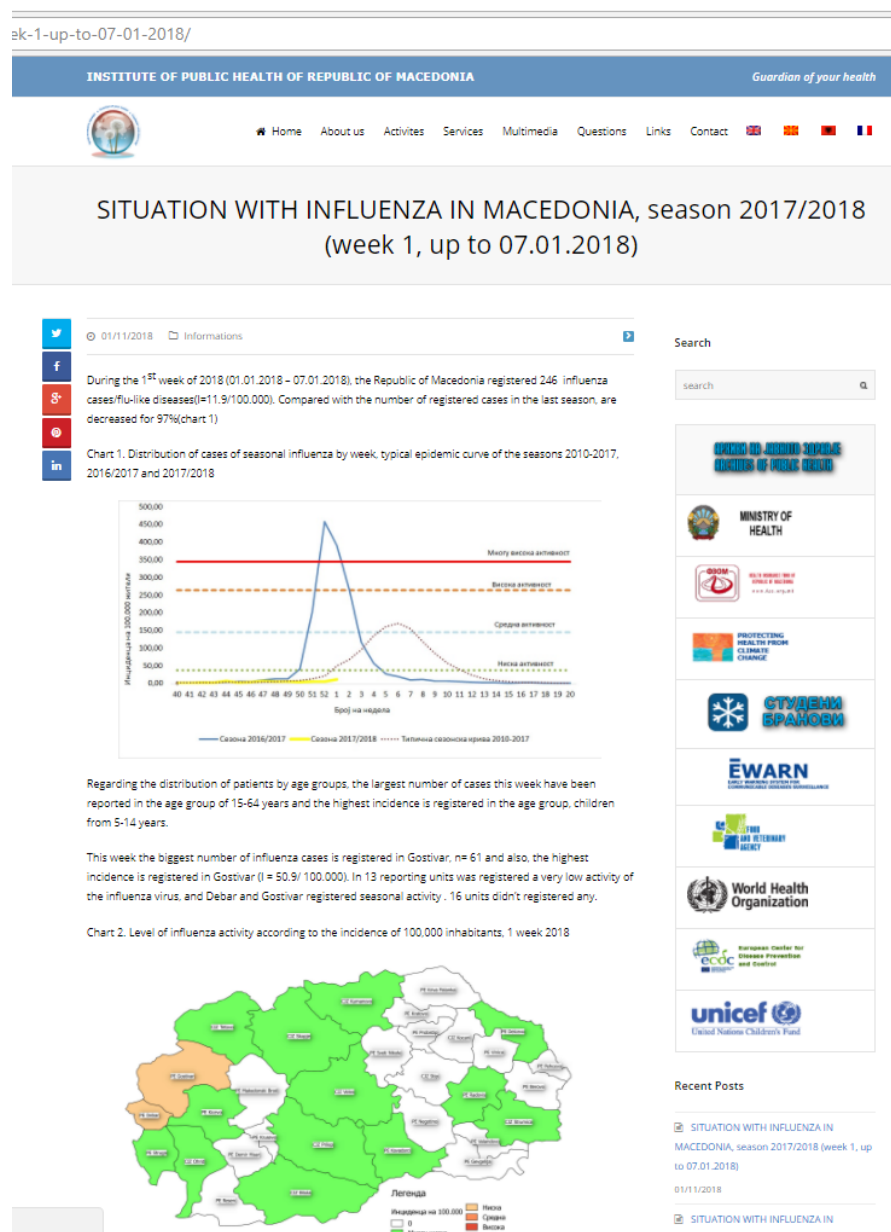
# Thank you for your attention



# Virological Surveillance

	2014/2015		2015/2016		2016/2017		2017/2018	
	Sentinel	Non-sentinel	Sentinel	Non-sentinel	Sentinel	Non-sentinel	Sentinel	Non-sentinel
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
<b>Total samples</b>	<b>66</b>	<b>111</b>	<b>49</b>	<b>43</b>	<b>69</b>	<b>76</b>	<b>85</b>	<b>13</b>
<b>Positive samples</b>	<b>24 (36.4)</b>	<b>46 (41.4)</b>	<b>20 (40.8)</b>	<b>6 (14.0)</b>	<b>24 (34.8)</b>	<b>34 (44.7)</b>	<b>9 (10.6)</b>	<b>3 (23.1)</b>
<b>A</b>	11 (45.8)	16 (34.8)	12 (60.0)	3 (50.0)	24 (100)	33 (97.1)	4 (44,4)	2 (66.7)
<b>B</b>	13 (54.2)	30 (65.2)	8 (40.0)	3 (50.0)	0 (0.0)	1 (2.9)	6 (55.6)	1 (33.3)

<http://iph.mk/en/situation-with-influenza-in-macedonia-season-20172018-week-1-up-to-07-01-2018/>



# SARI surveillance

- 4 sentinel sites in 2015-2016 in two cities (3 in Skopje and 1 in Prilep)
  - Scarce samples and reports
    - 13 samples in season 2015-2016
    - 15 SARI cases reported in 2015-2016
    - 2215 hospitalizations at sentinel sites
  - 15 samples in season 2016/2017
  - 4 (26.7%) were positive for influenza A(H3)

# SARI challenges and future activities

- Main challenges
  - Motivate staff to adhere to protocols
  - Receive timely and precise reports
- Future activities
  - Provide training and incentives for clinicians
  - Introduce electronic reporting to reduce administrative burden

# Population under coverage Sentinel ILI/AR

