AGENDA:

1. Supervising the influenza infection - a priority for the medical authorities in our country;
2. Official data reported at the level of the Ministry of Health;
3. The situation of the influenza cases at the level of INBI Matei Balș;
4. Cases of influenza in children: 0 - 14 years;
5. The diagnosis of influenza infections: Mari-POC rapid tests, the results of these tests; a comparative analysis between 2013 – 2014;
6. Neurological complications of influenza: Guillain – Barre Syndrome, encephalitis;
7. Conclusions.
SUPERVISING INFLUENZA INFECTION constitutes a priority for health authorities in Romania.

Influenza surveillance system in Romania

- In Romania, the National Centre for Surveillance and Control of Communicable Diseases (NCSCCD) within National Institute of Public Health (NIPH), Bucharest coordinate the influenza surveillance system.

- Data is collected by sentinel physicians and NIPH compiles and analyze information on influenza activity at national level and produces the weekly report during the influenza season.
Influenza activity was higher during all the 2014-2015 season, compared to the last two seasons and the season was characterized by co-circulation of influenza A(H3N2), A(H1N1)pdm09 and B viruses.
National surveillance of influenza virus infection during the season 2014-2015

Number of Influenza infections confirmed by Institute Cantacuzino: 1103. 507 cases of influenza A (283 - subtype H3, 180 - subtype H1 pdm09, 44 unclassified), 592 cases of influenza B, 3 coinfections AH3 + B, 1 coinfection AH1 + B.
National surveillance of deaths related to influenza virus infection

The season 2013-2014

There were recorded 40 deaths.

The season 2014-2015

There were recorded 33 deaths.
The situation of influenza cases recorded between December 2014 and April 2015 in INBI

<table>
<thead>
<tr>
<th>Dec. 14</th>
<th>Jan.15</th>
<th>Feb.15</th>
<th>Mar.15</th>
<th>Apr.15</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>281</td>
<td>744</td>
<td>871</td>
<td>204</td>
<td>2139</td>
</tr>
</tbody>
</table>

![Graph showing the trend of influenza cases from December 2014 to April 2015.](chart.png)
The number of cases according to age groups

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Number of cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>360</td>
<td>17%</td>
</tr>
<tr>
<td>&gt;14</td>
<td>1779</td>
<td>83%</td>
</tr>
<tr>
<td>Total</td>
<td>2139</td>
<td></td>
</tr>
</tbody>
</table>

![Bar chart showing the number of cases by age group]

0-14: 360 (17%)
>14: 1779 (83%)
The Diagnosis of respiratory infections by using mari POC rapid tests:

- mariPOC - multianalyte point-of-care testing of respiratory tract infections
- fully automated immunoassay test system
- detects Ag of influenza A and B, RSV, hMPV, Adenovirus Parainfluenza 1,2,3 and optionally Streptococcus pneumoniae Ag
- uses fluorophore labeled antibodies
- the detection of the fluorescence signal is carried out by a laser with optical separation of unbound and bound tracer fractions
- preliminary results in 20 min, final results in 2 h
mariPOC

Final results

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza A virus</td>
<td>+</td>
<td>OK</td>
</tr>
<tr>
<td>Adenovirus</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>Influenza B virus</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>Metapneumovirus</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>Parainfluenza virus 1</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>Parainfluenza virus 2</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>Parainfluenza virus 3</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>RS virus</td>
<td>-</td>
<td>OK</td>
</tr>
<tr>
<td>S. pneumoniae</td>
<td>-</td>
<td>OK</td>
</tr>
</tbody>
</table>
The results of mariPOC tests in INBIMB

Distribution of types of influenza viruses in children between Dec 2014 - April 2015

- Influenza A: 39%
- Influenza B: 61%
The results of mariPOC tests in the previous 2 seasons

ETIOLOGY OF RESPIRATORY VIRAL INFECTIONS IN CHILDREN TESTED BETWEEN NOV 2013 - MAY 2014

ETIOLOGY OF RESPIRATORY VIRAL INFECTIONS IN CHILDREN TESTED BETWEEN JAN 2015 - APRIL 2015

- INFLUENZA A: 55%
- INFLUENZA B: 28%
- RSV: 13%
- hMPV: 8%
- PARAINFLUENZA: 4%
- ADENOVIRUS: 3%
- CO-INFECTION: 2.60%
- hMPV: 8.90%
- RSV: 6.20%
- PARAINFLUENZA: 0.30%

National Institute of Infectious Diseases
"Prof. Dr. Matei BALS" Bucharest Romania

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Dynamics of PCR negativity by day of illness

No. patients

Day of illness

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3 yo boy

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National Institute of Infectious Diseases
"Prof. Dr. Matei BALS" Bucharest Romania

06.Feb 14.Feb 27.Feb

Encephalitis
- fever, rhinoreea and cough
- headache, photophobia, pain in the lower limbs, gait disturbance
- unfavorable evolution: neurological serial exams: abolished tendon reflexes

Guillain-Barre sdr
- fever, cough, dyspneea, weakness of the lower limbs and gait unsteadiness
- Lab findings:
  - MariPOC INFLUENZA A RT-PCR – AH3
  - CSF: protein-271mg/dl, 2cells/mm
- Paraclinic:
  - Electromyography -demyelinating neuropathy with secondary axonal suffering

- Dexamethasone
- Mannitol
- Ceftriaxone

- IGIV - 400mg/kg/day – 5 days
- Oseltamivir – 60 mg/day – 10 days
- Dexamethasone – 0,5 mg/kg/day – 3 days – with decreasing doses
**8 yo boy**

**Fever**

**Seizure**

**Sleepiness, confusion, right hemiparesis**

**37°C**

**Encephalitis**

**Lab findings:**
- mariPOC: **INFLUENZA A.**
- RT-PCR: **AH3**
- CSF: normal
- PCR: **CSF** negative

**Paraclinical**
- EEG: slow, asymmetric, left > right
- IRM: normal

**Upon discharge:**
- Slight right – central facial paresis
- Discrete pronation – upper right limb

**Treatment**
- Oseltamivir 10 days
- Dexamethasone 10 days
- Mannitol 5 days
- IGIV 5 days
CONCLUSIONS

- mariPOC represents an important tool in the diagnosis of respiratory infections;

- neurologic impairment is one of the main complications of influenza infections;

- Due to the prolonged persistence of the virus in the airways, we recommend to extend the antiviral treatment for up to 10 days.