INTEGRATED DATA OF INFLUENZA MORBIDITY AND DIAGNOSIS

Year: 2011 | Week: 19 | Period: 09.05.2011-15.05.2011

Influenza and ARI morbidity data

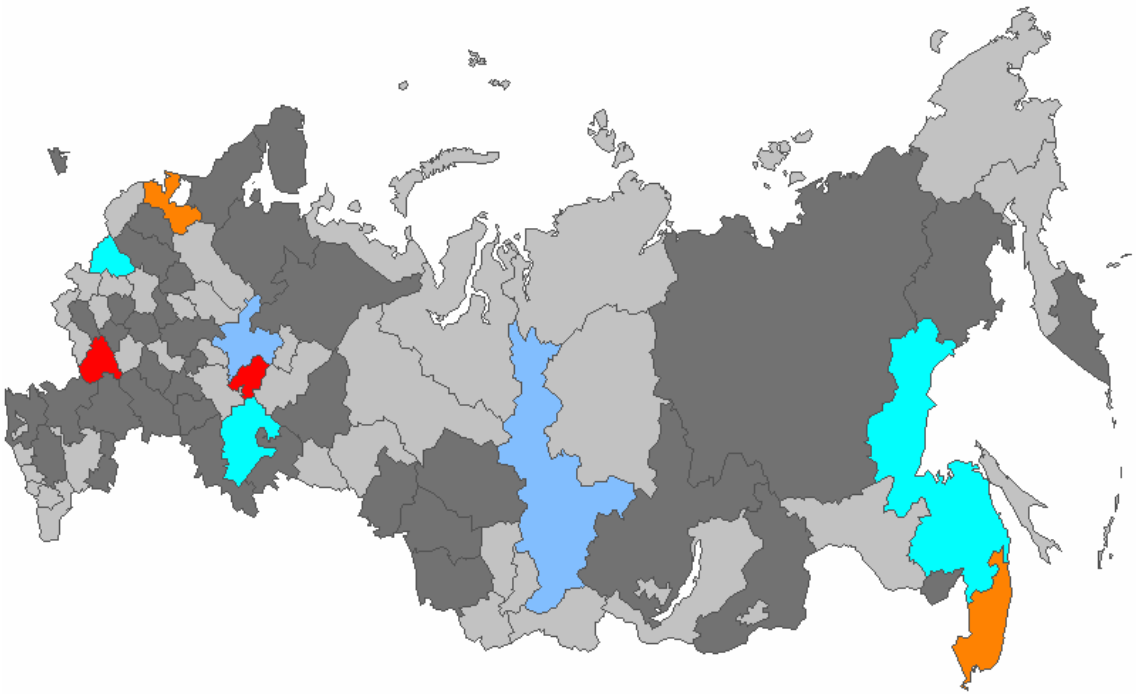
Trends in clinical and virological data suggest further declining influenza activity in Russia. Epidemic thresholds of morbidity for overall population (specific for each city) were not exceeded in none of 59 cities under surveillance. The nationwide ILI & ARI morbidity level registered this week (**36.4** per 10 000) declined below the national baseline by **41.6%.**

Exceeding of morbidity epidemic thresholds for overall population

- No data
- less 20%
- 20 - 49%
- 50% and more

Cumulative number of diagnosed influenza cases

Cumulative results of influenza diagnosis by different tests were submitted by 46 RBLs. According to these data as a result of investigation of 980 patients the overall proportion of respiratory samples positive for influenza was estimated as **1.6%** including **0.4%** for pandemic influenza A(H1N1)v virus, **0.3%** for influenza A (H3N2) virus and **1.0%** for influenza B virus (table 4).

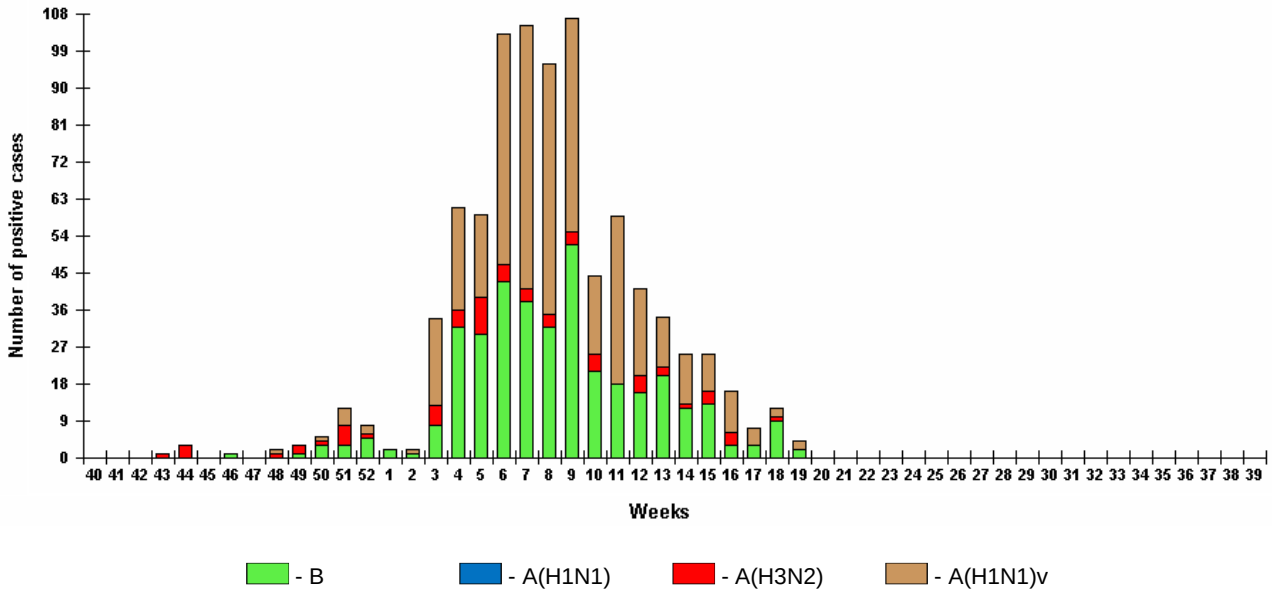


Results of influenza diagnosis

- No data
- No detection
- H1v
- H1v+H1
- H1v+B
- H1v+B+H1
- H1v+H3
- H1v+H3+H1
- H1v+H3+B
- H1v+H3+H1+B
- H1
- B
- B+H1
- H3
- H3+H1
- H3+B
- H3+H1+B

Influenza Virus Isolation

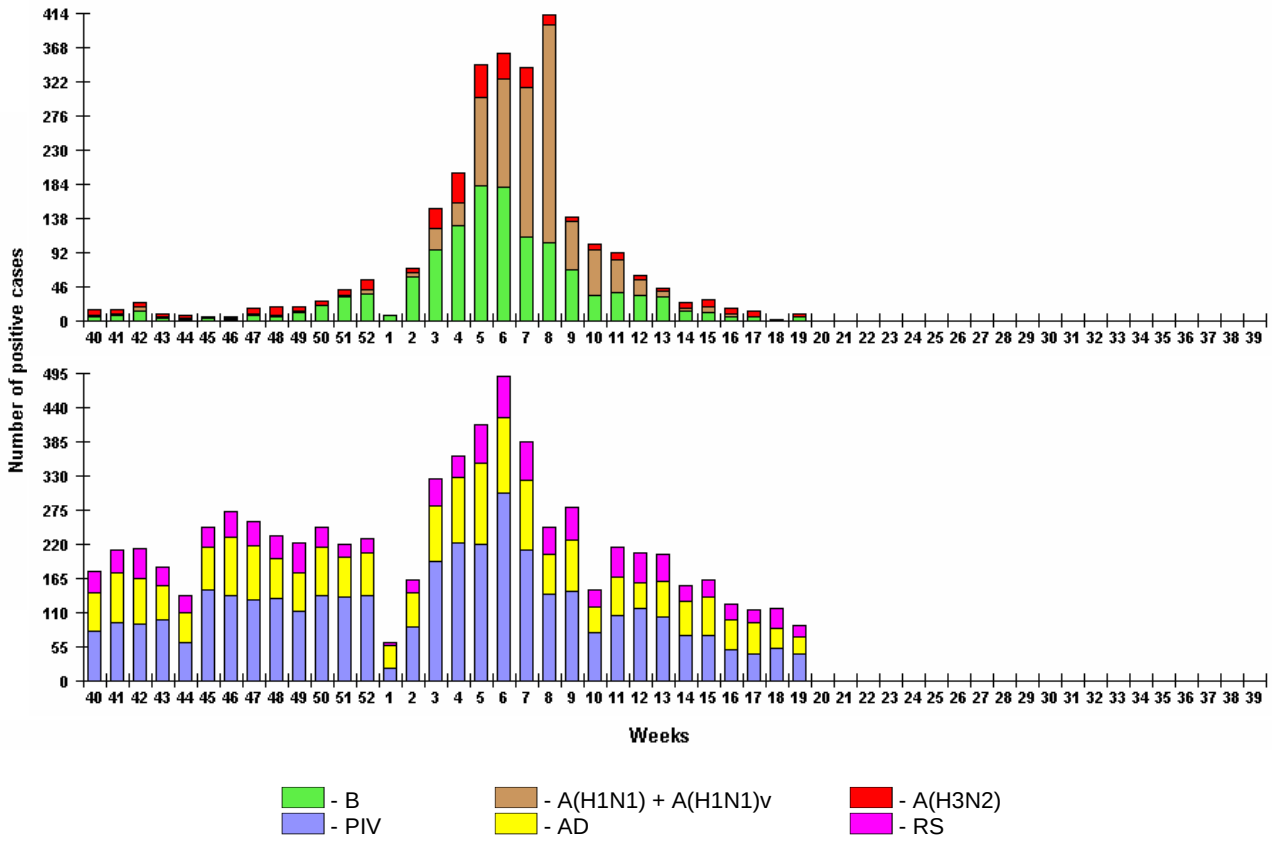
During the reported week (May 09 - 15.2011) investigations on influenza virus isolation were conducted in 5 Regional Base Laboratories (RBLs) participating in influenza surveillance in collaboration with two WHO NICs (St.-Petersburg, Moscow). As a result of 90 clinical samples testing **2 (2.2%)** pandemic influenza A(H1N1)v virus and **2 (2.2%),** influenza B viruses were isolated (table 1).



Influenza Virus Antigen Detection by Immunofluorescence Assay (IFA)

Clinical specimens from 447 patients with ILI and ARI were investigated by IFA in 35 RBLs for detection of antigens of influenza viruses, parainfluenza, RSV and adenoviruses. A total of **8 (1.8%)** influenza cases were diagnosed, including:
- **3 (0.7%)** influenza A(H3N2) cases in 2 cities,
- **5 (1.1%)** influenza B cases in 2 cities.

Mid-value for IFA detection of influenza and other respiratory viruses in the country was estimated as **21.5%**, including non-influenza respiratory viruses as **19.7%** accounting as 9.6%, 6.0% and 4.0% for parainfluenza, adeno- and RS-viruses, correspondingly (table 2).



Influenza Virus RNA Detection by RT-PCR

During this week clinical samples from SARI, ILI and ARI patients were investigated by RT-PCR in 39 RBLs. Pandemic influenza A(H1N1)v virus was detected in **0.6%** of 638 patients, influenza B virus in **0.6%** of 705 investigated patients. No seasonal influenza A(H1N1), A(H3N2) or influenza A(H5N1) cases were detected. Rate of PCR diagnosis of other respiratory infections was estimated as **17.5%** including parainfluenza in 4.8%, adenovirus infection in 6.2%, RSV infection in 6.5% of investigated patients (table 3).

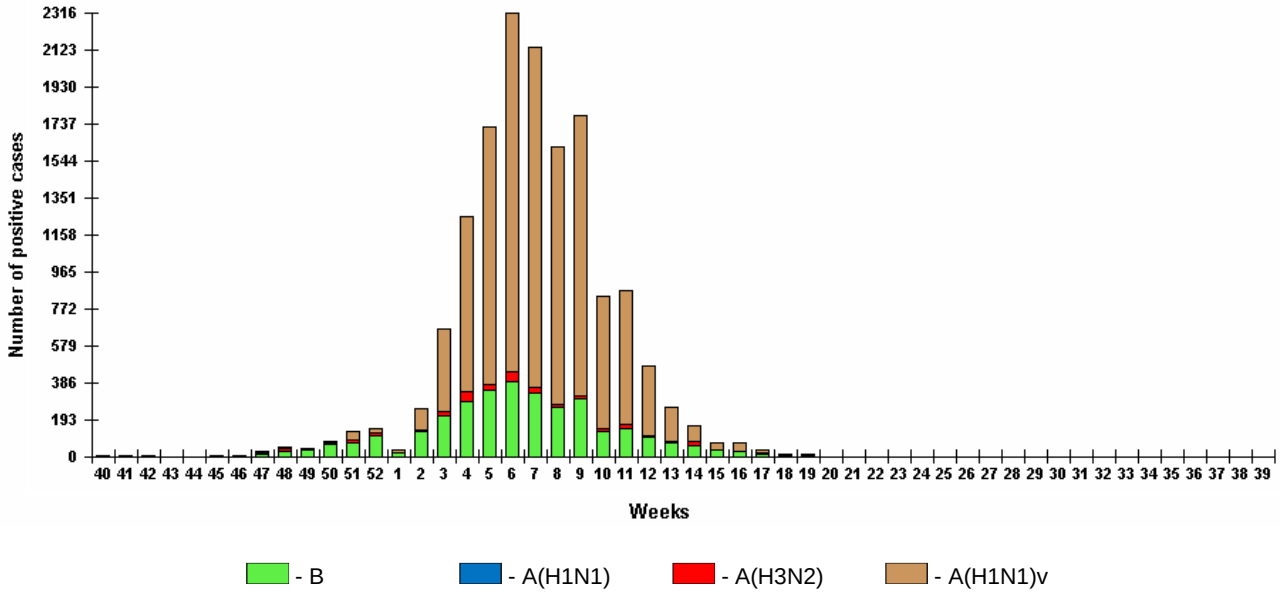


Table N1. Influenza Virus Isolation

Base lab.	Number of investigated patients	Number of viruses isolated					
		H1	H3	B	H1v	Untyped virus	Total
BL of RII	76	0	0	1	0	0	1
(%)		0,0	0,0	1,3	0,0	0,0	1,3
BL of IV	14	0	0	1	2	0	3
(%)		0,0	0,0	7,1	14,3	0,0	21,4
TOTAL	90	0	0	2	2	0	4
(%)		0,0	0,0	2,2	2,2	0,0	4,4

Table N2. Influenza Virus Antigen Detection by Immunofluorescence assay (IFA)

Base lab.	Number of investigated patients	Influenza			Parainfluenza			AD	RS	Total
		H1+H1v	H3	B	I	II	III			
BL of RII	374	0	3	5	8	14	13	22	16	81
(%)		0,0	0,8	1,3	2,1	3,7	3,5	5,9	4,3	21,7
BL of IV	73	0	0	0	2	3	3	5	2	15
(%)		0,0	0,0	0,0	2,7	4,1	4,1	6,8	2,7	20,5
TOTAL	447	0	3	5	10	17	16	27	18	96
(%)		0,0	0,7	1,1	2,2	3,8	3,6	6,0	4,0	21,5

Table N3. Influenza Virus RNA detection by RT-PCR

Base lab.	Number of investigated patients	Influenza						PIV	AD	RS
		A (not subtyped)	H1	H3	H5	B	H1v			
BL of RII	656	1 / 593	0 / 176	0 / 176	0 / 61	3 / 639	3 / 572	15 / 390	7 / 200	24 / 371
(%)		0,2	0,0	0,0	0,0	0,5	0,5	3,8	3,5	6,5
BL of IV	66	0 / 0	0 / 0	0 / 0	0 / 0	1 / 66	1 / 66	5 / 26	7 / 26	2 / 26
(%)		-	-	-	-	1,5	1,5	19,2	26,9	7,7
TOTAL	722	1 / 593	0 / 176	0 / 176	0 / 61	4 / 705	4 / 638	20 / 416	14 / 226	26 / 397
(%)		0,2	0,0	0,0	0,0	0,6	0,6	4,8	6,2	6,5

Table N4. Cumulative Number of Diagnosed Influenza Cases

Base lab.	Number of investigated patients	Number of diagnosed influenza cases						
		H1	H1+H1v (IFA)	H3	A (not subtyped)	B	H1v	Total
BL of RII	867	0	0	3	0	9	3	14
(%)		0,0	0,0	0,3	0,0	1,0	0,3	1,6
BL of IV	113	0	0	0	0	1	1	2
(%)		0,0	0,0	0,0	0,0	0,9	0,9	1,8
TOTAL	980	0	0	3	0	10	4	16
(%)		0,0	0,0	0,3	0,0	1,0	0,4	1,6

Conclusion

Influenza and ARI morbidity data. Trends in clinical and virological data suggest further declining influenza activity in Russia. Epidemic thresholds of morbidity for overall population (specific for each city) were not exceeded in none of 59 cities under surveillance. The nationwide ILI & ARI morbidity level registered this week (**36.4** per 10 000) declined below the national baseline by **41.6%.**

Etiology of ILI & ARI morbidity. The overall proportion of respiratory samples tested positive for influenza by virus isolation, IFA and rRT-PCR was estimated as **1.6%**, for parainfluenza, adenovirus and RSV - as 17.5% and 19.7% totally by PCR and IFA testing accordingly.

Sentinel surveillance. Clinical samples from 22 SARI patients in 9 cities were investigated and no influenza case was detected. As a result of investigation of 38 ILI/ARI patients one pandemic influenza A (H1N1)v virus and one influenza B case were detected.

Antigenic and genetic characterization. Since week 40.2010, 559 influenza viruses were characterized antigenically: 281 strains were A/California/07/09 like, 32 viruses were influenza A(H3N2) virus A/Perth/16/09 like, 238 strains were influenza B/Brisbane/60/08 virus like (B/Victoria/2/87 lineage), 8 strains were influenza B/Florida/04/06 virus like (B/Yamagata/16/88 lineage). As a result of genetic characterization of 14 viruses at Research Institute of Influenza ten pandemic influenza A(H1N1)v viruses were determined as related to pandemic A(H1)v virus, cluster A/California/07/09, clade 7, two of them were like to A/Darwin/02/2011, two were like to A/Wyoming/01/2011 and 6 viruses were similar to A/Hiroshima/24/2011. All 3 investigated influenza B viruses belonged to clade B/Brisbane/60/2008 (B/Victoria/2/87 lineage) and one influenza A(H3N2) virus belonged to subgroup A/Victoria/208/2009 - A/Hong Kong/2121/2010.

Susceptibility to antiviral drugs.

According to molecular-genetic results of D.I. Ivanovsky Insitute of Virology all of 185 pandemic A(H1N1)v virus containing samples, including seven from autopsy materials, appeared to be susceptible to oseltamivir. All 227 pandemic A(H1N1)v viruses including 11 from autopsy samples were resistant to rimantadine.

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