Influenza Country Achievements

Turkey

8th MENA Influenza Stakeholders Networks Meeting

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Global Influenza Hospital Surveillance Network

Mortality Related Factors in Patients Requiring Hospitalization for Influenza Like Illness

Özgün Çalışma/Original Article *Mikrobiyol Bul 2017; 51(1): 20-31*

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İnfluenza Benzeri Hastalık Nedeniyle Hastaneye Yatış Gerektiren Hastalarda Mortaliteyle İlişkili Faktörler*

Mortality Related Factors in Patients Requiring Hospitalization for Influenza Like Illness

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Methods

- This prospective study was performed in one of the 7 centers in Turkey in the context of influenza surveillance by the GIHSN
- Adult Emergency Service and Acute Care Unit were screened for consequent recruitment of eligible patients daily.
- ICD-10 codes in the electronic health records and direct patient encounters were used to screen for the following eligibility diagnoses: *acute respiratory tract infection, asthma, heart failure, pneumonia, influenza, chronic obstructive lung disease, dyspnea/respiratory abnormality, respiratory symptoms, cough and fever.*

Results

- 334 patients who were admitted with the eligible ICD-10 codes within the 24th and 48th hours were screened during the study period and of those eligible ones, 106 consented and were swabbed.
- Hospital mortality was 12.2%.
- More than one fourth of the patients needed a sort of mechanical ventilation support and at least one organ failure developed in one third of the patients.
- One or more viral pathogens were detected in 56 (52.8%) of the swabbed patients, with influenza H3N2 being the most prevalent one.
- Having a lower body mass index (OR, 0.845, p= 0.034) was associated with mortality.
- Chronic lung diseases were shown to confer a survival advantage (OR, 0.127, p= 0.009).

Results

		Survived	Died
PCR result	**N (Percent)**	**N(Percent)**	**N(Percent)**
Influenza H3N2	**17 (15.9)**	15 (16.0)	2 (15.4)
Other viruses	**39 (36.4)**	34 (36.2)	5(38.5)
No virus detected	50 (47.2)	44 (47.3)	6 (46.2)

Results

Complications	Total N(Percent)	Survived N(Percent)	Died N(Percent)	P
Pneumonia	87 (%81.3)	74 (78.7)	13 (100)	NS
Respiratory failure	37 (%34.6)	**24 (25.5)**	**13 (100)**	**< 0.001**
ARDS	4 (%3.7)	**1 (1.1)**	**3 (23.1)**	**0.005**
Decomp of heart failure	34 (%31.8)	64 (68.1)	7 (53.8)	NS
Acute kidney injury	28 (%26.2)	**19 (20.2)**	**9 (69.2)**	**0.001**
Liver dysfunction/injury	11 (%10.3)	**4 (4.3)**	**7 (53.8)**	**< 0.001**
DIC	3 (%2.8)	**0**	**3 (25)**	**0.001**
Sepsis	11 (%10.4)	**1 (1.1)**	**10 (76.9)**	**< 0.001**

Vaccinating Healthcare Workers: Level of Implementation, Barriers and Proposal for Evidence-Based Policies in Turkey

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Vaccinating healthcare workers: Level of implementation, barriers and proposal for evidence-based policies in Turkey

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Perceptions and Attitudes of Patients About Adult Vaccination and Their Vaccination Status: Still a Long Way to Go?

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
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The study was presented as a poster presentation at the 14th Congress of the European Federation of Internal Medicine in Russia, 14–16 October, 2015

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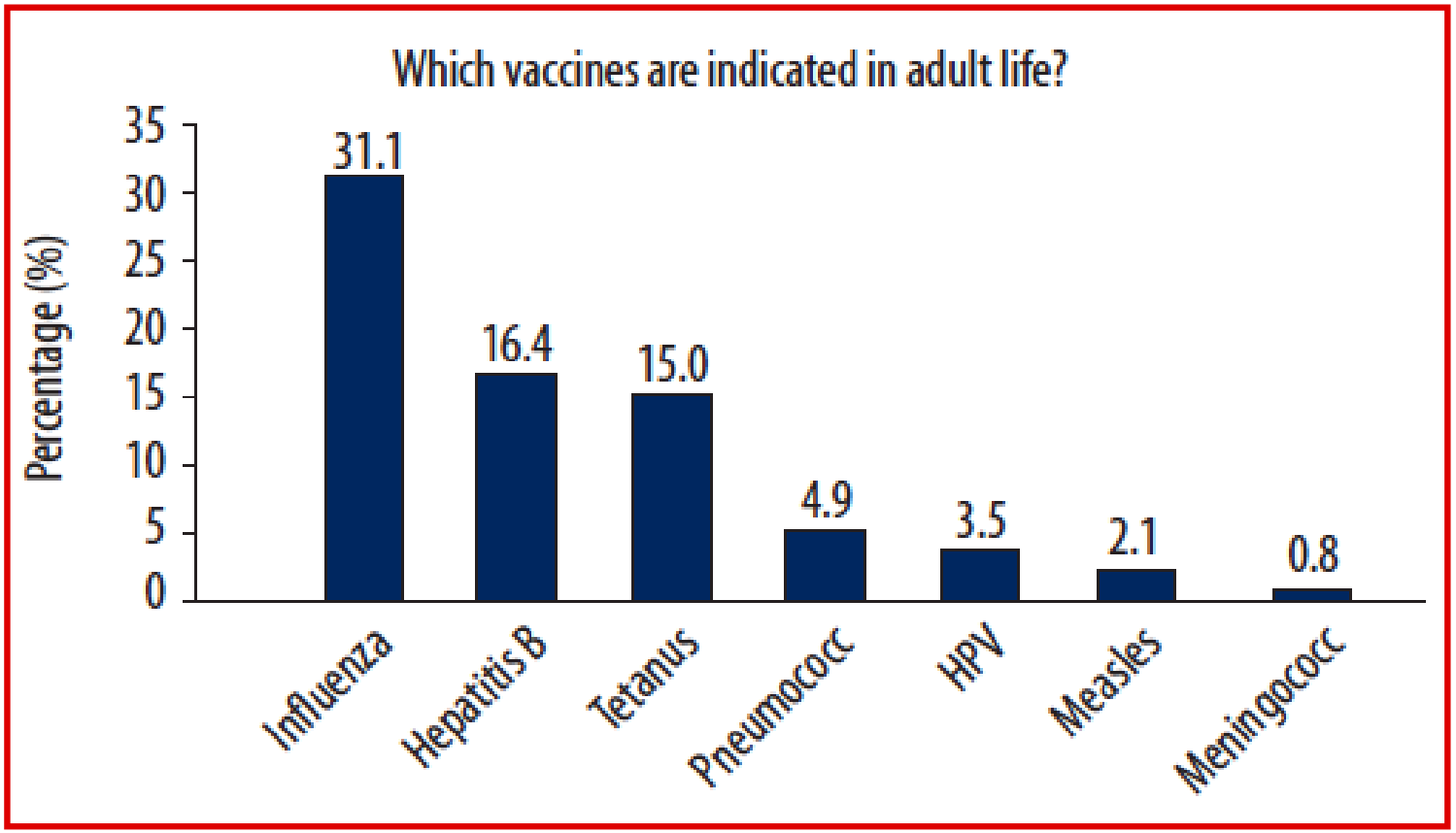
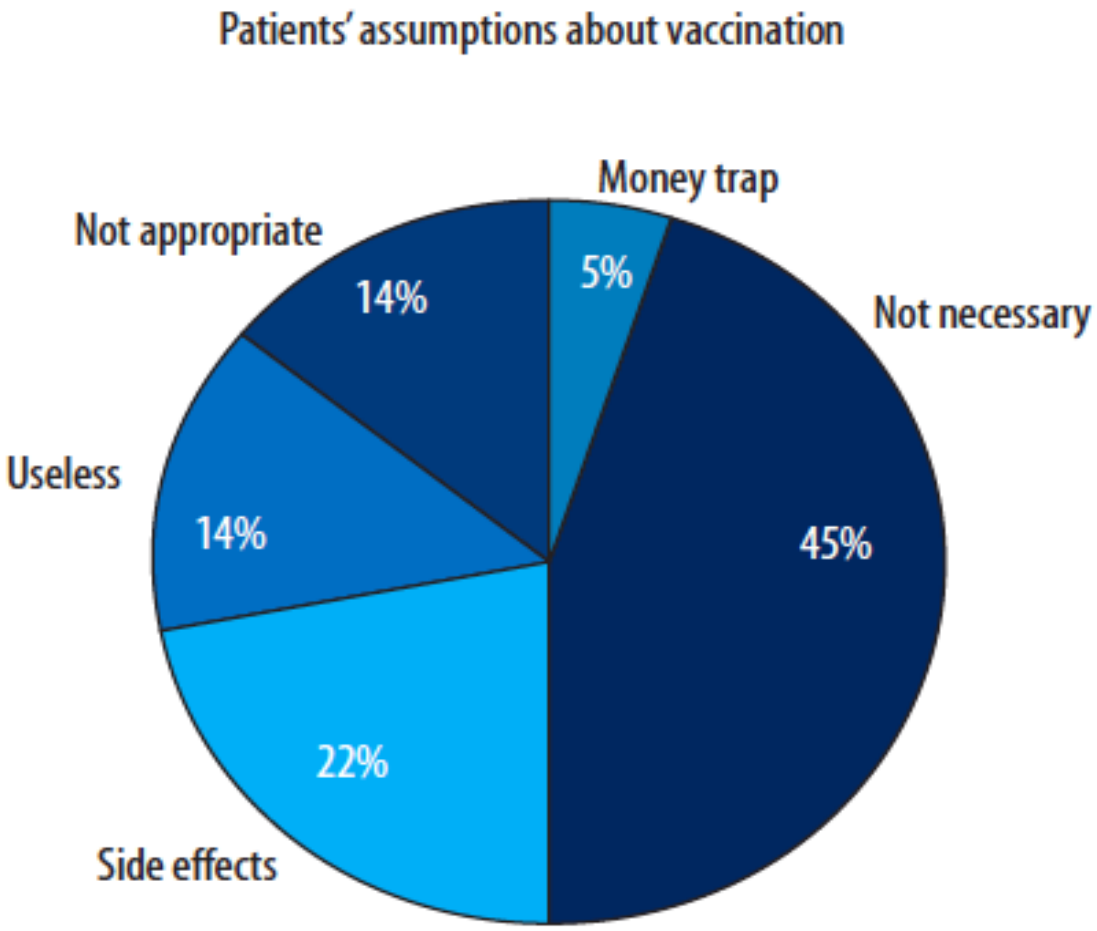
Results

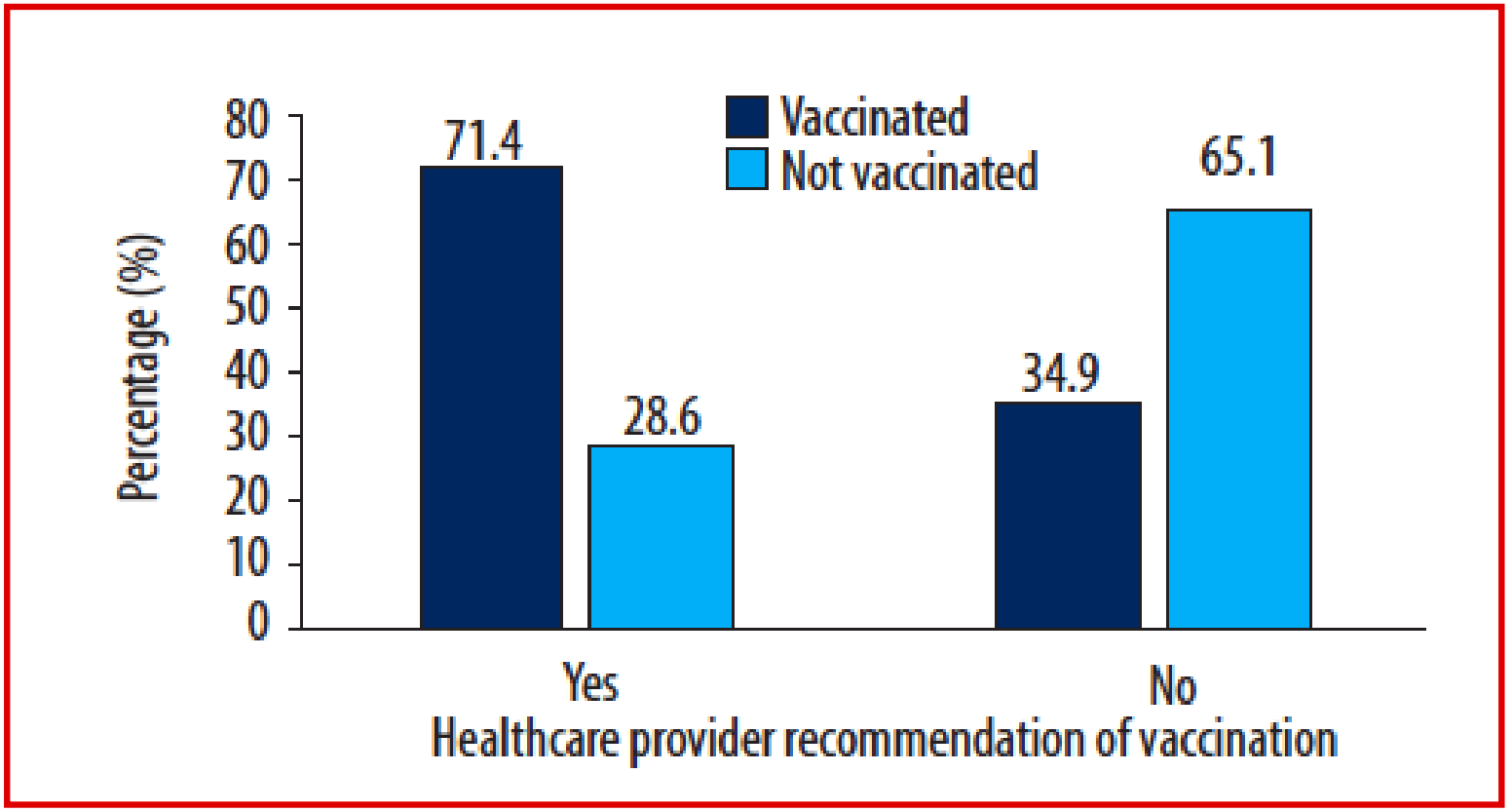
- 512 patients ages 19–64 years were interviewed
- Eighty percent of the study population thought that adults should be vaccinated, while only 36.1% of the patients stated that vaccination was ever recommended to them in their adult life.
- Forty-eight percent of the patients stated that they were vaccinated at least once in their adulthood.
- The most commonly received vaccine was tetanus vaccine in general, while influenza vaccine was the leading vaccine among patients with chronic medical conditions.
- While 71.4% of the patients to whom vaccination was recommended received the vaccine, 34.9% of the patients received a vaccine without any recommendation.

Patients' knowledge about the vaccines indicated in adult life




Patients' assumptions about vaccination
Money trap
5%
Not necessary
45%
Side effects
22%
Useless
14%
Not appropriate
14%

The effect of healthcare provider recommendations on receiving vaccine



Conclusions

- Although the vaccine coverage rates among adults in this survey were low, the perceptions of patients about adult vaccination were mainly positive and of many of them positively reacted when their physician recommended a vaccine.

Global Influenza Hospital Surveillance Network

Admissions with influenza and influenza vaccine effectiveness, Global Influenza Hospital Surveillance Network, Preliminary results, Northern Hemisphere, 2016- 2017 Influenza season

GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Sixth ESWI Influenza Conference, 10-13 September 2017, Riga

Background

- The Global Influenza Hospital Surveillance Network (GIHSN) aims to determine the burden of severe influenza disease and influenza vaccine effectiveness.

- Preliminary results for the 2016-2017 influenza season were obtained from 12 sites in 11 countries.

Methods

- Nasopharyngeal swabs were performed on patients of the surveillance network hospitals complying with requirements detailed in the GIHSN protocol, as
  - being residents in a pre-defined hospital catchment area for 6 months at least,
  - not institutionalized,
  - not being discharged in the last 30 days from other episode,
  - and presenting influenza like-illness (ILI) symptoms in 7 days or less before being hospitalized.
- Informed consent was also required for patients to include them in this study.
- Real-time reverse-transcription polymerase chain reaction (RT-PCR) was used to obtain laboratory results.

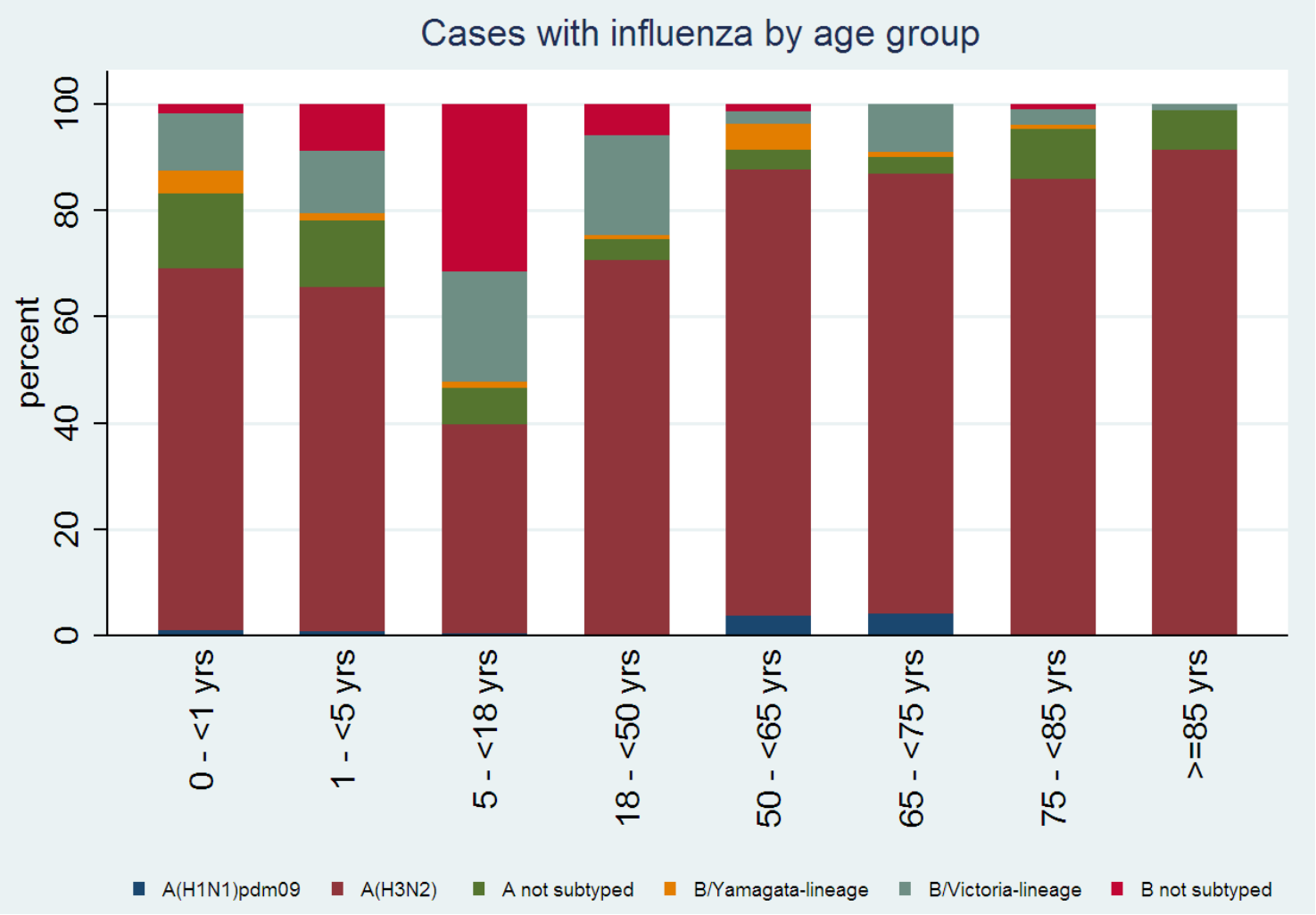
Results

- Influenza A(H3N2) was the predominant strain in all age groups. Influenza B (mainly B/Victoria-lineage or not subtyped) was more common in children 5 to 17 years of age.

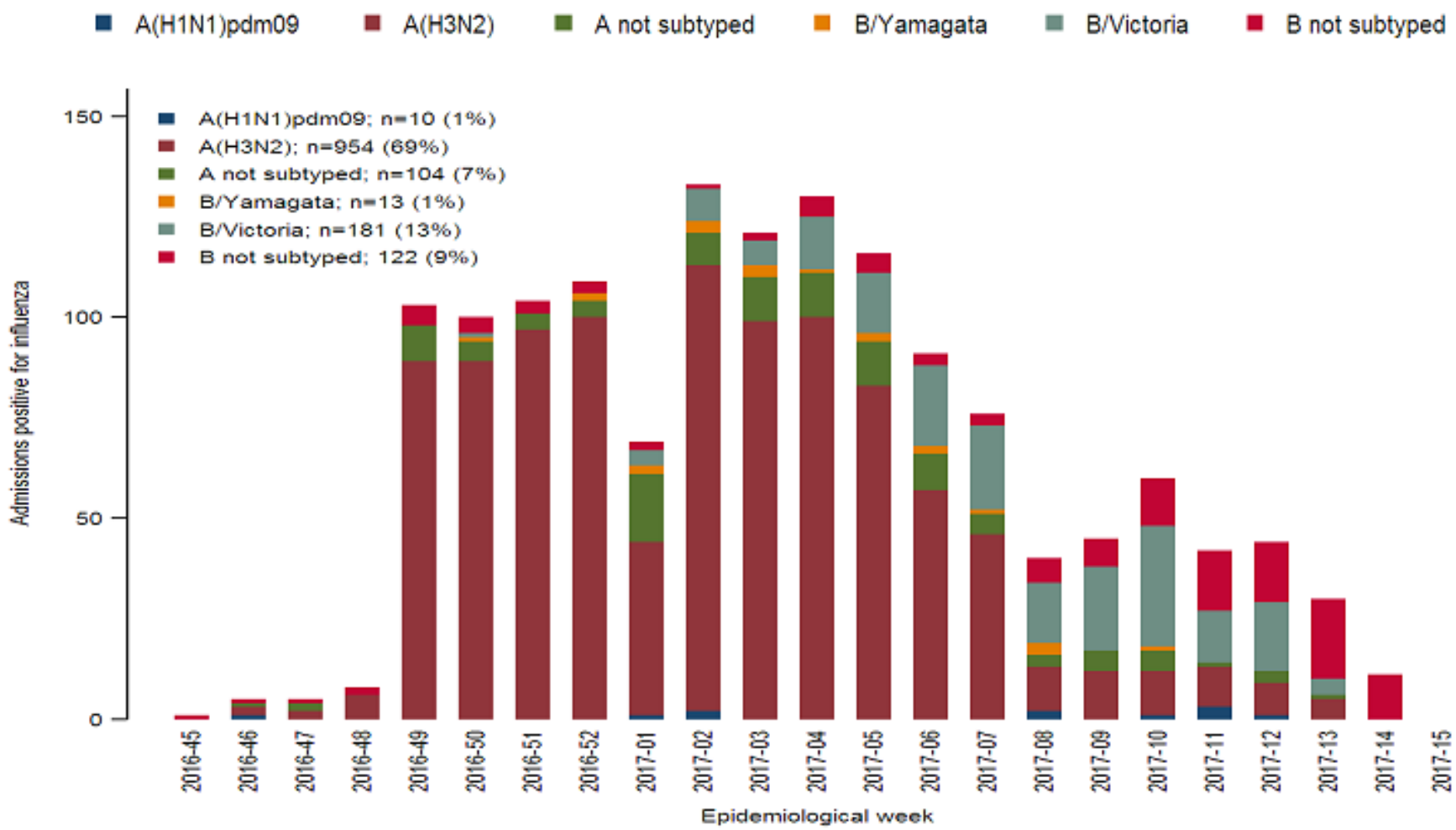
- Valencia Region, St. Petersburg and Moscow provided more than 73% of influenza positive samples.

- 384 influenza cases (excluding 54 mixed infections) were detected from week 45 of 2016 until week 15 of 2017, with a peak at the second week of 2017.

Cases with influenza by age group

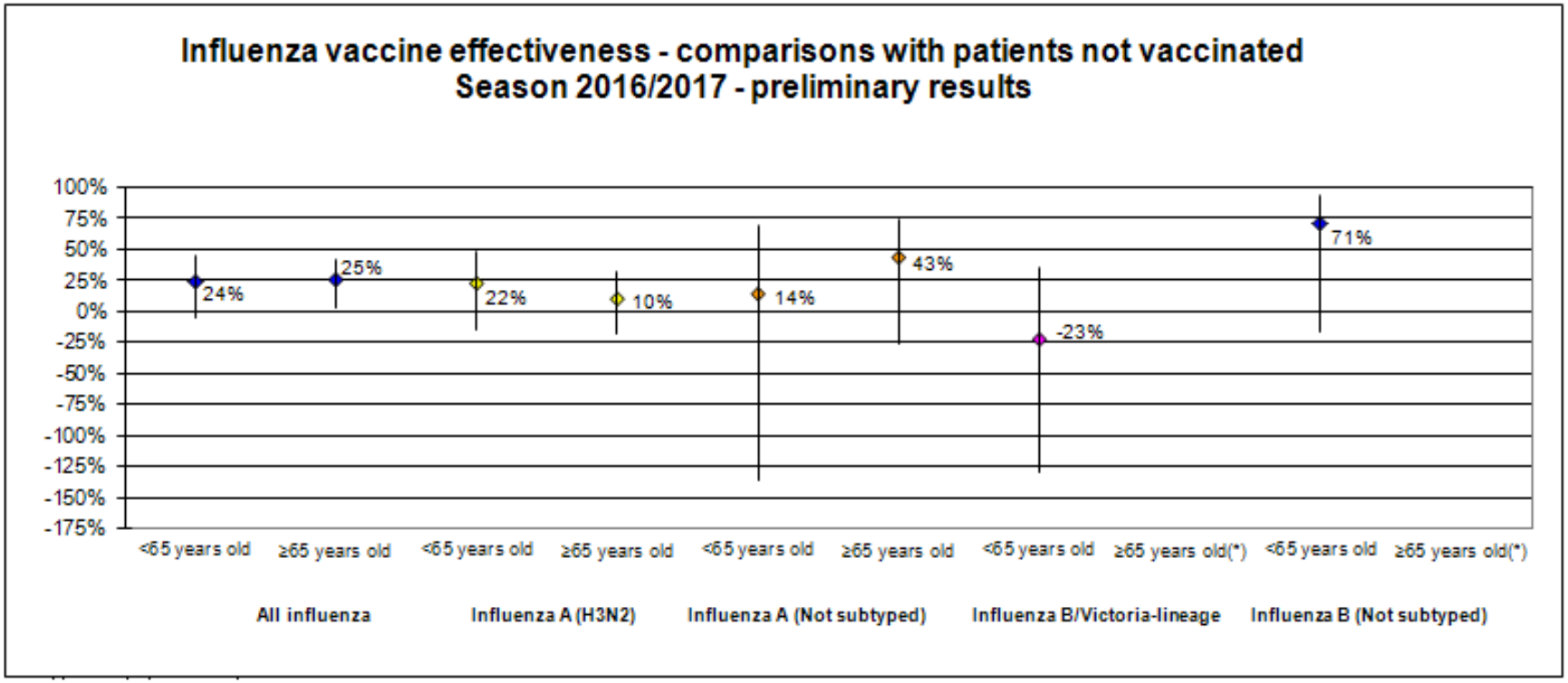


Cases by week



Vaccine effectiveness

- Vaccination was more effective in persons 65 years old or more, at 25% of effectiveness (95 per cent confidence interval 3% to 42%). B/Yamagata-lineage is not displayed due to sparse numbers.



Conclusions

- Influenza A(H3N2) was the predominant strain this season.
- Influenza B/Victoria-lineage was detected from the first week of 2017.
- Vaccination had a significant effectiveness for people 65 years old or over and prevented one in four hospitalizations with influenza.

Global Influenza Hospital Surveillance Network

Unpredictable local trends: Epidemiology of patients hospitalized for influenza like illness in 2015-16 influenza season in Turkey

GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK TURKEY (GIHSN)

Sixth ESWI Influenza Conference, 10-13 September 2017, Riga

Introduction

- Influenza-like illness (ILI) can be an important diagnosis for acute admissions in the influenza season.
- The primary objective of this study was to determine the epidemiology of influenza cases among acute admissions with ILI during the 2015-2016 season in selected hospitals in Turkey.

Methods

- A prospective, epidemiological study was conducted in accordance with the core protocol provided by GIHSN
- Patients hospitalized in the previous 24-48 hours in the predefined wards or emergency rooms were screened.
  - Institutionalized patients, non-residents, those who were hospitalized in the previous 30 days and those not giving informed consent were excluded.
- Nasopharyngeal /pharyngeal swabs were obtained.

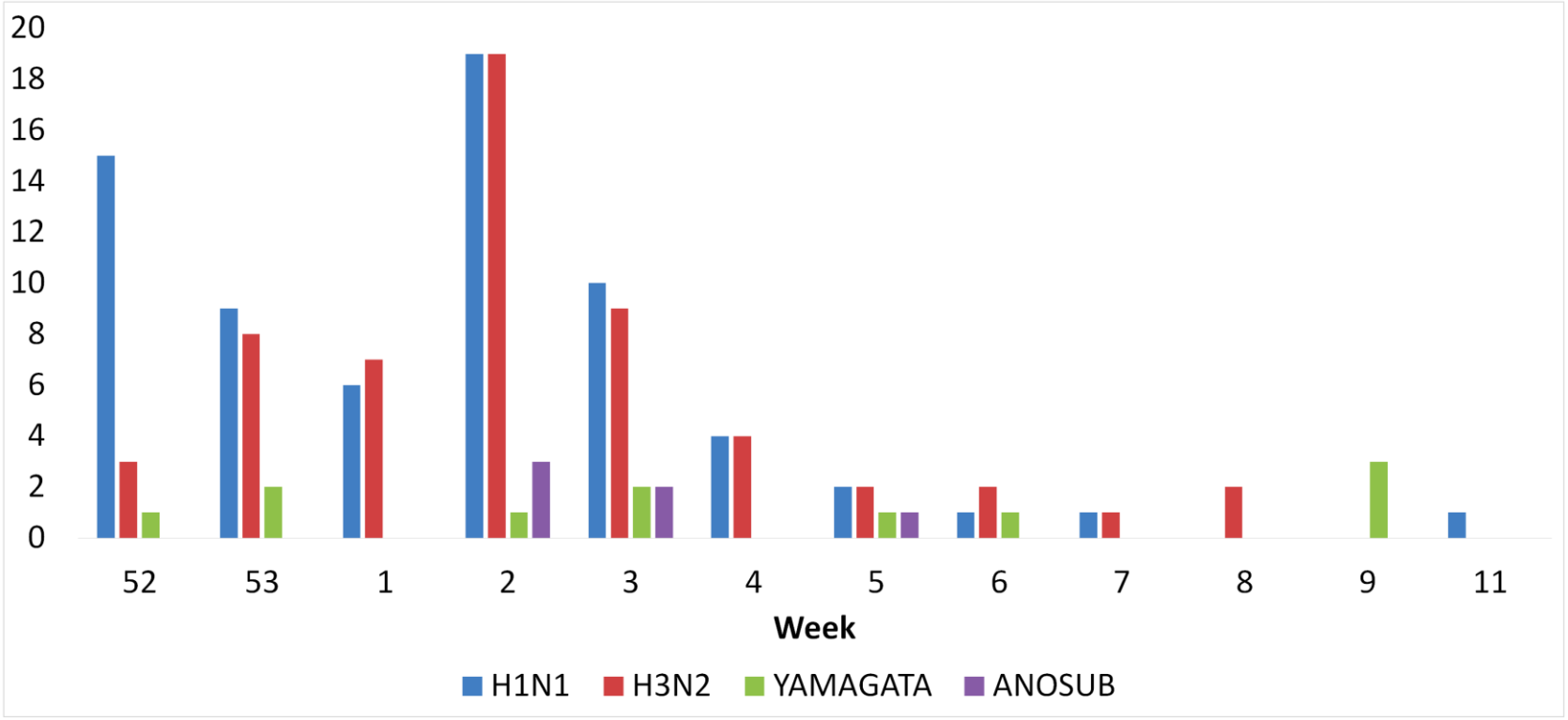
Results

- Fieldwork started on December 21, 2015 (52nd week) and ended on April 01, 2016 (13th week).
- A total of 1351 patients were screened for enrollment and 774 patients (57.3% of the initial screened population) were eligible for swabbing.
- The patient population had a high chronic disease burden; 85.7% of the patients 5 years and older had at least one chronic disease condition.

Results of the RT-PCR results

	Number of patients (%)		
	≥5 years	<5 years	Total
Screened	**883**	**468**	**1351**
Included	**399**	**375**	**774**
RT-PCR result			
Influenza negative	308 (77.2)	324 (86.4)	632 (81.6)
Influenza positive	91 (22.8)	51 (13.6)	142 (18.4)
Subtype and lineage	**Number of patients (%) within the influenza positive cases**		
A(H1N1) pdm09	49 (53.8)	19 (37.3)	68 (47.9)
A(H3N2)	35 (38.5)	22 (43.1)	57 (40.1)
A not subtyped	3 (3.3)	3 (5.9)	6 (4.2)
B Yamagata	4 (4.4)	7 (13.7)	11 (7.8)
B Victoria	0	0	0
B not subtyped	0	0	0

Weekly distribution of number of influenza viruses during the study period



Results

- Overall, influenza positivity was detected in 142 patients (18.4%) (Table 1). The influenza A (H1N1) (47.9%) and A (H3N2) (40.1%) were the predominant subtypes.
- The number of cases peaked at the 2nd week of 2016 with a predominance of influenza A H1N1pdm09.
- While only 7.8% of the cases were B Yamagata lineage, no B Victoria lineage was detected. Almost all cases of influenza B were among patients under 50 years of age.
- Overall vaccination rate was 7.2% in the particular season.

Distribution of virus types by age

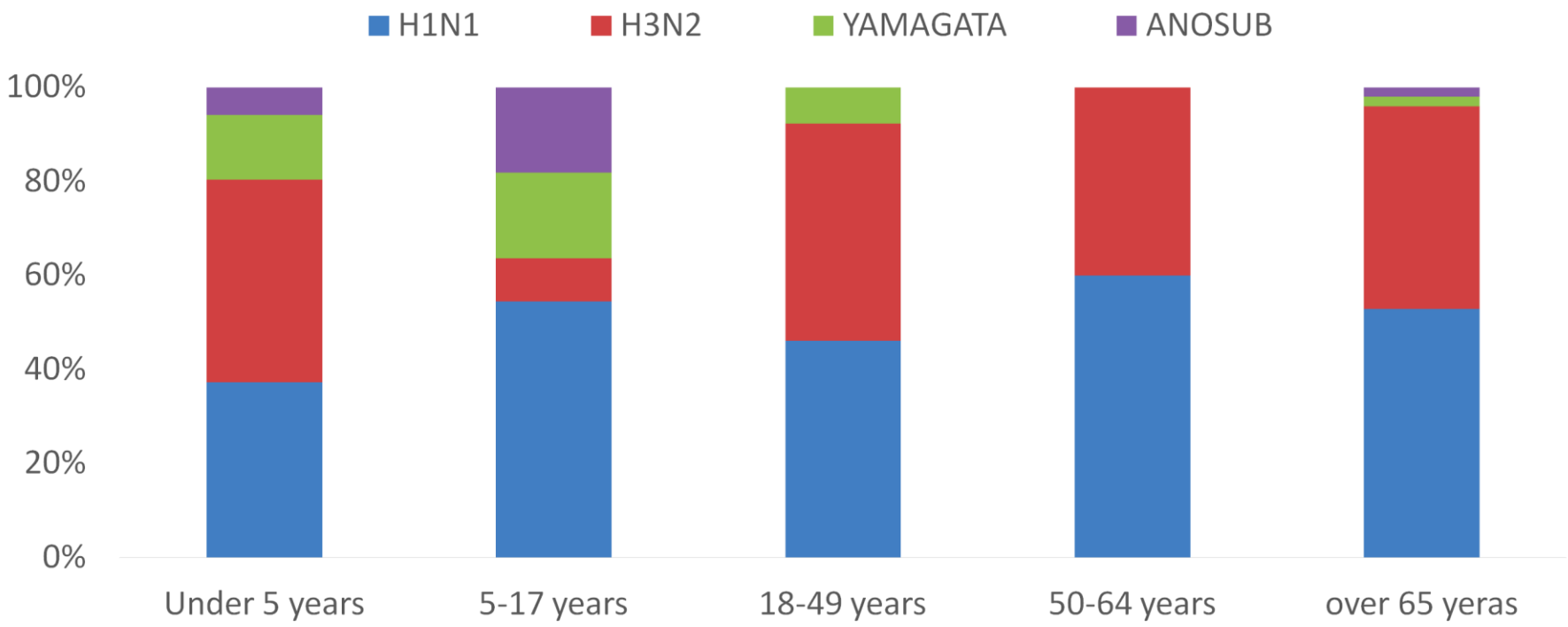


Figure 2. Distribution of virus types in different age segments

Conclusion

- The local trends of seasonal influenza can be different from the global trends in an unpredictable pattern.
- Virological characterization of influenza isolates might help to understand the dynamics of the seasonal influenza activity.
- The efficacy of seasonal influenza vaccines is greatly reduced when predicted vaccine strains antigenically mismatch with the actual circulating strains
- In countries with very low influenza vaccination rates such as Turkey, the vaccine-circulating strain mismatch has further untoward effects on herd immunity.

Global Influenza Hospital Surveillance Network

Respiratory viruses associated admissions during four consecutive seasons (2012/13 – 2015/16) in the Global Influenza Hospital Surveillance Network (GIHSN)

GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Sixth ESWI Influenza Conference, 10-13 September 2017, Riga

Introduction

- Acute respiratory infection (ARI) is the main cause of morbidity and mortality worldwide.
- Influenza, respiratory syncytial virus (RSV), rhinovirus/enterovirus (RhV/EV) and coronavirus (CoV) play a significant role in respiratory pathology.
- The aim of this study was to determine the etiology and seasonality of respiratory viral infections among patients with acute respiratory disease

Methods

- The GIHSN conducted a prospective, active-surveillance, hospital-based study over 4 consecutive seasons.
- Data were collected in
  - 8 hospitals during the 2012/13 season,
  - 16 hospitals during the 2013/14 season,
  - 19 hospitals during the 2014/15 season and
  - 11 hospitals during the 2015/16 season. Saint Petersburg,
- Turkey,Valencia and Mexico included patients of all ages and Fortaleza included only patients under 18 years old.

Methods

- All consecutive consenting admissions of non-institutionalised patients who were residents in a participating hospital's catchment area and were not discharged from a hospital within 30 days were considered in the study.
- For patients ≥5 years of age the presence of, at least, one systemic symptom (fever, headache, myalgia or malaise) and, at least, one respiratory symptom (cough, sore throat or shortness of breath) was required.
- Patients, of all ages, were included in the study if admitted to hospital within 7 days of the onset of symptoms.

Methods

- Swabs were obtained and were tested by real-time reverse transcription polymerase chain reaction (RT-PCR).
- Logistic regressions were performed comparing PCR-negatives with positives for influenza, RSV, RhV/EV or CoV considering in univariate analysis: *age, sex, presence of chronic conditions, smoking habits, hospitalisations and general practitioner consultations in last 3 months, socioeconomic class, obesity, prematurity (<5 years old), birth weight (<5 years old) and breastfeeding (<5 years old).*
- Significant covariates were considered in final models, also adjusted by epidemiological week at admission, days from onset to swab, site and season.

Results

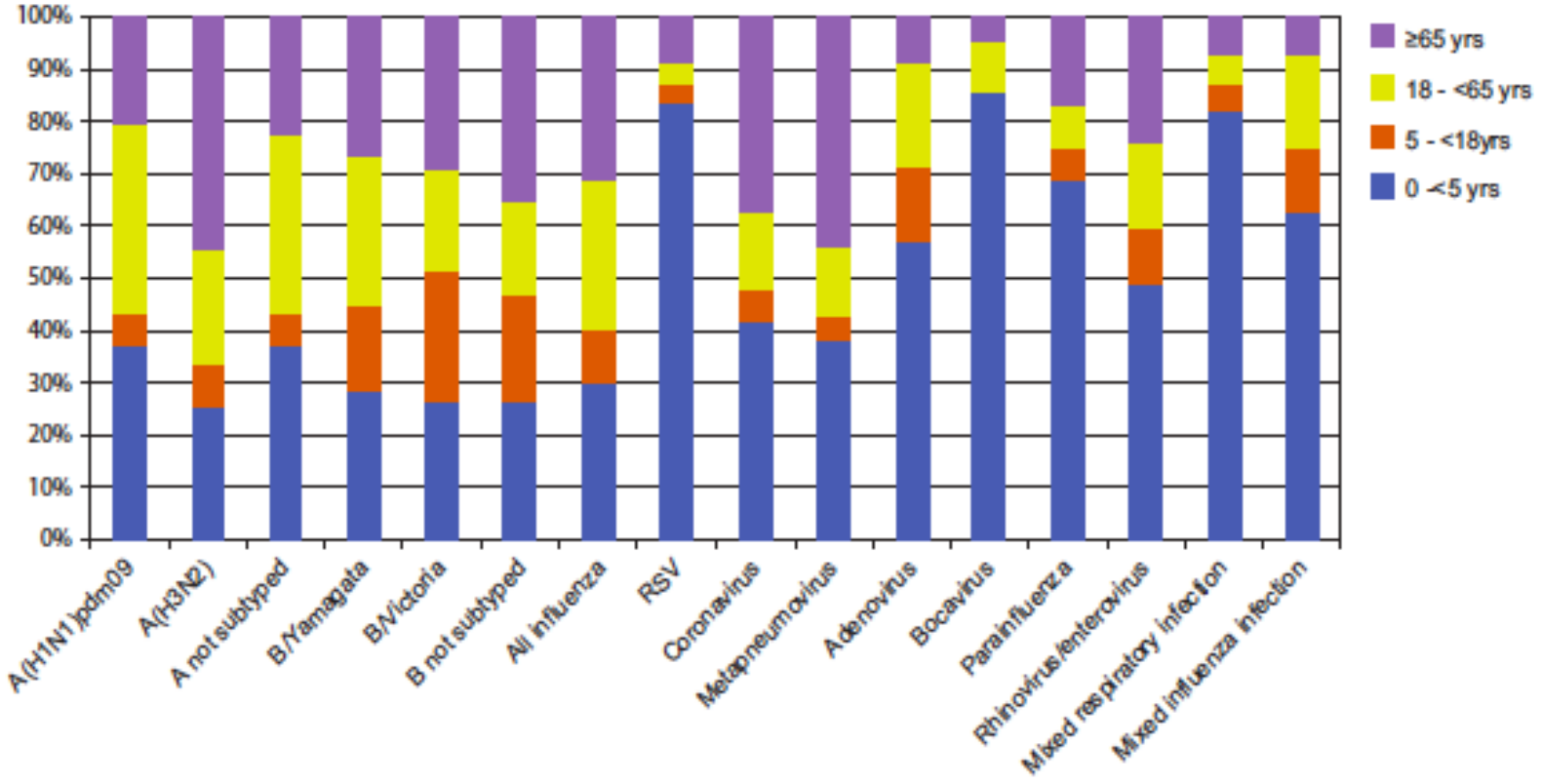
- During four consecutive seasons, 43,933 subjects were screened with processes possibly related to a respiratory viral infection.
- After applying exclusion criteria, laboratory results were obtained from 21,589 (49%) individuals: 39% were under 5 years old and 33% were 65 years old or over.
- Pathogens were detected in 9,442 (44%) of admitted patients. Most common viruses were influenza (N=3639; 17%), RSV (N=2000; 9%), RhV/EV (N=1244; 6%) and CoV (N=484; 2%).

Characteristics of included patients

- RSV infected mostly young children (84% of RSV positives were children under 5 years old and median age was 1 year old) followed by RhV/EV (55% of RhV/EV positives were under 5 years old but 19% were elderly people, median age was 3 years old) and CoV (46% were under 5 years old and 34% were 65 years old or over, median age was 13 years old).
- Influenza infected mainly children under 5 years old (35%) and elderly people (28%). Negatives were principally (43%) individuals 65 years old or over.
- Co-infections were detected in 1066 (5%) admissions and were more common during the circulation of RSV.
- The most frequent co-infection was RSV with RhV/EV with 180 cases, representing 15% of co-infections, followed by RSV with A(H1N1)pdm09 (N=126, 10%), AdV with RhV/EV (N=73, 6%) and RSV with A not subtyped (N=66, 5%)

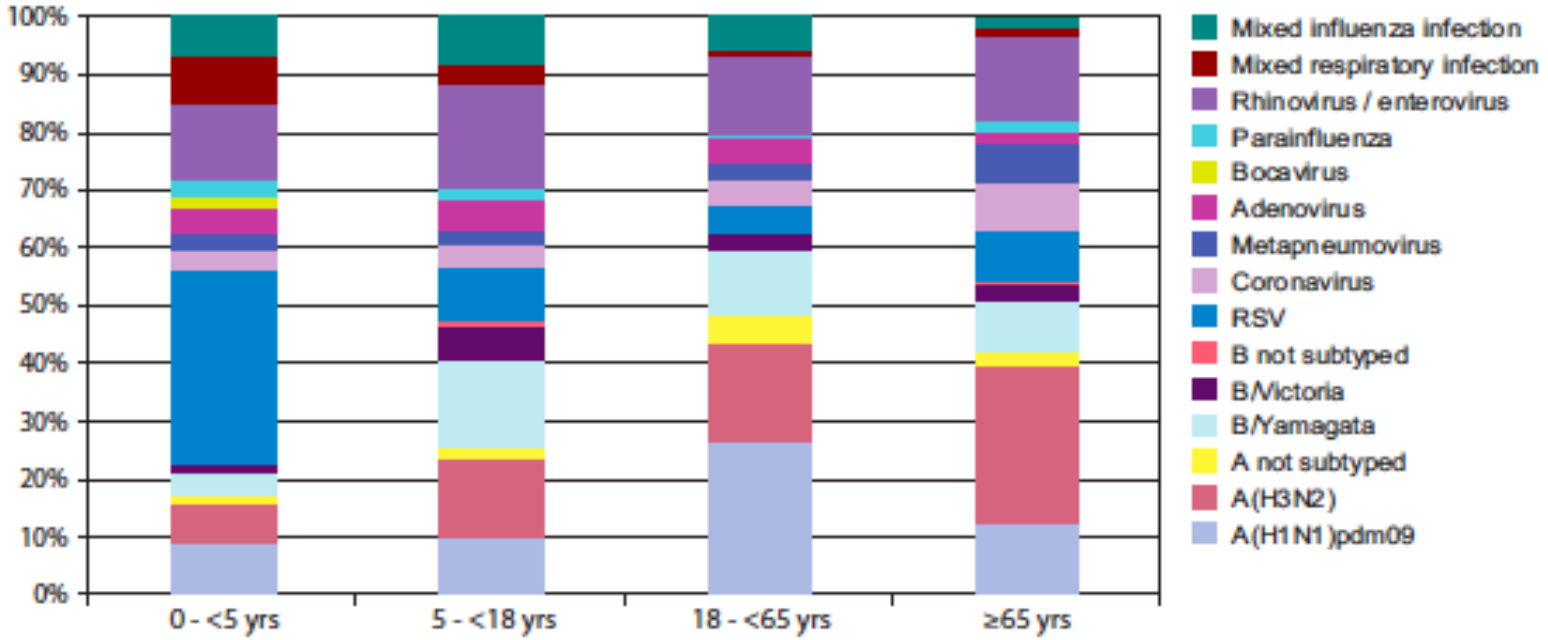
Age group distribution by virus

Figure 1. Age group distribution by virus



Virus distribution by age group

Figure 2. Virus distribution by age group



Risk factors

- Among children less than 5 years old, the risk of being hospitalised with RSV decreased with age and those children who were not breastfed had 27% higher risk in comparison with those breastfed for at least 6 months.
- Children aged 2 to 5 years old had a reduced risk of being hospitalised with CoV than other age groups.
- Among those individuals 5 years old or over, the oldest adults (≥85 years old) had the highest risk of being admitted with influenza.
- Hospitalised subjects with chronic conditions were more likely to be positive for RhV/EV than those without underlying chronic conditions (after adjusting by age).

Figure 3. Probability of being positive for each virus in the four consecutive seasons

Seasonality

- Although most of ARI occurred from November to May, different patterns of viruses' circulation were observed across seasons.
- RSV activity appeared earlier during 2012/13 and 2015/16 seasons and later in 2013/14 and 2014/15 seasons and RSV usually preceded the influenza wave.
- RhV/EV was more common in the 2014/15 season and its wave was wider than the wave of any other virus.

Conclusions

- Respiratory infections affected mainly the youngest and the elderly, RSV and influenza respectively.
- Seasonality patterns and risk factors vary according to the different viruses. Different virus distributions between sites were found due to age differences in the study population.
- Further research is necessary for better understanding and characterization of these respiratory viruses to make appropriate healthcare policy decisions.

Global Influenza Hospital Surveillance Network

Description of the burden of severe influenza in diabetic patients during four consecutive seasons (2012/13 – 2015/16) in the Global Influenza Hospital Surveillance Network (GIHSN)

GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Sixth ESWI Influenza Conference, 10-13 September 2017, Riga

Introduction

- Diabetes mellitus affects 415 million people worldwide. Diabetic patients have an increased risk of developing complications, including influenza disease, compared to people with no underlying medical condition.
- The aim of this analysis is to describe the burden of influenza-related hospital admissions in a cohort of diabetic patients during four consecutive influenza seasons.

Methods

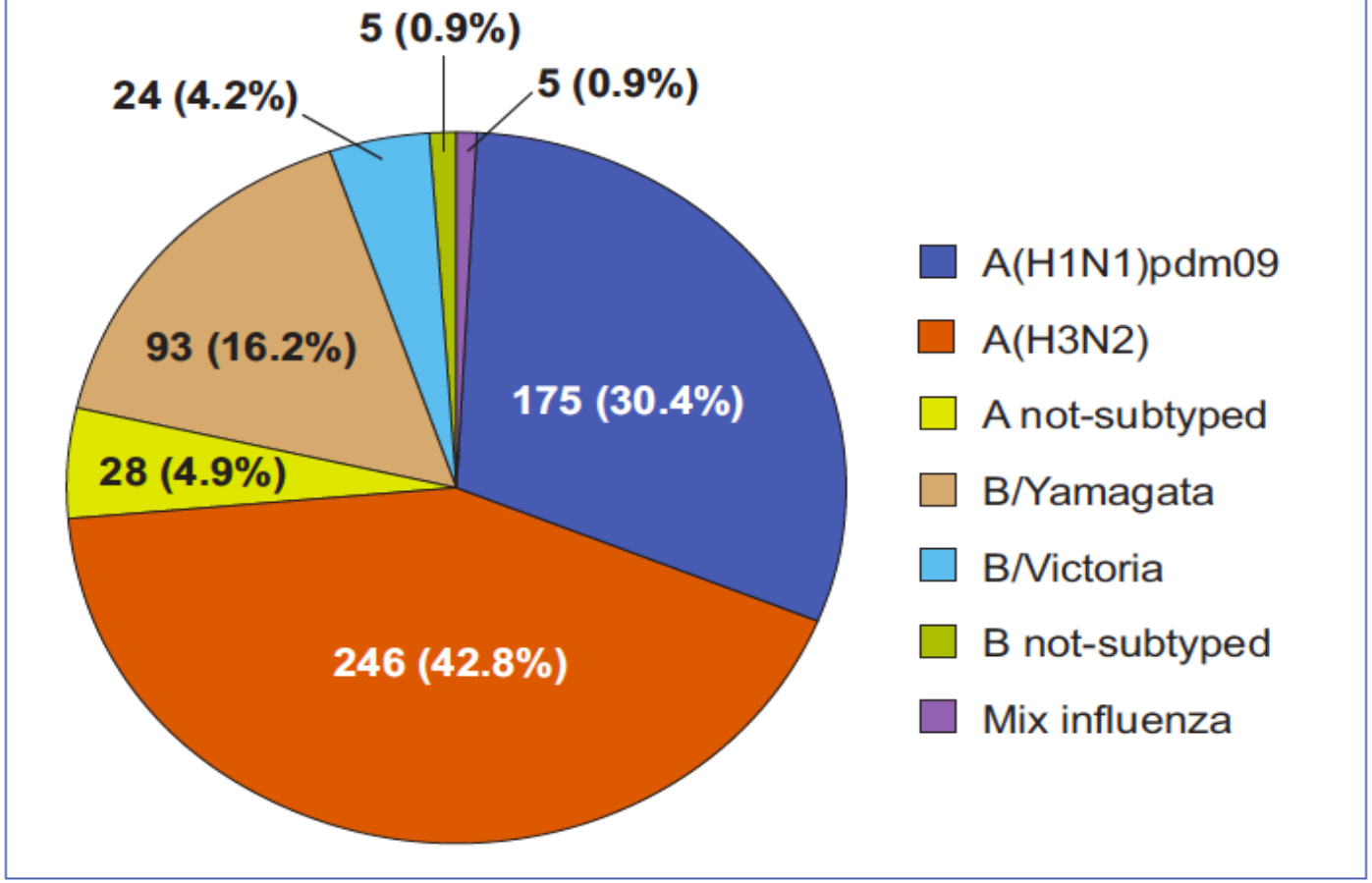
- GIHSN is an international public-private collaboration created in 2012 to improve understanding of influenza epidemiology with the goal of informing public health policy decisions.
- Nine countries participated in the GIHSN from 2012 to 2016, with a total of 44 participating hospitals (Figure 1), recruiting emergency admissions satisfying a predefined subset of symptoms.
- Non-institutionalised patients residing in a pre-defined hospital catchment area, reporting symptoms of influenza-like illness within 7 days prior to admission and not having been discharged in the previous 30 days were included in the study.
- Nasopharyngeal and pharyngeal swabs were collected from patients meeting the inclusion criteria and tested RT-PCR for influenza.
- In addition, influenza-positive samples were sub-typed. Patients were considered vaccinated if they had received the current season's influenza vaccine at least 14 days before symptom onset.

Results

- During the four consecutive influenza seasons (from 2012/2013 to 2015/2016), 47,586 eligible admissions were identified.
- After applying the exclusion criteria, 34,708 admissions were included, and 3573 were diabetic patients. A total of 575 admissions in diabetic patients (16.1%) were positive for influenza.

Distribution of influenza strains among diabetic patients

Figure 2. Distribution of influenza strains among diabetic patients



Conclusions

- The present study allowed the collection of good quality data to describe the burden of influenza in a cohort of diabetic patients during four consecutive influenza seasons.
- Overall, the elderly group (>85 years) has a significant lower risk of being admitted with influenza compared to the reference age group (1-4 years).
- Moreover, diabetic patients with two or more underlying conditions have less risk of influenza than those only with diabetes.
- Finally, patients vaccinated in the current season present lower risk of developing influenza disease

Global Influenza Hospital Surveillance Network

Outcomes of adult patients hospitalized for influenza like illness in 2015-16 influenza season in Turkey

MINE DURUSU TANRIOVER, A. TULAY BAGCI BOSI, LALE OZISIK, EMRE BILGIN, OZLEM GUZEL TUNCCAN, OZGE OZGEN, NECLA TULEK, METIN OZSOY, SERHAT UNAL

16 th Congress European Federation of Internal Medicine, Milan, September, 2017

Introduction

- Influenza-like illness (ILI) can be an important cause of morbidity and mortality, particularly in the influenza season.
- The primary objective of this study was to determine the characteristics and outcome of patients among acute admissions with ILI during the 2015-2016 season in selected hospitals in Ankara, Turkey

Methods

- A prospective, epidemiological study was conducted in accordance with the core protocol provided by GIHSN.
- Hospital admission registries, charts or available records were screened and ***all*** patients hospitalized in the previous 24-48 hours were identified.
- Admission diagnoses were evaluated and resident patients whose indication for admission was any of a predefined set of conditions, described as possibly associated with a recent influenza infection were eligible for further evaluation.
- A nasopharyngeal swab or a pharyngeal swab were obtained from each patient.

Results

- Among 753 adult (≥18 years old) patients screened, 315 were eligible for swabbing.
- Patients had a high disease burden and 93 (58.1%) reported at least one hospitalization within the previous year.
- The influenza positivity rate was 25.4% (80 patients)
- There was no difference in terms of
  - gender (females, 45.8% vs. 51.8%),
  - mean body mass index (25.58±0.68 vs. 27.03±0.57),
  - mean number of hospitalizations in the last 12 months (1.03±0.12 vs. 1.09 ± 0.09) and
  - influenza positivity (24.2% vs. 26.2%) between those under 65 years of age and those ≥65 years of age, respectively.

Results

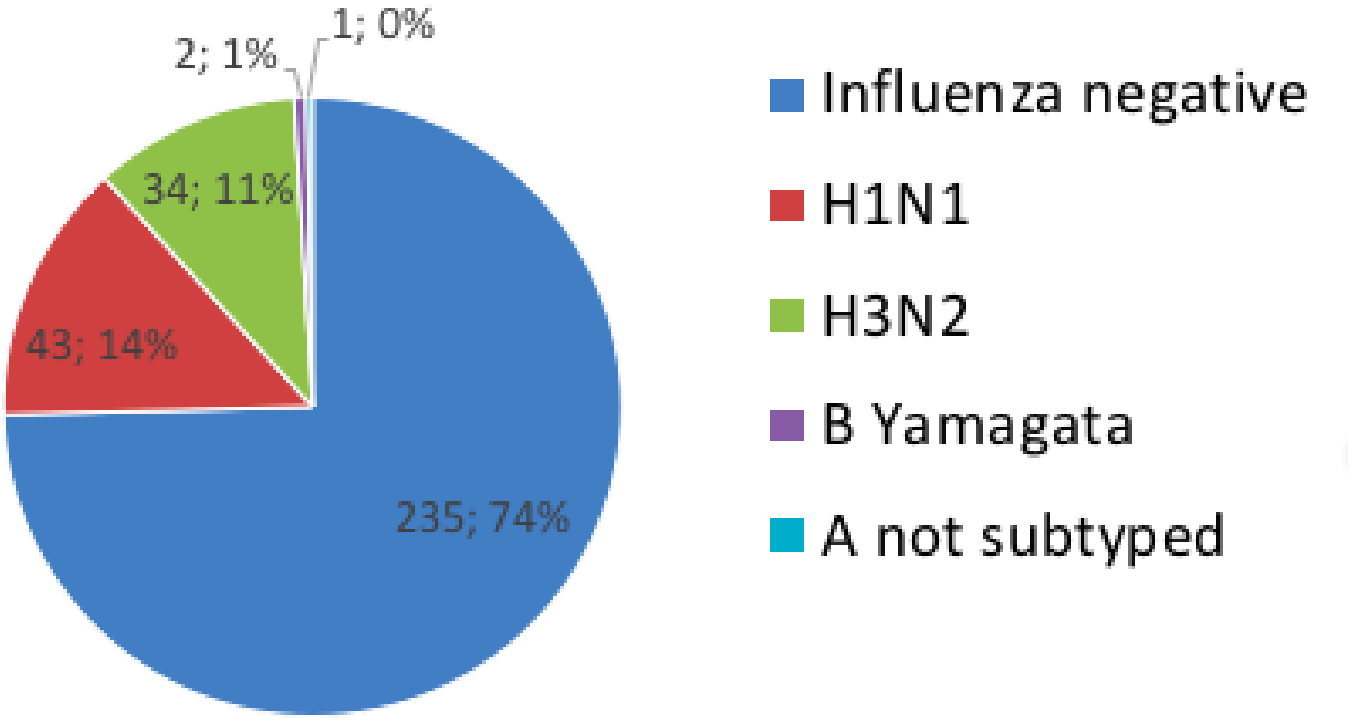


Figure. Swab results (n, %)

Characteristics and outcomes of patients

	Number of patients (%)			
	All patients (n=315)	Under 65 years (n=120)	65 years and older (n=195)	p
Chronic diseases				
Cardiovascular disease	215 (68.3)	62 (51.7)	153 (78.5)	p<0.001
COPD	99 (31.4)	24 (20)	75 (38.5)	p<0.001
Asthma	46 (14.6)	22 (18.3)	24 (12.3)	NS
Immunocompromised	16 (5.1)	11 (9.2)	5 (2.6)	0.01
DM	90 (28.6)	32 (26.7)	58 (29.7)	NS
Malignancy	52 (16.5)	25 (20.8)	27 (13.8)	0.07
Renal diseases	55 (17.5)	14 (11.7)	41 (21)	0.02
Chronic liver disease	3 (1.0)	2 (1.7)	1 (0.5)	NS
Autoimmune/ Rheumatismal disease	24 (7.6)	10 (8.4)	14 (7.2)	NS
Neuromuscular disease	35 (11.1)	9 (7.5)	26 (13.3)	NS
Vaccination status				
Flu vaccine 2015-16	45 (14.3%)	14 (11.7)	31 (15.9)	NS
Outcome				
ICU	125 (39.7%)	32 (26.7)	93 (47.7)	p<0.001
Death	59 (18.6%)	9 (7.5)	50 (25.6)	p<0.001
Mechanical ventilation	86 (27.3)	19 (15.8)	67 (34.4)	p<0.001

Results

- Patients ≥65 years of age had a higher chronic disease burden.
- There was also a significant difference in terms of mean length of stay among when patients ≥65 years of age (15.28±1.62) when compared to those who were between 18-65 years of age (10.04±1.06) (p=0.007).
- Half of the patients over 65 years of age were admitted to the intensive care unit, while one third required any mode of mechanical ventilation and one fourth died in the hospital in that particular episode.
- The rate of influenza vaccine was only 15.9% among those patients over 65 years of age in this cohort.

Conclusion

- These findings can guide the hospitals, particularly those who have an ageing population with high chronic disease burden, to plan and prepare for the influenza season.

Poor outcomes among elderly patients hospitalized for influenza - like illness

TANRIOVER MD, BAGCI BOSI T, OZISIK L, BILGIN E, GUZEL TUNCCAN O, OZGEN O, TULEK N, OZSOY M, TEZER H, BEDIR DEMIRDAG T, KARA A, BASARANOGLU ST, AYKAC K, OZKAYA-PARLAKAY A, GULHAN B, UNAL S

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Poor outcomes among elderly patients hospitalized for influenza-like illness

Mine Durusu Tanriover, Tülay Bagci Bosi, Lale Ozisik, Emre Bilgin, Özlem Güzel Tunçcan, Özge Özgen, Necla Tülek, Metin Özsoy, Hasan Tezer, Tugba Bedir Demirdağ, Ates Kara, Sevgen Tanir Basaranoglu, Kubra Aykac, Aslinur Ozkaya-Parlakay, Belgin Gulhan & Serhat Unal

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Introduction

- As a partner of GIHSN, we aimed to determine the frequency of influenza infections among acute admissions with influenza-like illness and the outcomes of enrolled patients during the 2015–2016 influenza season in selected hospitals in Turkey.

Methods

- The investigators screened the hospital admission registries, chart review or available records, and screened all patients hospitalized in the previous 24–48 hours or overnight in the predefined wards or emergency room.
- A total of 1351 patients were screened for enrollment in five tertiary care referral hospitals in Ankara and 774 patients (57.3% of the initial screened population) were eligible for swabbing.
- All of the eligible patients who consented were swabbed and tested for influenza with real-time polymerase chain reaction (PCR) based methods.

Results

- Overall, influenza positivity was detected in 142 patients (18.4%). The predominant influenza strain was A H1N1pdm09.
- Outcomes were worse among elderly patients, regardless of the presence of the influenza virus.
- Half of the patients over 65 years of age were admitted to the intensive care unit, while one third required any mode of mechanical ventilation and one fourth died in the hospital in that particular episode.

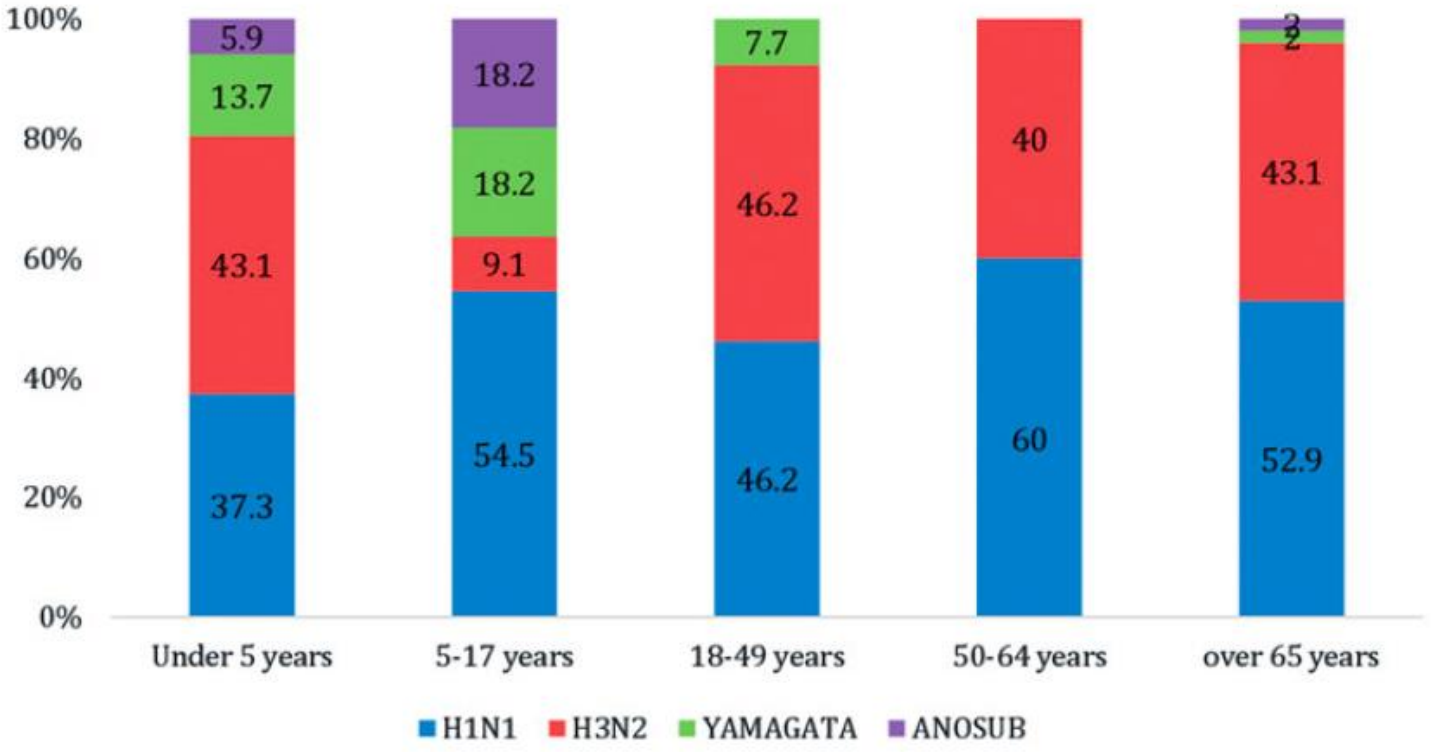
Laboratory results of the enrolled patients

Table 1. Laboratory results of the enrolled patients.

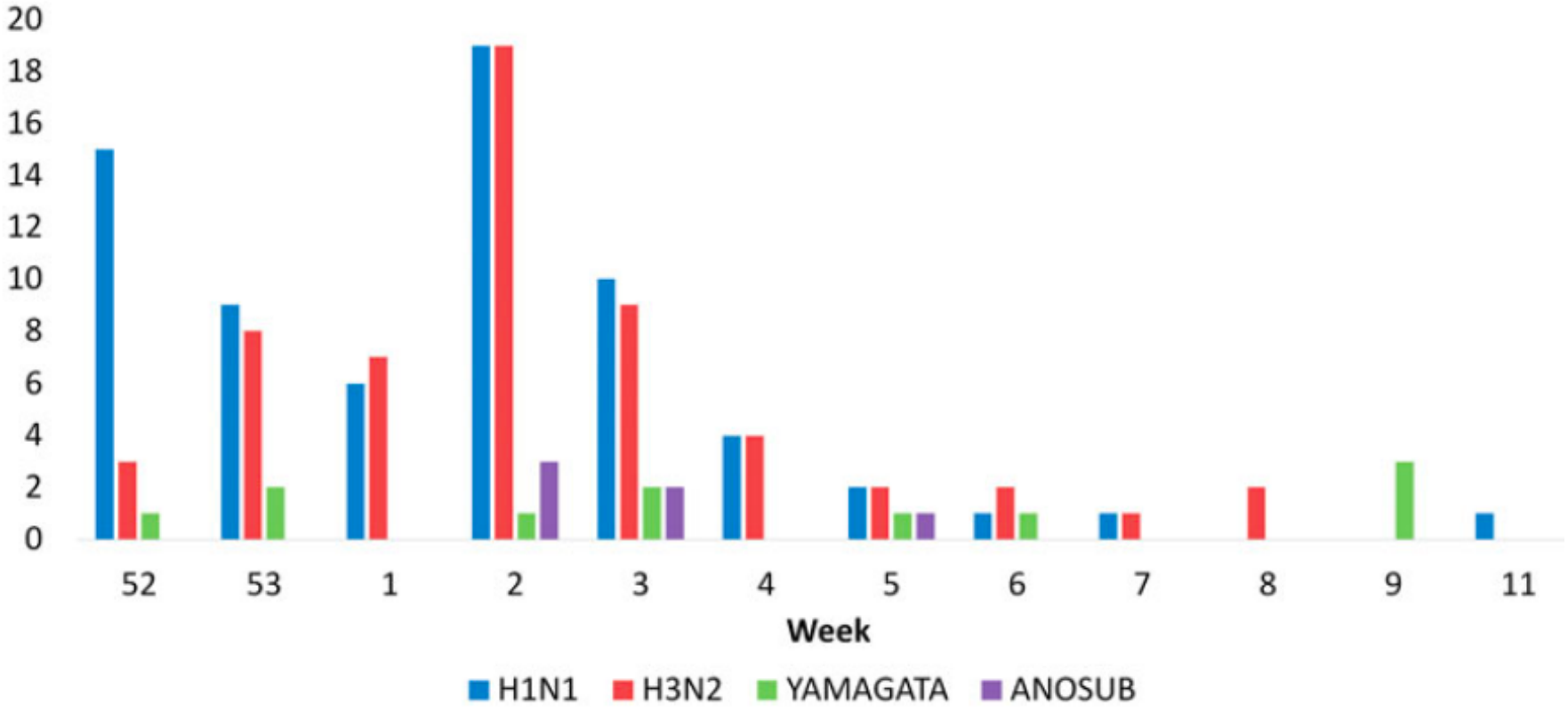
	Number of patients (%)		
	5 years and older	Under 5 years	Total
Screened	883	468	1351
Included with valid laboratory results	399	375	774
RT-PCR result			
Influenza negative	308 (77.2)	324 (86.4)	632 (81.6)
Influenza positive*	91 (22.8)	51 (13.6)	142 (18.4)
Subtype and lineage	Number of patients (%) within the influenza positive cases		
A(H1N1) pdm09**	49 (53.8)	19 (37.3)	68 (47.9)
A(H3N2)	35 (38.5)	22 (43.1)	57 (40.1)
A not subtyped	3 (3.3)	3 (5.9)	6 (4.2)
B Yamagata	4 (4.4)	7 (13.7)	11 (7.8)
B Victoria	0	0	0
B not subtyped	0	0	0

Abbreviation. RT-PCR, reverse transcriptase–polymerase chain reaction.
*$p = .001$.
**$p < .001$.

Distribution of virus types in different age segments over 5 years of age. ANOSUB, (Influenza A not subtyped)



Weekly distribution of number of influenza viruses during the study period. ANOSUB, (Influenza A not subtyped)



Conclusion

- These findings can guide hospitals to plan and prepare for the influenza season.
- Effective influenza vaccination strategies, particularly aimed at the elderly and adults with chronic diseases, can provide an opportunity for prevention of deaths due to influenza-like illness.

Elderly Vaccination Project Turkey

The Goal Of The Project:

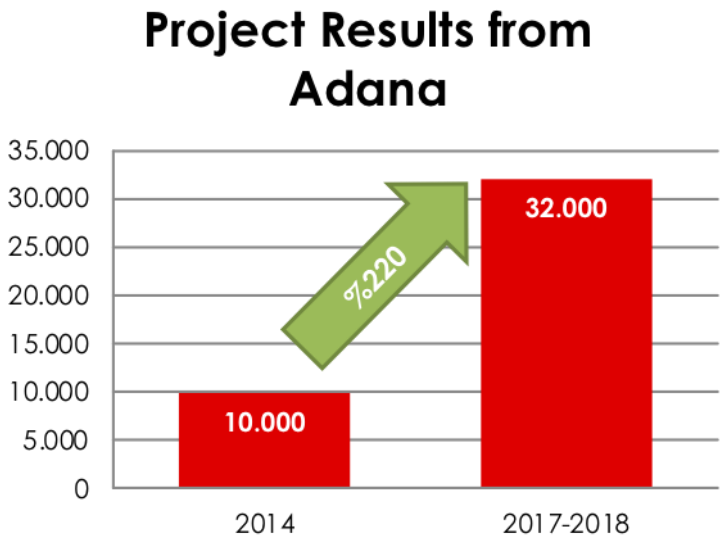
1. Increasing the provincial level of influenza vaccination rates among those aged 65 years and over and those with accompanying diseases by providing community awareness through information to be provided to family physicians and family health workers within the scope of the project
2. The model created is an example for our country

Project Target:

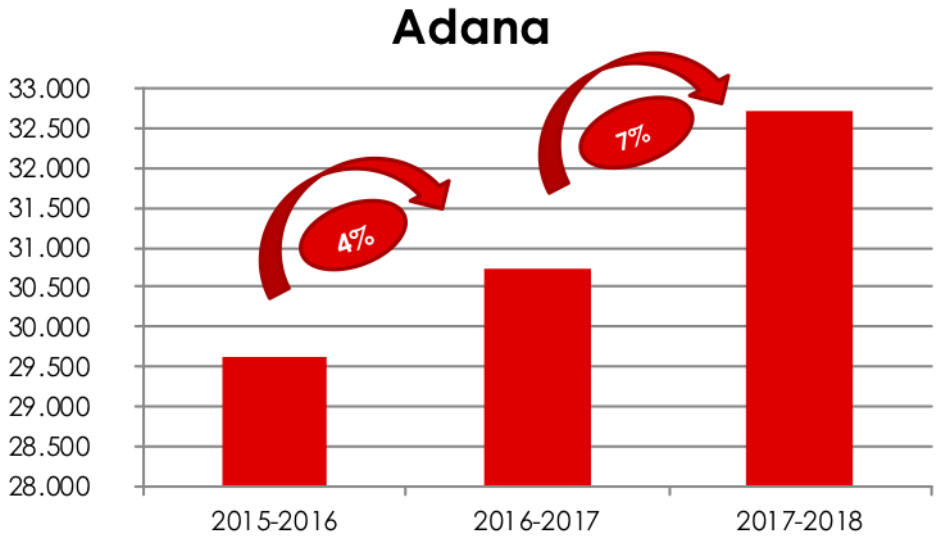
1. Increase awareness of influenza vaccination rates for people 65 years of age to 60% by the end of the 2017-2018 season.

Project Provincies And Elderly Population

Provinces	Total population	Elderly Population	Elderly Rate
Turkey	79 814 871	6 651 503	8%
Bursa	2 901 396	235 254	8%
Konya	2 161 303	181 791	8%
Antalya	2 328 555	170 276	7%
Adana	2 201 670	152 119	7%
Kocaeli	1 830 772	115 459	6%
Samsun	1 295 927	133 362	10%
İzmir	4.168.415	419.031	10%
Kayseri	1.341.056	105.395	8%
Ankara Keçiören	903 565	64 935	7%
Ankara Etimesgut	542 752	26 179	5%
Mersin	1 745 221	142 331	8%
Balıkesir	1 186 688	164 682	14%



	2015-2016	2016-2017	Growth	2017-2018	Growth
Adana	29.636	30.718	4%	32.726	7%



1. Flu Symposium

- ‘Grip Platformu’ continues to work with the aim of increasing public awareness of the flu, ensuring correct information, disseminating protection, and discussing new proposals and strategies for combating the flu since 2011.

- Entering the 2017-2018 season, on October 27-28, 2017 with the participation of all stakeholders "1. Flu Symposium" was held.

- At the end of the meeting, the following suggestions were collected:

1. Ensuring Active Participation of Members in Platform Activities

a. Contributing members to update the Grip Platform web page (eg participation with spot information)
b. In the preparation of the bulletin, the members contribute to the literature with their own expertise

2. Increasing Platform Visibility

a. The inclusion of new expertise areas was suggested (Neurology, Cardiology, Microbiology,..)

b. As the Grip Platform, it is foreseen to take place in different congresses and to reach efficient results through interdisciplinary interaction.

c. Agreed on keeping the activated web page up to date and providing more people access.

d. It was important to ensure that the Grip Platform activities were shared within each specialty department.

3. Increasing Relations with the Ministry of Health

Research Paper

Influenza surveillance in Western Turkey in the era of quadrivalent vaccines: A 2003–2016 retrospective analysis

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- Community-based sentinel surveillance results during 2003–2016 (weeks 40–20 each season; but week 21, 2009 through week 20, 2010 during the pandemic) were analyzed.

- Nasal/nasopharyngeal swabs from patients with influenza-like illness were tested for influenza virus and characterized as A/H1N1, A/H3N2, or IBV. A subset of IBV samples was further characterized as B/Victoria or B/Yamagata.

- Excluding the pandemic year (2009–2010), 645 (27.4%) samples were characterized as A/H1N1 or A/H1N1/pdm09, 958 (40.7%) as A/H3N2, and 752 (31.9%) as IBV, but the dominant subtype/lineage varied widely each season.

- During the pandemic year (2009–2010), 98.3% of cases were A/H1N1/pdm09.

- The IBV lineages in circulation matched the vaccine IBV lineage >50% in six seasons and <50% in four seasons; with an overall mismatch of 49.7%.

- IBV cases tended to peak later than IAV cases within seasons.

- These results have important implications for vaccine composition and optimal vaccination timing. Quadrivalent vaccines containing both IBV lineages can reduce B-lineage mismatch, thus reducing the burden of IBV disease.