



June 2018

## Summary Report - The 2017/2018 Influenza Season

### Main Findings:

#### Laboratory Surveillance:

- In the 2017/2018 winter season, the surveillance network numbered 31 clinics distributed throughout Israel. The sentinel clinic network operated from the first week of October 2017 (Week 40) until the first week of April 2018 (Week 14).
- A total of 1,458 specimens were collected from the sentinel network for influenza and RSV (Respiratory Syncytial Virus), of which 42% were positive for influenza viruses and 11% were positive for RSV.
- Of the specimens that were positive for influenza viruses, approximately 70% were positive for influenza B and approximately 30% were positive for influenza A.
- Of the specimens that were positive for influenza A, approximately 56% were positive for influenza A/H1N1pdm09 and approximately 44% were positive for influenza A/H3N2.
- The rate at which influenza was identified in specimens from the sentinel clinics peaked in Week 4 of 2018, reaching approximately 71%.
- The dominant strain of influenza in Israel was influenza B. Molecular characterization showed that most influenza B viruses identified in the sentinel clinic network in the community belonged to the B/Yamagata lineage. Type B influenza of the Yamagata lineage was represented in the quadrivalent influenza vaccine, but not in the trivalent vaccine.

#### Clinical Surveillance:

- In the 2017/18 winter season, influenza-like illness was seen in the community at rates that resembled the peak for the 2016/17 season, and were low compared to the 2015/16 winter season. Influenza activity in the community in the 2017/18 winter season is defined as medium or lower, according to the thresholds calculated using the algorithm developed in the framework of the European influenza surveillance project.
- Similarly to the two previous winter seasons, this season also, the highest influenza-like morbidity rates in the community were observed for infants,



children and youths up to the age of 18, and were low for the elderly aged 65 and over.

- The rate of visits to "Maccabi Healthcare Services" physicians that ended in a diagnosis of pneumonia was particularly high for infants under the age of two years, with a peak of some 76 visits per 10,000 infants, and for the elderly aged 65 years and over, with a peak of some 17 visits per 10,000 elderly persons.
- The proportion of pediatric emergency room visits that were due to pneumonia was below the multi-annual average throughout the 2017/18 winter season.
- Throughout the season, the percentage of visits to internal medicine (adult) emergency rooms in which pneumonia was diagnosed was stable and varied around the multi-annual average, with the exception of the period from Week 49 of 2017 (the beginning of December 2017) until Week 4 of 2018 (the second half of January 2018), when the percentage of visits exceeded the multi-annual average.
- Throughout the 2017/18 winter season, the average hospital bed occupancy rate in internal medicine departments of general hospitals exceeded 100%.
- In pediatric departments, the average hospital bed occupancy rate exceeded 100% from Week 49 of 2017 until Week 8 of 2018 (the second half of February 2018).
- During most of the 2017/18 winter season, the percentage of deaths due to pneumonia varied around the seasonally expected level.

The all-cause mortality rate for the elderly aged 65 years and over during the 2017/18 winter season varied around the multi-annual average until Week 4 of 2018 (the end of January 2018). From Week 5 of 2018 until Week 14 of 2018 (second half of January 2018), the mortality rate was below the multi-annual average. The mortality rate for the population below the age of 65 years was below the multi-annual average throughout the season, with the exception of Week 5 of 2018 (the end of January 2018), when the mortality rate exceeded the multi-annual average.

#### Immunization against Influenza:

- In the 2017/18 winter season, the vaccine chosen for use was the inactivated vaccine. Two types of inactivated vaccine were in use in Israel: a trivalent inactivated vaccine (against 3 strains of influenza) and a quadrivalent inactivated vaccine (against 4 strains of influenza).
- The vaccine against 3 strains is recommended for the overall population from age 6 months; infants aged from half a year to two years may only receive



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inactivated vaccine while 2-49 year olds may receive live attenuated vaccine or inactivated vaccine. For adults aged 50 and over, only inactivated vaccine is recommended. Inactivated vaccine against 4 strains is intended for those aged 3 years and over.

- During September 2017 until mid February 2018, 2nd and 3rd grade pupils received a trivalent influenza vaccine (in the preceding year, only 2nd grade pupils received the influenza vaccine), in the framework of the routine vaccinations given in schools through the Student Health Service. Approximately 50% of 2nd grade pupils and approximately 42% of 3rd grade pupils were immunized against influenza in the 2017/18 season.
- In the 2017/18 season, some 1,700,000 people were immunized against seasonal influenza, constituting approximately 20% of the total population of Israel. Immunization coverage in the elderly group, of persons aged 65 years and over, reached approximately 60%. Immunization coverage for infants and children aged 6-59 months reached approximately 18%.



## Background:

The influenza surveillance system in Israel is administered by the Israel Center for Disease Control (ICDC) in the Ministry of Health, and is based on two arms: a laboratory arm and a clinical arm. The laboratory surveillance is based on nasopharyngeal swab specimens collected from patients presenting to one of the sentinel clinics with influenza-like illness, and tested for the presence of influenza virus at the Central Virology Laboratory of the Ministry of Health. The clinical surveillance is primarily based upon information regarding patient visits to clinics in the community and to hospital emergency rooms due to influenza-like illness, upper respiratory tract infection and pneumonia.

All the information collected from the various information sources is analyzed by the staff of the Infectious Diseases Unit of the ICDC, and summarized in weekly reports during the influenza season, and distributed to the management of the Ministry and to specific groups of physicians. The reports may be viewed on the Ministry of Health's website in Hebrew and in English<sup>1</sup>.

The objectives of the influenza surveillance system are to present an up-to-date picture of morbidity from influenza and its complications, to describe the burden on the health system and to characterize the active influenza strains. The surveillance is usually conducted from October until April of the following year<sup>2</sup>.

### 1. Laboratory Surveillance

Starting from the winter of 1996/97, the ICDC has been operating a network of sentinel clinics in the community to identify the influenza viruses that are active during the influenza season. In the 2017/18 winter season, the surveillance network numbered 31 clinics distributed throughout Israel, from Dimona in the South to Akko in the North (Appendix 1 shows the distribution of the sentinel clinics). The medical staff in these clinics have been instructed to take nasopharyngeal swabs from patients who are in the first to fourth day of their illness and meet the definition of influenza-like illness (temperature of 37.8°C or higher accompanied by one or more of the following signs: cough, sore throat, muscle pain, runny nose, chills, etc.). The nasopharyngeal swabs are stored under refrigeration, and are transported once per week to the Central Virology Laboratory of the Ministry of Health (which constitutes one of the public health laboratories), where they are tested for the presence of influenza virus and of RSV. In the laboratory, the influenza viruses are characterized at the level of type (A or B), and strain; and genetic and antigenic changes are



identified. The degree of correspondence of the influenza viruses to the seasonal vaccine and the degree of correspondence to the strains that are prevalent internationally is also assessed.

### 1.1 Virological Surveillance via the Sentinel Clinic Network: Winter 2017/18

The sentinel clinic network operated from the first week of October 2017 (Epidemiological Week 40) until the first week of April 2018 (Week 14). Table 1 shows the overall number of specimens received in the laboratory for each of the weeks of the surveillance period, for the under-18 and the 18-and-over age groups. The findings of the Central Virology Laboratory's testing of the specimens collected during the above period is shown in Tables 2-4. Approximately 70% of the specimens were found to be positive for influenza B and approximately 30% were found to be positive for influenza A. Of the specimens that were positive for influenza A, approximately 56% were positive for influenza A/H3N2 and approximately 44% were positive for influenza A/H1N1pdm09 (Table 4).

**Table 1: Number of Specimens by Epidemiological Week and Age Group\*, Winter 2017/2018<sup>1,3</sup>:**

Week	Year	Total No. of Specimens*	Number of Specimens from Children (under the age of 18)	Number of Specimens from Adults (18 years and over)
40	2017	12	8	4
41	2017	16	5	11
42	2017	26	14	12
43	2017	34	17	17
44	2017	31	19	12
45	2017	37	22	15
46	2017	47	31	16
47	2017	44	26	18
48	2017	56	36	20
49	2017	68	37	31
50	2017	65	37	28
51	2017	83	51	32
52	2017	105	55	50



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1	2018	151	89	62
2	2018	75	36	39
3	2018	91	42	49
4	2018	79	30	49
5	2018	82	36	46
6	2018	64	31	33
7	2018	64	32	32
8	2018	59	29	30
9	2018	51	25	26
10	2018	55	27	28
11	2018	29	15	15
12	2018	21	10	11
13	2018	7	4	3
14	2018	2	1	1
<b>Total</b>		<b>1,455</b>	<b>765</b>	<b>690</b>

\* For 3 specimens, age/date of birth is missing.



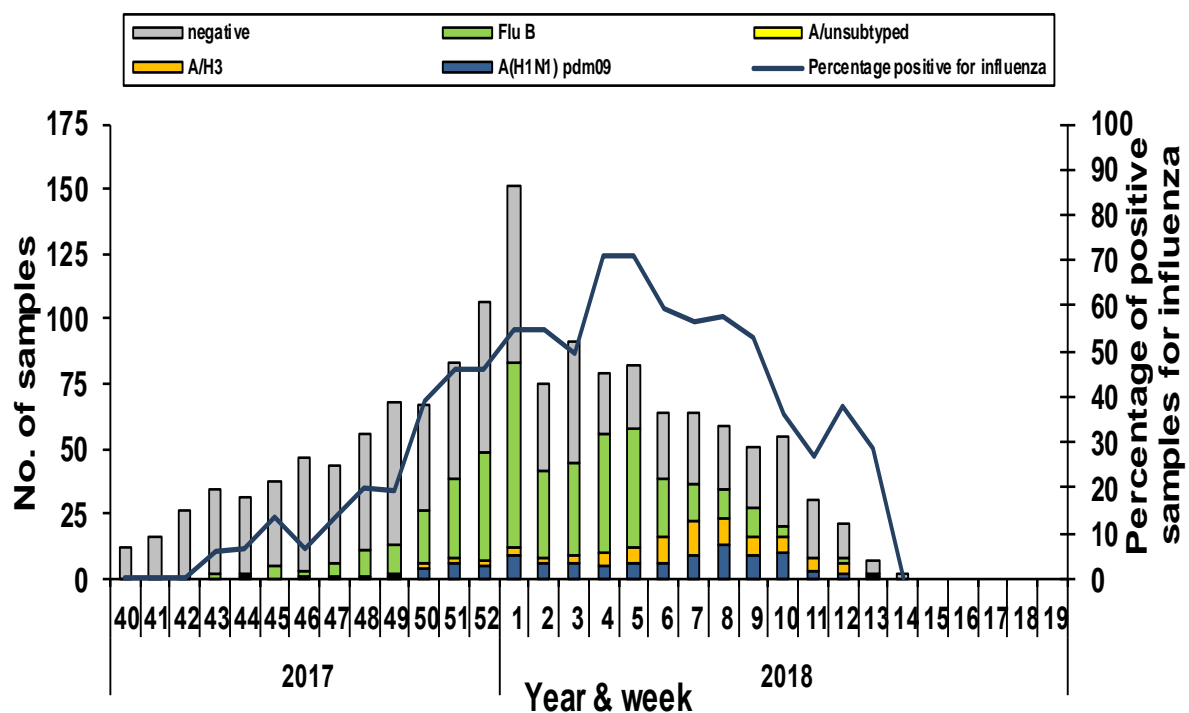
**Table 2: Distribution of Influenza and RSV Isolations from Nasopharyngeal Specimens Collected in the Sentinel Clinics, 2017/2018 Season<sup>1,3</sup>: Numbers and Percentages**

Total Number of Specimens Sent	N=1,458	%
Influenza-positive specimens*	611	41.9
RSV-positive specimens*	161	11.0
Specimens negative for influenza and for RSV	694	47.6

\*4 specimens during the current season were found to be positive both for influenza A/H1N1 2009 and for RSV, and 4 additional specimens were found to be positive both for influenza B and for RSV.

Figure 1 shows the influenza sub-types isolated from specimens in the sentinel network. A similar pattern of subtype isolations was also identified in hospitalized patients with respiratory illness diagnosed at the Central Virology Laboratory.

**Figure 1: Nasopharyngeal Specimens Collected at the Sentinel Clinic Network, By Laboratory Finding and Week of Specimen, 2017/2018 Season<sup>1,3</sup>: Numbers and Percentage Positive for Influenza**





**Table 3: Distribution of Specimens Positive for Influenza and RSV from Nasopharyngeal Specimens Collected in the Sentinel Clinics, By Age Group, 2017/18 Season<sup>1,3</sup>: Numbers and Percentages**

Age group	Influenza-positive specimens N (%)*	RSV-positive specimens N (%)*
<b>0-4</b>	101 (23.4)	114 (37.2)
<b>5-17</b>	199 (57.7)	8 (2.3)
<b>18-44</b>	159 (43.9)	14 (4.0)
<b>45-64</b>	105 (47.5)	11 (5.3)
<b>65+</b>	45 (42.1)	14 (13.1)
<b>NA</b>	2 (66.7)	0
<b>Total</b>	611	161

\*% of all specimens sent for each age group



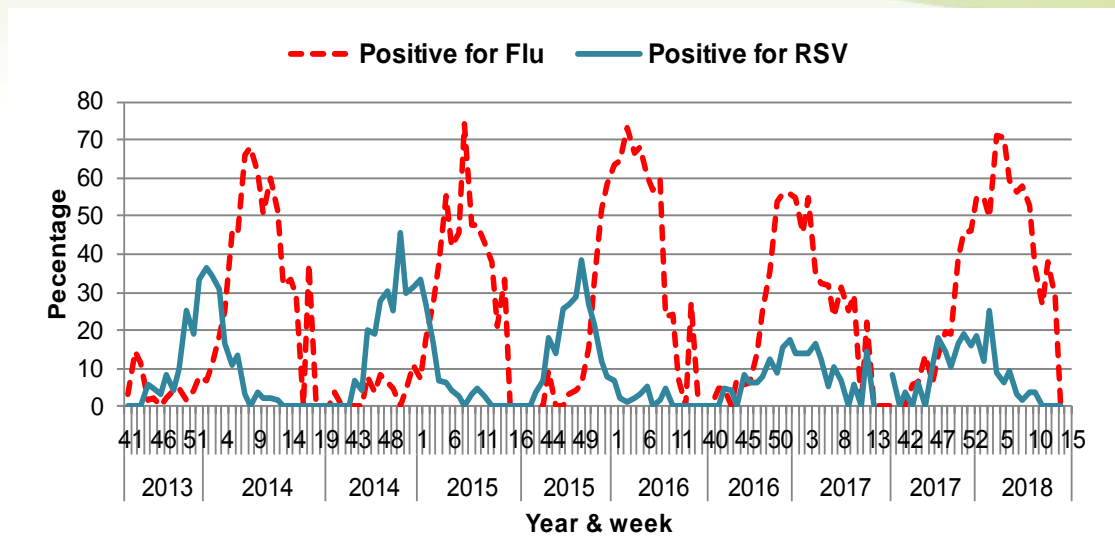


**Table 4: Distribution of Influenza-Positive Specimens from Nasopharyngeal Specimens By Type, 2017/18 Season<sup>1,3</sup>: Numbers and Percentages**

Type of Influenza Virus	N	%
<b>Type A influenza</b>	<b>187</b>	<b>30.6</b>
A/H1N1 2009	105	56.2
A/H3	82	43.8
A/H1	0	0
<b>Type B influenza</b>	<b>424</b>	<b>69.4</b>
<b>Total No. of influenza-positive specimens</b>	<b>611</b>	<b>100</b>

Figure 2 shows the results of testing for influenza viruses and RSV by the Central Virology Laboratory of specimens collected at the sentinel clinics during the surveillance season, by week. The percentage of RSV-positive specimens began to rise from the first half of November 2017 (Week 46). The percentage of positive specimens continued to increase until the third week of January 2018, when it reached a peak of 25% of all specimens. From the last week of January 2018, a decrease began in the percentage of specimens RSV-positive in the sentinel network, and starting from Week 7 of 2018 (the second half of February 2018), only a few percent of specimens were positive for RSV<sup>3</sup>. The percentage of influenza-positive specimens began to increase in the second week of November 2017 (Week 45). At the end of January 2018, the percentage of specimens positive for influenza reached a peak of some 70%, after which the percentage of positive specimens began to decrease. Specimens positive for influenza were found throughout almost the entire surveillance period, until Week 14 of 2018 (the first week of April 2018), when there were no specimens positive either for influenza or for RSV.

**Figure 2: Nasopharyngeal Specimens Positive for Influenza and for RSV Collected at the Sentinel Clinic Network, By Week of Specimen, 2013-2018<sup>1,3</sup>: Percentages**



## 2. Clinical Surveillance

The clinical surveillance is based on a number of information sources:

- Data regarding persons insured by the two largest HMOs in Israel ("Maccabi Healthcare Services"<sup>4</sup> and "Clalit" Health Services<sup>5</sup>) who presented to community physicians and were clinically diagnosed as having influenza or influenza-like illness, or pneumonia. Detailed non-identified information about these patients is conveyed to the ICDC daily, and stored in a dedicated database.
- Daily data regarding the number of patients who presented to the emergency rooms of "Clalit" Health Services' eight general hospitals and were diagnosed with pneumonia.
- Daily data regarding hospital bed occupancy rates in the general hospitals.
- Data regarding deaths in the community and in hospitals.
- Weekly data regarding overall deaths in Israel due to all causes and due to pneumonia, which were reported to the Epidemiology Division of the Ministry of Health.

### 2.1 Surveillance of Influenza-Like Illness in the Community

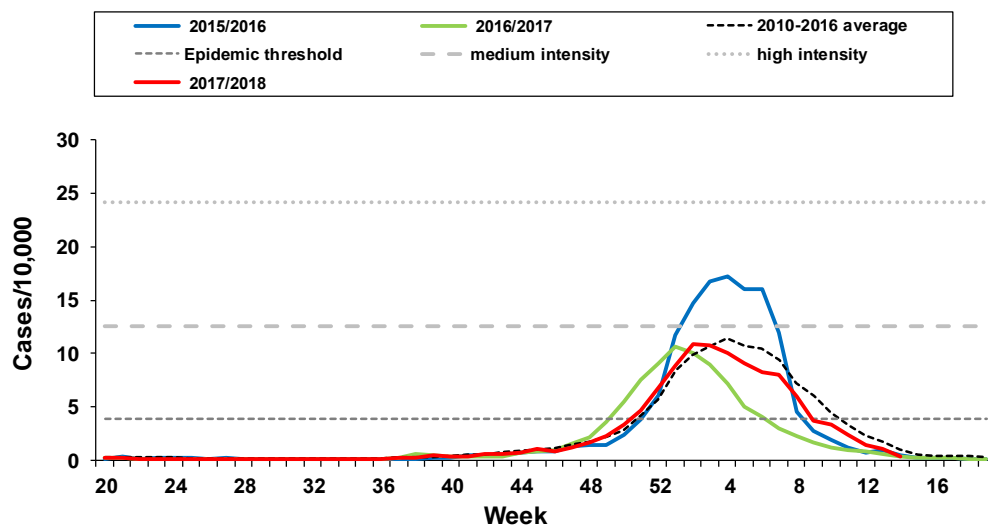
Figure 3 shows weekly influenza-like illness rates, based upon patient visits to "Maccabi Healthcare Services" physicians in the community during the period May 2015 to May 2018. This period includes the three last winter seasons. Additionally, a plot representing the multi-annual average showing seasonal influenza-like illness in the community is also displayed for the years 2010-2016



(excluding the 2009/10 season, which deviated from the norm due to the appearance of a new strain of A/H1N1 influenza, which caused a pandemic). This season, we have again displayed the baseline level in the figure, which is intended to indicate the beginning of the influenza season and the intensities of influenza activity. This baseline level and the intensities were calculated using an algorithm that was developed in the framework of the European influenza surveillance project (EuroFlu), based on past data accumulated at the ICDC regarding visits to "Maccabi Healthcare Services" clinics due to influenza-like illness. Morbidity rates exceeded the baseline level for the first time in Week 51 of 2017 (the second half of December 2017), and remained above it until Week 8 of 2018 (the second half of February 2018). Influenza intensity in the community in the 2017/2018 winter season is defined (by peak morbidity) as medium or lower according to the thresholds calculated using the algorithm developed in the framework of the European influenza surveillance project.

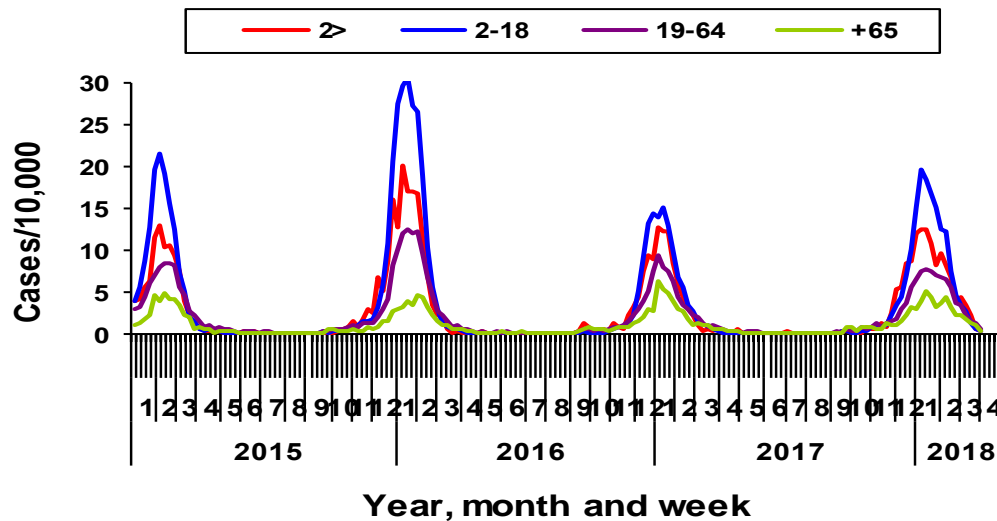
In the 2017/18 season, the morbidity rate observed at the peak of the season was similar to the 2016/17 season, but low as compared to the 2015/16 winter season. The highest morbidity rates observed were for infants, children and youths up to the age of 18 years, similarly to the previous two years (Figure 4).

**Figure 3: Visits per Week to "Maccabi Healthcare Services" Clinics that ended with a Diagnosis of Influenza-Like Illness\*<sup>1,4</sup>: Rates per 10,000**



\* The multi-annual average does not include the 2009/10 winter season.

**Figure 4: Visits per Week to "Maccabi Healthcare Services" Clinics that ended with a Diagnosis of Influenza-Like Illness, by Age Group<sup>1,4</sup>: Rates per 10,000**



## 2.2 Surveillance of Pneumonia Morbidity in the Community

Figure 5 shows weekly visit rates to "Maccabi Healthcare Services" physicians that ended with a diagnosis of pneumonia during the period May 2015 to May 2018, as compared to the multi-annual average, excluding the 2009/10 season. Throughout the year, clinic visit rates were below the multi-annual average. Peak morbidity was in the first week of January 2018 (Figure 5).

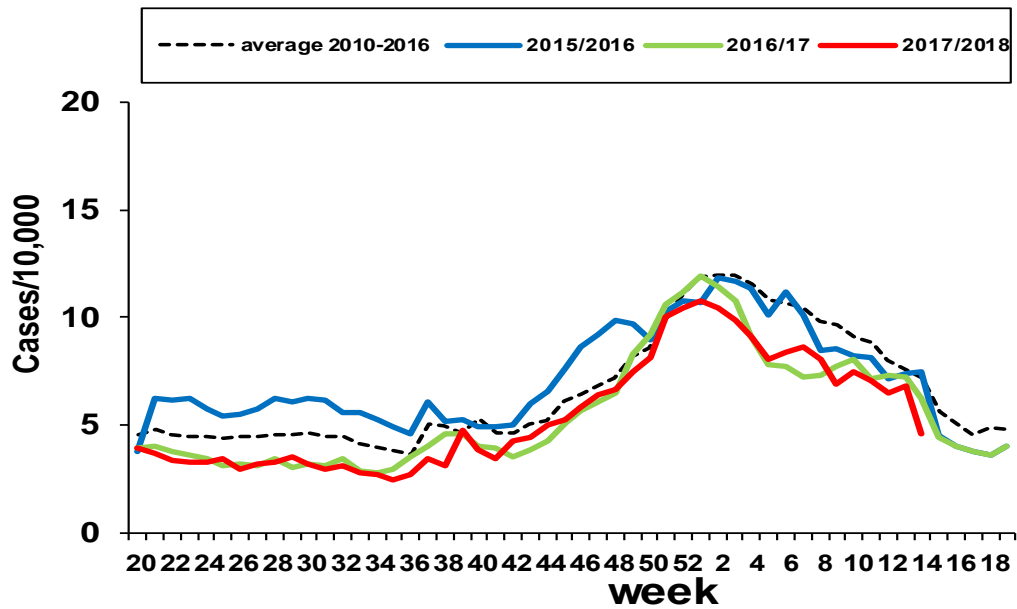
The rate of visits due to pneumonia in the group of infants under the age of two years reached a peak of some 76 per 10,000 HMO members in the 2017/18 winter season; in the group of children and youths aged 2-18 years, the visit rate reached a peak of 13 per 10,000 HMO members, and the visit rate for the group of the elderly, aged 65 years and over, reached a peak of some 17 visits per 10,000 HMO members. In the group of adults aged 19-64 years, visit rates due to pneumonia were lower than the rates for the remaining age groups (a peak of 6 per 10,000 HMO members) (Figure 6).



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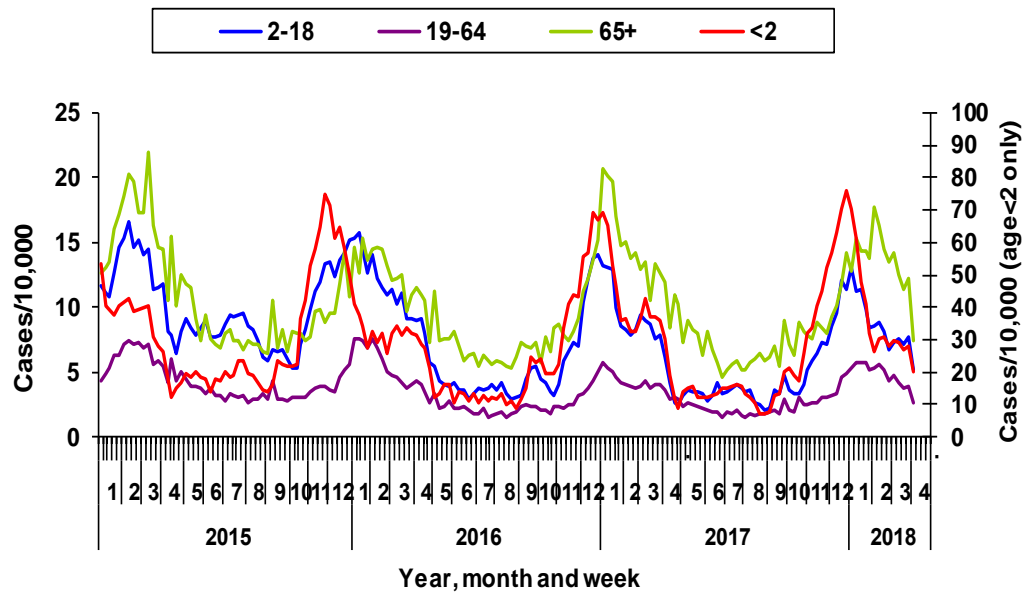
**Figure 5: Visits per Week to "Maccabi Healthcare Services" Clinics that ended with a Diagnosis of Pneumonia<sup>1,4\*</sup>: Cases per 10,000**



\* The multi-annual average does not include the 2009/10 winter season.



**Figure 6: Visits per Week to "Maccabi Healthcare Services" Clinics that ended with a Diagnosis of Pneumonia, by Age Group<sup>1,4</sup>:** Cases per 10,000 (the y-axis for infants up to the age of two years is on the right hand side of the Figure, and the y-axis on the left hand side of the Figure is for all the remaining age groups)



### 2.3 Surveillance of Emergency Room Visits that ended with a Diagnosis of Pneumonia

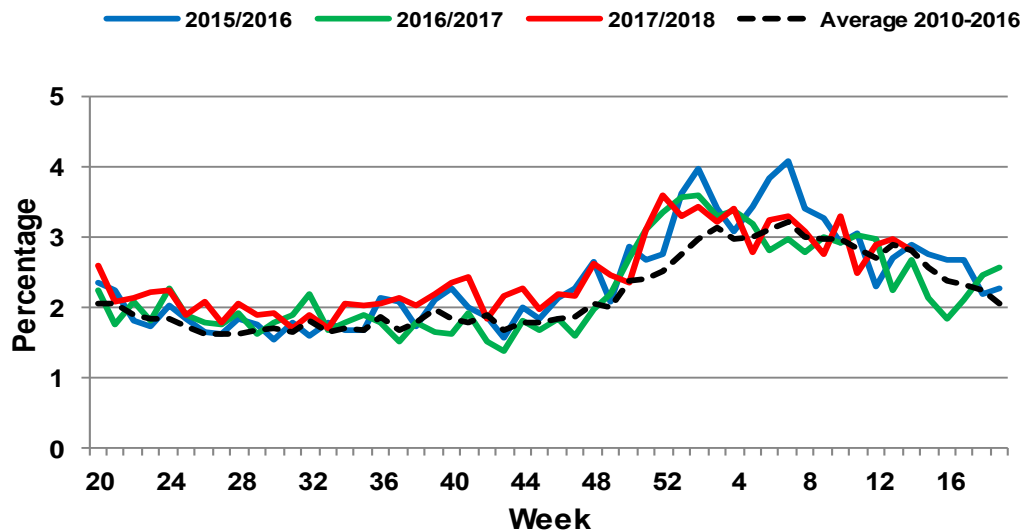
Influenza morbidity is generally accompanied by increased emergency room visits due to pneumonia. Figures 7 and 8 show visits that ended with a diagnosis of pneumonia, as a percentage of all emergency room visits that ended with any diagnosis, for adults and for children, in "Clalit" Health Services' 8 general hospitals. From Week 20 until Week 45 of 2017 (the beginning of November 2017), the percentage of visits to adult emergency rooms in which pneumonia was diagnosed was stable and varied around the multi-annual average. From Week 49 of 2017 (the beginning of December 2017) until Week 4 of 2018 (the second half of January 2018), the percentage of visits was above the multi-annual average (Figure 7)<sup>5</sup>. From Week 5 of 2018 (the end of January 2018) until Week 14 (the beginning of April 2018), the percentage of visits was stable and varied around the multi-annual average (Figure 7)<sup>5</sup>. Pediatric emergency room visits due to pneumonia were at a lower level than the multi-annual average throughout the entire season (Figure 8)<sup>5</sup>.



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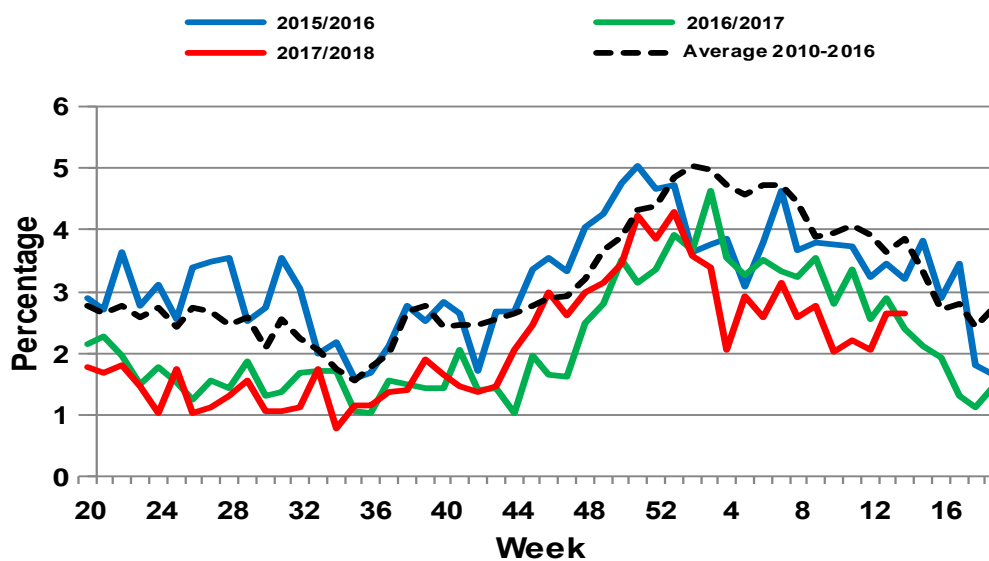
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**Figure 7: Visits to (Adult) Emergency Rooms in "Clalit" Health Services' Hospitals that ended in a Diagnosis of Pneumonia, May 2015 - April 2018, and the Multi-Annual Average\*<sup>1,6</sup>** (expressed as a percentage of all visits that ended with any diagnosis)



\* The multi-annual average does not include the 2009/10 winter season.

**Figure 8: Visits to (Pediatric) Emergency Rooms in "Clalit" Health Services' Hospitals that ended in a Diagnosis of Pneumonia, May 2015 - April 2018, and the Multi-Annual Average\*<sup>1,6</sup>** (expressed as a percentage of all visits that ended with any diagnosis)



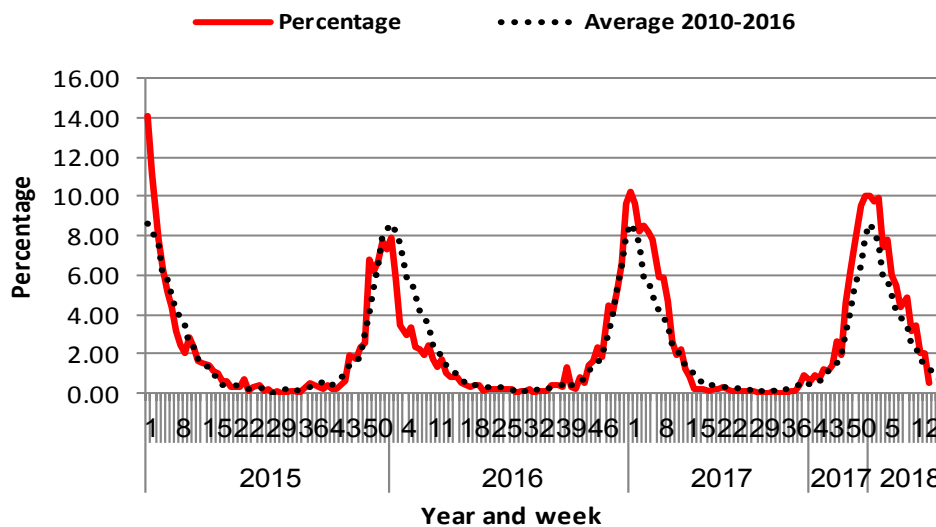
\* The average does not include the 2009/10 winter season.



**2.4 Surveillance of (Pediatric) Emergency Room Visits that ended with a Diagnosis of Bronchiolitis**

Figure 9 shows the percentage of visits of infants under the age of two years to pediatric emergency rooms due to bronchiolitis in the years 2015-2018. It can be seen that the wave of morbidity commenced as expected this year, in Week 49 of 2017, and the percentage of visits peaked in Week 52 of 2017 (the end of December 2017). The percentage of specimens positive for RSV in the sentinel clinics during the 2017/18 season corresponded in its timing to the percentage of visits to pediatric emergency rooms due to bronchiolitis for infants aged two years and below (information not displayed).

**Figure 9: Visits to (Pediatric) Emergency Rooms in "Clalit" Health Services' Hospitals that ended in a Diagnosis of Bronchiolitis, January 2015 - May 2018, and the Multi-Annual Average<sup>1,6</sup> (expressed as a percentage of all visits that ended with any diagnosis)**



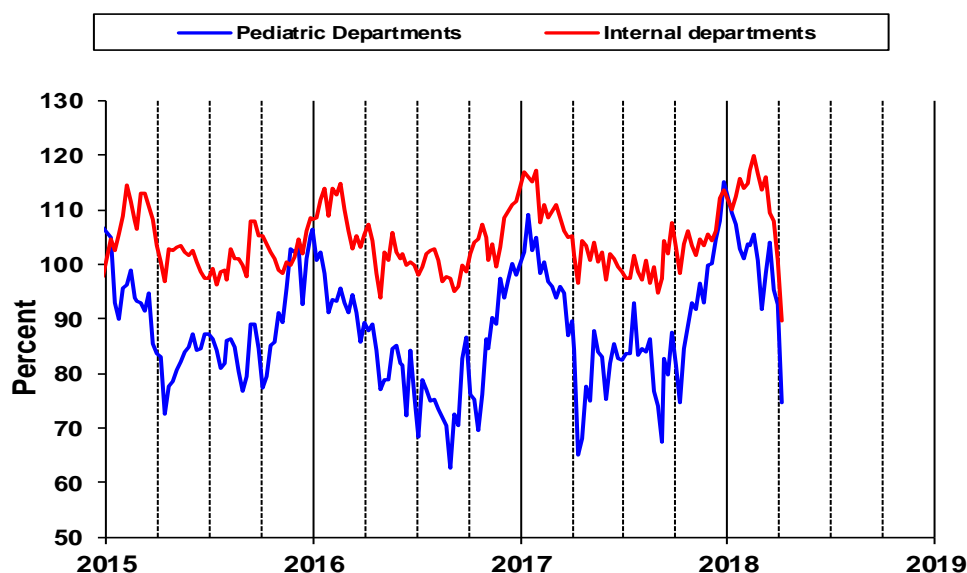
**2.4 Surveillance of Weekly Hospital Bed Occupancy Rates in General Hospitals**

Throughout the 2017/18 winter season, the average hospital bed occupancy rate in internal medicine departments of general hospitals exceeded 100%, and reached a peak of 120% in Week 7 of 2018 (the second half of February 2018). In pediatric



departments, the average occupancy rate was lower than in internal medicine departments. From Week 49 of 2017 until Week 8 of 2018 (the second half of January 2018), the occupancy rate exceeded 100%, peaking at 115% in Week 52 of 2017 (the end of December 2017). In pediatric departments, the peak occupancy rate this year was high compared with the peaks recorded in the two previous influenza seasons. Similarly, also in internal medicine departments, the peak hospital bed occupancy rate was high relative to the peaks recorded in the two previous influenza seasons.

**Figure 10: Weekly Hospital Bed Occupancy Rates in Internal Medicine and Pediatric Departments, General Hospitals, 2015-2018<sup>1</sup>: Average Percentage**



## 2.5 Surveillance of Mortality

### 2.5 Mortality Rates during the 2017/18 Influenza Season

In order to assess the severity of influenza during the winter seasons, two measures of mortality were utilized: mortality due to all causes (Figures 11+12), and mortality due to pneumonia as a percentage of all cases of death in Israel (Figure 13).

The all-cause mortality rate for the elderly aged 65 years and over during the 2017/18 winter season varied around the multi-annual average until Week 4 of 2018 (the end of January 2018). From Week 5 of 2018 until Week 14 of 2018 (second half of January 2018), the mortality rate was below the multi-annual average (Figure 11). The mortality rate for the population below the age of 65 years was below the multi-annual average throughout the season, with the exception of Week 5 of 2018 (the



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end of January 2018), when the mortality rate exceeded the multi-annual average (Figure 12).

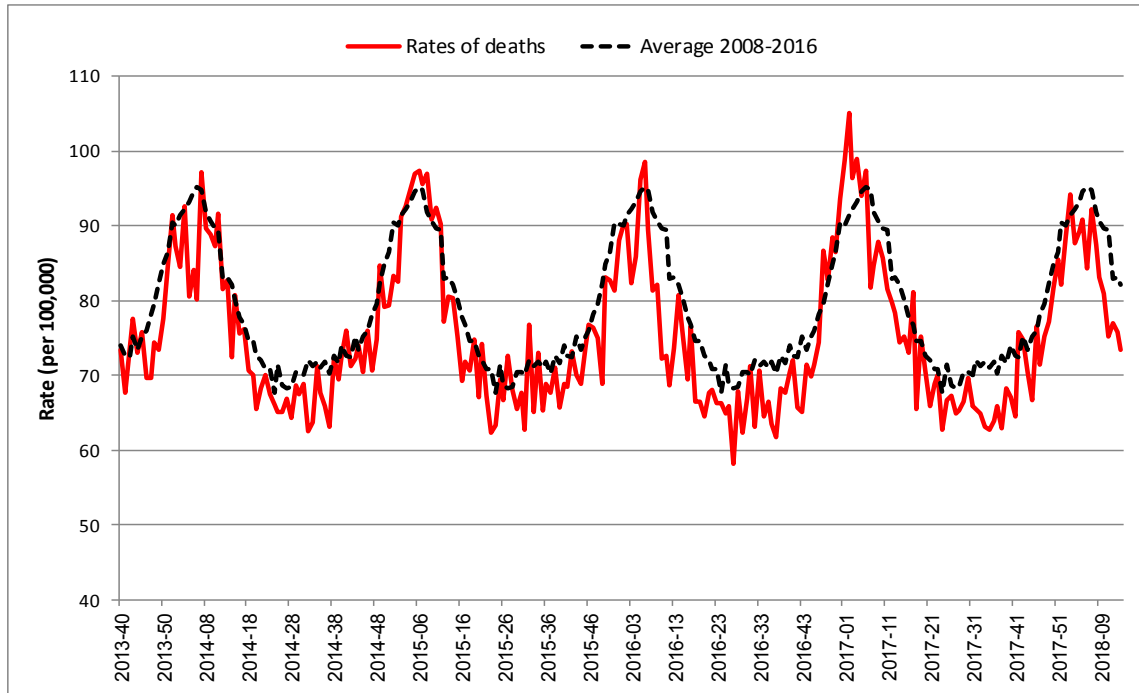
During the current season, the percentage of deaths due to pneumonia varied around the seasonally expected level, with the exception of Week 4 of 2018 (the second half of January 2018), when the percentage of deaths crossed the epidemic threshold (Figure 13).



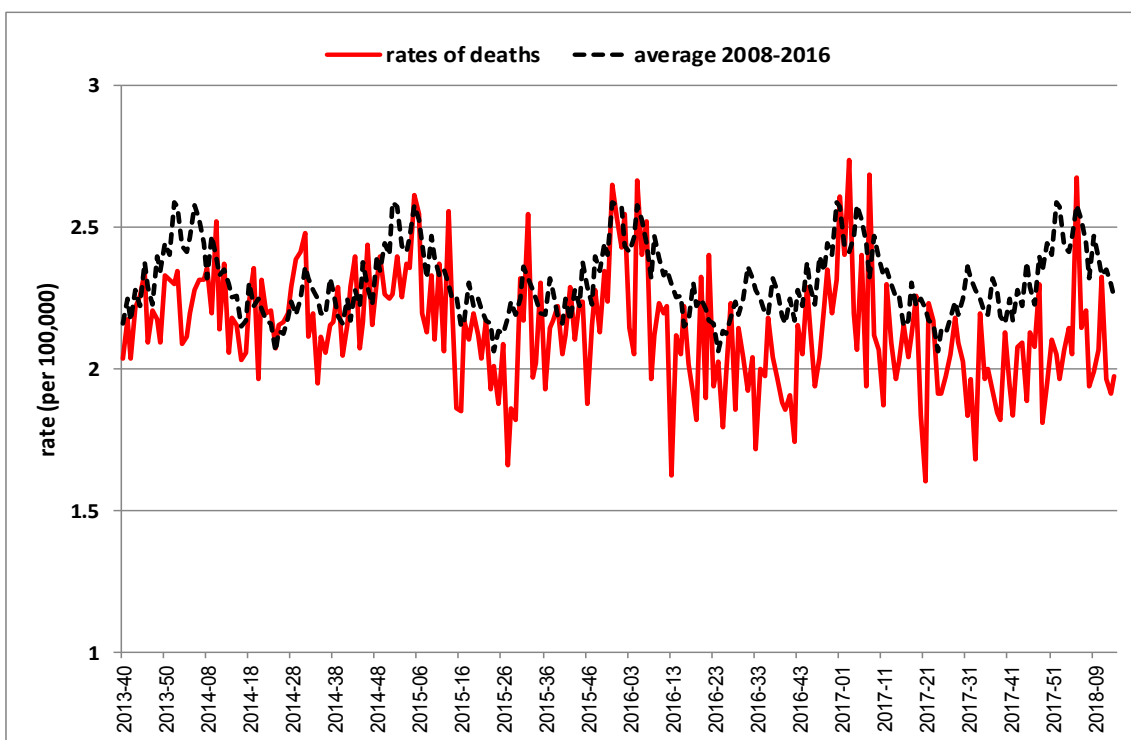
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**Figure 11: Weekly Rates of All-Cause Mortality Among the Elderly Aged 65 Years and Over, as Compared to the Multi-Annual Average, 2013-2018<sup>6</sup>: Rates per 10,000**



**Figure 12: Weekly Rates of All-Cause Mortality Among the Population Aged Under 65 Years, as Compared to the Multi-Annual Average, 2013-2018<sup>6</sup>: Rates per 10,000**

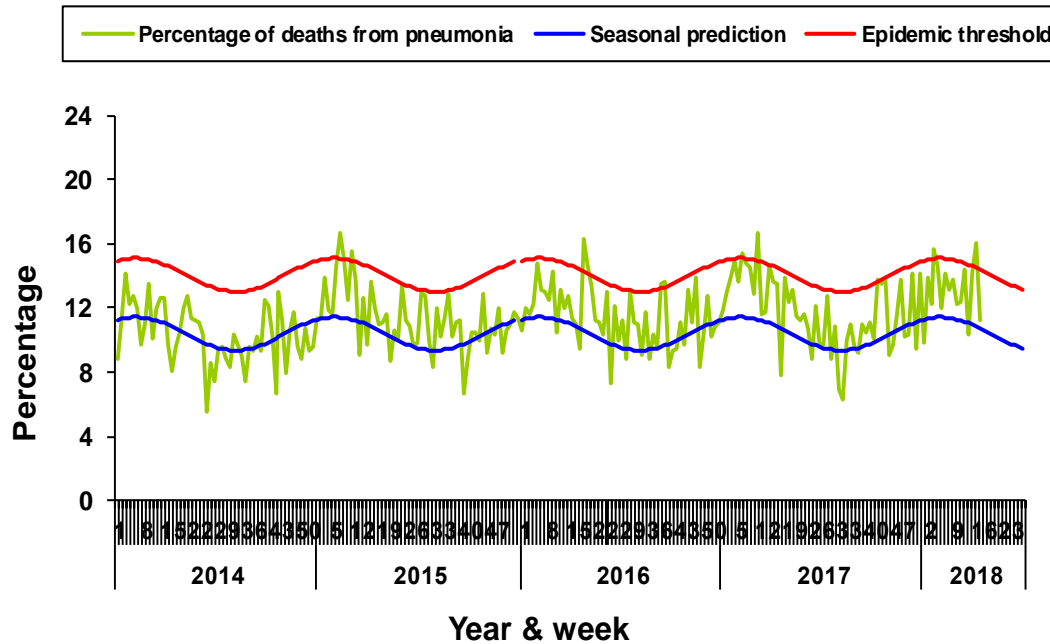




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**Figure 13: Deaths per Week due to Pneumonia, as Compared to Level Expected from Multi-Annual Data, 2014-2018: Percentage of All Cases of Death**



**3. Immunization Against Influenza and the Degree to which the Vaccine Corresponded to Influenza Viruses Active During the Season**

Since 2011, there has been a recommendation for the entire population over the age of 6 months to be vaccinated against influenza. In the Vaccination Guide of the Division of Epidemiology<sup>8</sup>, detailed information regarding the influenza vaccine can be found.

In the 2017/18 season, some 1,700,000 people were immunized against seasonal influenza (approximately 20% of the total population of Israel). Immunization coverage in the elderly group, of persons aged 65 years and over, reached approximately 60%. Immunization coverage for infants and children aged 6-59 months reached approximately 18%.

The percentage of all members of all HMOs who were immunized was similar to the percentages recorded in the preceding winter seasons (Figure 14). For HMO

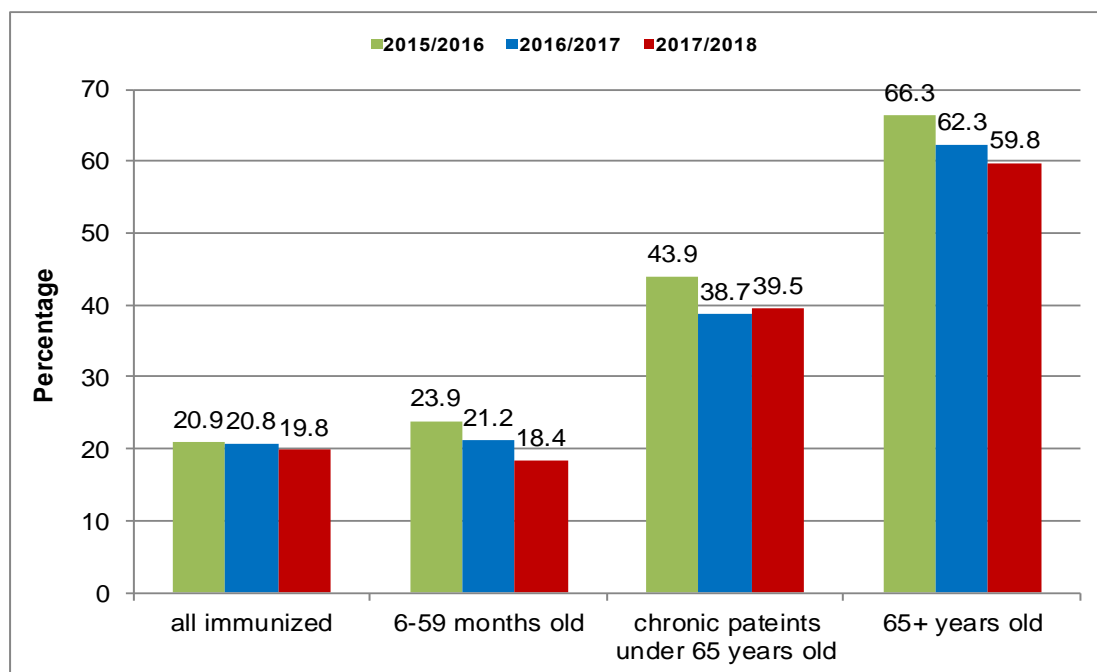


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members aged 6-59 months and 65 years and over, the percentage immunized in the 2017/18 season was lower than that recorded in the two previous seasons.

**Figure 14: Immunization Percentages for the Past Three Influenza Seasons, by Age Group<sup>9</sup>:**



During September 2017 until mid February 2018, 2nd and 3rd grade pupils received a trivalent influenza vaccine (in the preceding year, only 2nd grade pupils received the influenza vaccine), in the framework of the routine vaccinations given in schools through the Student Health Service. Approximately 50% of 2nd grade pupils and approximately 42% of 3rd grade pupils were immunized against influenza.

Table 5 shows the percentages immunized against influenza among infants and children aged 6 months to 5 years and among children and adolescents aged 5-18 years, in the years 2013-2018.



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**Table 5: Percentages Immunized against Influenza for Infants and Children, 2013-2018<sup>9</sup>:**

Season	6 months to 59 months	5-18 years
<b>2013-2013</b>	17	6.7
<b>2013-2014</b>	18.3	7.1
<b>2014-2015</b>	25.4	10.9
<b>2015-2016</b>	23.2	10.6
<b>2016-2017</b>	21.2	13.4*
<b>2017-2018</b>	18.4	13.9**

\*Only a portion of 2nd grade pupils are included in this figure

\*\*Only a portion of 2nd-3rd grade pupils are included in this figure

In the 2017/18 season in Israel, the dominant influenza strain was influenza B, with this strain having been recorded in 70% of all patients. Molecular characterization of influenza strain shows that most influenza B viruses identified in the sentinel network in the community belonged to the B/Yamagata lineage. The dominance of this strain over others this season can be explained by the fact that influenza B from the Yamagata lineage is represented in the quadrivalent influenza vaccine but not in the trivalent vaccine.



#### 4. International Comparison

**USA<sup>10</sup>:** During the 2017/18 season, A/H3N2 was the predominant subtype.

The increase in the percentage of clinic visits due to ILI (influenza-like illness) in the 2017/18 winter season commenced in the second half of November 2017 (Week 47), crossed the national baseline level, and remained above it until Week 13 of 2018 (the end of March 2018). The current season commenced relatively early, and the peak levels were relatively high compared to the 2016/17 influenza season, in which influenza A/H3N2 was also dominant.

During the winter of 2017/18, the hospitalization rate reported as the result of influenza morbidity was 106 per 100,000. The hospitalization rate was particularly high for the elderly aged 65 years and over (457 per 100,000). Among hospitalized patients diagnosed with influenza A, 84.7% were diagnosed with A/H3N2 and 15.3% were diagnosed with A(H1N1)pdm09.

From Week 40 of 2017 (the beginning of October 2017) until Week 17 of 2018 (the second half of April 2018), 163 cases of child deaths from influenza were reported throughout the USA.

According to data from the public health laboratories in the USA, by Week 17 (ending 28-Apr-18), a total of 94,161 specimens were collected. Of these, 51,906 (55.1%) were found to be positive for influenza, of which 37,368 (72%) were positive for influenza A: 31,294 (83.7%) were found to be positive for influenza H3N2, 5,469 (14.6%) were found to be positive for influenza A(H1N1)pdm09 and 605 specimens (1.6%) were not yet subtyped. 14,538 additional specimens (28%) were found to be positive for influenza B, of which 68% were found to belong to the B/Yamagata lineage and 8.4% to the B/Victoria lineage.

**Europe<sup>11</sup>:** The 2017/2018 season began in Week 52 of 2017 (the end of December 2017) and ended in Week 12 of 2018 (the second half of March 2018). Combined activity of influenza B, influenza A/H3N2 and influenza A/H1N1 2009 was reported, type B being dominant. Most of the specimens that were found to be positive for influenza B belonged to the B/Yamagata lineage.

Additionally, in the framework of the EuroMOMO project, a high number of deaths was reported among adults aged 15-64 years and among elderly persons aged 65 years and over.



**Sensitivity to Antiviral Preparations:** Both in Europe and in the USA, the influenza viruses were found to be highly sensitive to Oseltamivir and to Zanamivir, and highly resistant to Adamantanes<sup>10,11</sup>.

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חטיבת טכנולוגיות רפואיות, מידע ומחקר  
המרכז הלאומי לבקרת מחלות  
ICDC – Israel Center for Disease Control

**משרד  
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לחיים בריאים יותר

**Appendix 1: National Distribution of the Sentinel Clinic Network**

