Medical Academy Journal (2023) 2: 1-9
https://doi.org/10.56823/GKPY1723

MEDICAL ACADEMY journal

Influenza and SARS-CoV-2 diagnosis with point-of-care-testing in outpatients presenting to general practitioners with influenza-like illness during winter of 2023

Alessandro Falcione[1], Virginia Tamburi[1], Massimo Sabatini[1], GP-Net Roma*[1], Pier Luigi Bartoletti[1]

1. Centro Studi FIMMG Rome (Research division of the Italian Federation of General Practitioners of Rome and Province) - Piazza Guglielmo Marconi, 25, 00144 Roma RM - +39 06 5489 6627 – fimmg.centrostudi@gmail.com

Received: May 25th, 2023
Accepted: July 5th, 2023
Published online: July 28th, 2023

Corresponding author: Massimo Sabatini
Via Andrea Baldi 30
00136 Rome
massimosabatini54@gmail.com

ABSTRACT

Introduction: Seasonal respiratory illnesses are an important cause of outpatient visits, hospital admission and death. In the past two years, the use of personal protective equipment (PPE) and precautionary measures introduced during the COVID-19 emergency have led to a substantial decrease in the circulation of respiratory viruses. As these measures are being left behind, the number of influenza-like-illnesses (ILIs) is rising. Different germs are responsible for very similar clinical presentations. Therefore, pathogen identification is pivotal for diagnostical assessment, appropriate therapy prescription, epidemiological surveillance and possible actions concerning public health (i.e.. quarantine).

Methods: This is a cross-sectional study involving a cohort of patients of all ages presenting with ILI and symptom onset ≤7 days evaluated and tested with point-of-care-testing (POCT) methods by a network of 24 General Practitioners in the Rome metropolitan area between January 23rd and February 23rd 2023.

Results: Once the etiology of the infection was determined through point-of-care-testing, we were able to estimate viral circulation in Rome metropolitan area during week 04/2023 and 05/2023. Patients with Influenza were younger and more often reported complained of having a cough, while patients with COVID-19 were older and consistently reported malaise/fatigue and dysgeusia.

Conclusion: The use of POCT methods is a useful tool to determine the etiology of ILIs, providing key information to improve patient care, epidemiological surveillance networks and outpatient clinical research. Patients with Influenza seems to be younger and to report more frequently cough, while patients with COVID-19 seems to be older to report more frequently malaise/fatigue and dysgeusia.

Keywords: Influenza, SARS-CoV-2, point-of-care-testing, outpatient, general practice, influenza-like illness, flu, COVID-19, rapid antigenic test, nasopharyngeal swab.

INTRODUCTION

In the past three years, the widespread use of personal protective equipment (PPE) as well as the implementation of individual and collective precautionary measures introduced during the COVID-19 emergency (face masks, social distancing, hand sanitization, etc.) have led to a substantial decrease in the circulation of respiratory viruses and thus influenza-like-illnesses (ILIs), mainly in the autumn-winter period.[1,2]

As predictable, along with these measures being left behind, the number of ILIs and respiratory diseases is rising more than expected, with a substantial increase in risk for patient morbidity and mortality seasonal respiratory illnesses are an important cause of outpatient visits, hospital admission and death.[3] In fact, ISS (Istituto Superiore di Sanità – Italian National Institute of Health) and InfluNet (Italian National FLU surveillance system) data show a surge in incidence of ILIs, with a peak during week 29/2022, marking the highest in the last 20 years (15,54 cases per thousand). In addition, viral circulation in the last 10 years had never been significant in the first part of the autumn/winter season because peaks always happened between week 52 and week 8 of the following year.[1]

The characteristic seasonal trend of respiratory diseases is also responsible for an important increase in the workload for all healthcare services, weighing in on the activity of GPs. Different germs are responsible for very similar clinical presentations.[4,5] Therefore, pathogen identification through point-of-care-testing (POCT) methods is useful for etiological diagnosis, appropriate therapy prescription and possible actions concerning public health (i.e. quarantine).[5]

The purpose of this study to evaluate the use of rapid diagnostics in outpatient settings through POCT methods in GP practices to estimate Influenza A/B and SARS-CoV-2 virus circulation in patients presenting ILI in a defined time frame and to describe their clinical features.

MATERIALS AND METHODS

Study design, setting and data

This study is a cross-sectional study. Data were collected from 23/01/2023 to 23/02/2023 through a standardized digital Case Report Form CRF (password protected excel document) which was shared among all the GPs participants (experimenters) in the study.

The experimenters were 24 GPs (so-called "GP-Net Roma") with practices within 6 Local Health Authority Hubs (Azienda Sanitaria Locale – ASL) of the city of Rome and its province (RM1, RM2, RM3, RM4, RM5, RM6), with a total catchment area of 34,720 patients. The detailed geographic distribution is shown in Table 1. Experimenters investigated, for each patient: age, sex, test outcome, date of symptom onset, the symptoms reported and test outcome. In particular, GPs investigated the presence of the following symptoms (as they appear on the CRF): fever (axillary body temperature >37°C), malaise/fatigue, headache, myalgia/joint pain, cough, sore throat, dyspnea, nasal congestion, nausea/lack of appetite, diarrhea, dysgeusia.

Results were sent by each GP to the Centro Studi FIMMG (research center) in pseudonymized form over an observation period of one month (23/01/2023-23/02/2023). Considering the reduction of incidence of ILIs during the period of observation and the lack of further test kits in some areas, incidence was calculated only in the first two weeks (from 23/01/2023 to 05/02/2023, weeks 4 and 5 of 2023), while other features were collected during all the period of observation. Incidence rate was calculated as number of Influenza-Like Illness (ILI) cases out of 1000 patients assisted per week.

Participants

This analysis was performed on patients of all ages with ILI and symptom onset ≤7 days evaluated and tested by GPs between 23/01/2023 and 23/02/2023. Participants were classified into "COVID-19" or "Influenza" patients based on SARS-CoV-2 and Influenza viruses' detection in nasopharyngeal swab. Patients with Influenza and SARS-CoV-2 coinfection was excluded from this analysis. ILI is defined as the sudden onset of symptoms and at least one of following four systemic symptoms: fever or feverishness, malaise, headache and myalgia, and at least one of the following three respiratory symptoms: cough, sore throat and shortness of breath.[6,7]

Outcomes

Primary outcome was to estimate Influenza A/B and SARS-CoV-2 infection incidence in patients presenting ILI using rapid diagnostics through POCT in GP practices in a defined period of time. The secondary outcome was to describe clinical features and to compare these between the FLU and COVID-19 subcohorts.

Statistical analysis

All data were analyzed by standard descriptive statistics methods, reporting absolute numbers and proportions for categorical variables, and median and interquartile range (IQR) or mean and 95% confidence interval for continuous variables. The statistical comparison was performed by means of the Mann-Whitney test for median and independent t-test for two samples for mean, while for the categorical variables it was operated with the mid-p exact test. A p-value ≤0.05 was considered as statistically significant.

Diagnostic tests

Patients were tested using specimens obtained with nasopharyngeal swabs with a SD Biosensor "STANDARD F COVID/Flu Ag Combo FIA" kit and analyzed on compatible fluorescence immunoassay analyzer devices (SD Biosensor's F-100, F-200 and F-2400). All devices were calibrated and all tests were done by trained personnel.

RESULTS

From Jan. 23 to Feb. 23, 2023, 456 patients were tested. Of these, only 358 (83.8%) matched the inclusion criteria of the study protocol (ILI diagnosis with symptoms starting ≤7 days earlier). The majority of patients included in the study (n=287, 80.17%) were tested in the first two weeks (23/01/2023 – 05/02/2023). Experimenters GPs were 24 and were in charge of 34,720 patients altogether. There was at least one experimenter in every ASL from the province of Rome (RM1, RM2, RM3, RM4, RM5 and RM6). The majority of them was in ASL RM3 (n=10, 41.67%) and in ASL RM2 (n=7, 29.17%), while there was only one experimenter in ASL RM5 (n=1; 4.17%).

Figure 1 shows daily trend of tests carried out in the observation period. **Table 1** shows geographic distribution and catchment area of experimenters.

Table 2 shows distribution of the 358 tested patients with ILI based on sex and age range, during the observation period.

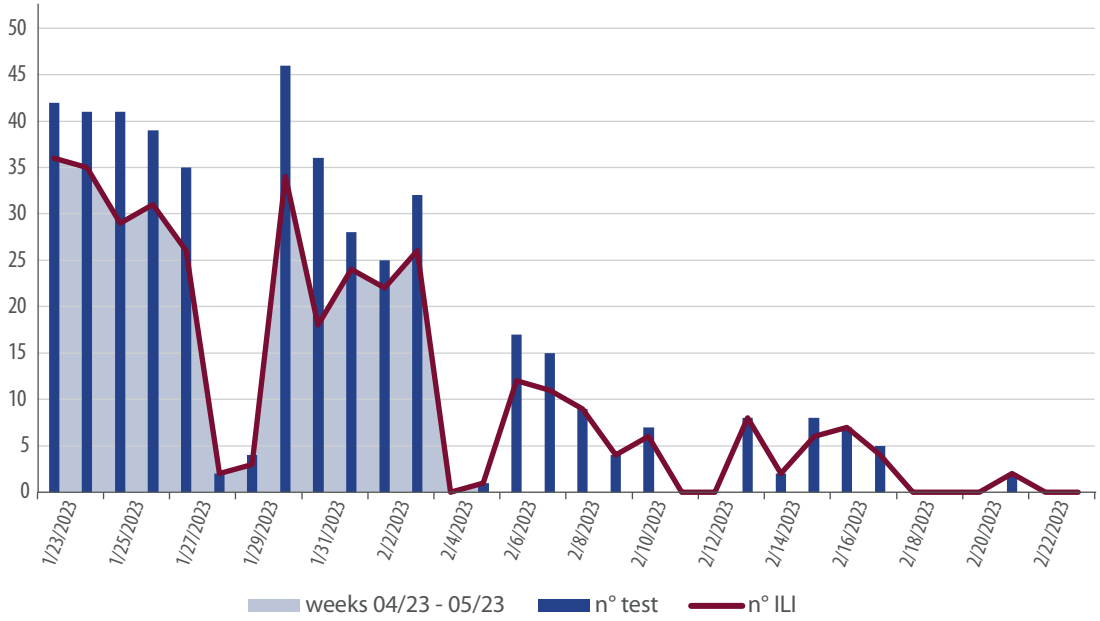

Fig. 1. Number of daily tests carried out between 23/01/2023 and 23/02/2023.

Table 1. Geographic distribution and catchment area of experimenters.

Health district	ASL	GPs (n)	Assisted patients (n)
1	RM1	1	1,547
2	RM1	1	900
Total	RM1	2	2,447
4	RM2	1	923
5	RM2	2	2,840
6	RM2	1	1,600
8	RM2	2	2,685
9	RM2	1	1,572
Total	RM2	7	9,620
10	RM3	8	12,224
11	RM3	1	1,560
Fiumicino	RM3	1	1,580
Total	RM3	10	15,364
1 (Civitavecchia)	RM4	1	1,532
2 (Ladispoli)	RM4	1	1,554
Total	RM4	2	3,086
G2 (Guidonia)	RM5	1	1,350
H2 (Albano Laziale)	RM6	2	2,853
Total		**24**	**34,720**

Table 2. Sex and age range distribution of the 358 tested patients with ILI.

Sex	N (%)	MEDIAN (IQR)	MIN-MAX	5-14 years (%)	15-64 years (%)	≥65 years (%)
Male	169 (47.21)	48 (34-65)	7-93	9 (5.33)	117 (69.23)	43 (25.44)
Female	189 (52.79)	50 (36-64)	11-89	6 (3.17)	139 (79.54)	43 (22.75)
Total	**358 (100.00)**	**50 (35-64)**	**7-93**	**15 (4.19)**	**257 (71.79)**	**86 (24.02)**

All 358 patients reported at least two symptoms. The median of days passed between onset of symptoms and GP acknowledgement was 2 (IQR 2-3). The most common symptoms were cough (80.80%), malaise/fatigue (79.33%), fever (72.35%) and sore throat (69.27%). Only a small portion of patients complained of nausea/loss of appetite (15.08%), dyspnea/ shortness of breath (12.85%), diarrhea (7.26%) and dysgeusia (5.59%). All symptoms are reported according to their frequency in **Table 3**.

Overall, 93 patients (25.98%) resulted positive for at least one of the three etiologic/causative agents. Moreover, 59 patients (16.48%) tested positive for SARS-CoV-2, 21 patients (5.87%) tested positive for Influenza A and 12 patients (3.35%) for Influenza B. Only in one (0.28%) was there co-infection (Influenza B and SARS-CoV-2). Detailed results are shown in **Table 4**.

During week 4/2023, the incidence of ILIs was 5.01 cases for every 1000 patients, with a maximum of 7.17 cases/1000 patients in the territory of ASL RM2 and a minimum of 0 cases in the territory of ASL RM5. Overall, Influenza A was responsible for 7.74% of ILIs, Influenza B for 4.60% and SARS- CoV-2 for 13.79%.

During week 5/2023, the incidence of ILI was 3.95 cases/1000, with a maximum of 5.01 cases/1000 in the territo-

Table 3. Symptoms reported by patients with ILI tested during the observation period.

Symptom	n	%
Cough	300	83.80%
Malaise/fatigue	284	79.33%
Fever	259	72.35%
Sore throat	248	69.27%
Coryza/nasal congestion	227	63.41%
Myalgia/joint pain	207	57.82%
Headache	154	43.02%
Nausea/loss of appetite	54	15.08%
Dyspnea/shortness of breath	46	12.85%
Diarrhea	26	7.26%
Dysgeusia	20	5.59%
	Median	**IQR**
Days from symptom onset	2	2-3

Table 4. Test results on 358 patients with ILI during the observation period.

Test result	n	%
Influenza	33	9.22%
Influenza A	21	5.87%
Influenza B	12	3.35%
SARS-CoV-2	59	16.48%
Influenza B + SARS-CoV-2	1	0.28%
Negative	265	74.02%
Total	358	100.00%

ry of ASL RM3 and a minimum of 2.81 cases/1000 in the territory of ASL RM2. Overall, Influenza A was responsible for 3.65% of ILIs, Influenza B for 3.65% and SARS-CoV-2 for 18.25%. **Tables 5** and **6** show data on the incidence during weeks 4 and 5 of 2023 (23/01/2023-05/02/2023).

Clinical and epidemiological features of patients where described in two subcohort: Influenza patients and COVID-19 patients. One patient with Influenza B and

Table 5. ILI incidence during week 4/2023 (23/01/2023-29/01/2023).

District	ASL	Assisted patients (n)	ILIs (n)	ILI incidence (cases/1.000)	FLU A (n)	FLU A incidence (cases/1.000)	FLU A (%)	FLU B (n)	FLU B incidence (cases/1.000)	FLU B (%)	COVID-19 (n)	COVID-19 Incidence (cases/1.000)	COVID-19 (%)
1	*RM1*	*1.547*	3	1.94	1	0.65	33.33%	0	0.00	0.00%	1	0.65	33.33%
2	*RM1*	*900*	3	3.33	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Total	**RM1**	**2.447**	**6**	**2.45**	**1**	**0.41**	**16.67%**	**0**	**0.00**	**0.00%**	**1**	**0.41**	**16.67%**
4	*RM2*	*923*	2	2.17	1	1.08	50.00%	0	0.00	0.00%	0	0.00	0.00%
5	*RM2*	*2.840*	14	4.93	3	1.06	21.43%	0	0.00	0.00%	6	2.11	42.86%
6	*RM2*	*1.600*	20	12.50	2	1.25	10.00%	0	0.00	0.00%	3	1.88	15.00%
8	*RM2*	*2.685*	12	4.47	0	0.00	0.00%	1	0.37	8.33%	1	0.37	8.33%
9	*RM2*	*1.572*	21	13.36	1	0.64	4.76%	3	1.91	14.29%	3	1.91	14.29%
Total	**RM2**	**9.620**	**69**	**7.17**	**7**	**0.73**	**10.14%**	**4**	**0.42**	**5.80%**	**13**	**1.35**	**18.84%**
10	*RM3*	12.224	60	4.91	4	0.33	6.67%	3	0.25	5.00%	8	0.65	13.33%
11	*RM3*	1.560	11	7.05	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Fiumicino	*RM3*	1.580	7	4.43	0	0.00	0.00%	4	0.63	14.29%	0	0.00	0.00%
Total	**RM3**	**15.364**	**78**	**5.08**	**4**	**0.26**	**5.13%**	**4**	**0.26**	**5.13%**	**8**	**0.52**	**10.26%**
1	RM4	1.532	1	0.65	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
2	RM4	1.554	11	7.08	1	0.64	9.09%	0	0.00	0.00%	1	0.64	9.09%
Total	**RM4**	**3.086**	**12**	**3.89**	**1**	**0.32**	**8.33%**	**0**	**0.00**	**0.00%**	**1**	**0.32**	**8.33%**
G2	**RM5**	**1.350**	**0**	**0.00**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**
H2	**RM6**	**2.853**	**9**	**3.15**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**	**1**	**0.35**	**11.11%**
Total		34.720	174	5.01	13	0.37	7.74%	8	0.23	4.60%	24	0.69	13.79%

Table 6. ILI incidence during week 5/2023 (30/01/2023-05/02/2023).

District	ASL	Assisted patients (n)	ILIs (n)	ILI incidence (cases/1.000)	FLU A (n)	FLU A incidence (cases/1.000)	FLU A (%)	FLU B (n)	FLU B incidence (cases/1.000)	FLU B (%)	COVID-19 (n)	COVID-19 Incidence (cases/1.000)	COVID-19 (%)
1	*RM1*	*1,547*	2	1.29	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
2	*RM1*	*900*	8	8.89	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Totale	**RM1**	**2,447**	**10**	**4.09**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**
4	*RM2*	*923*	6	6.50	2	2.17	33.33%	0	0.00	0.00%	0	0.00	0.00%
5	*RM2*	*2,840*	10	3.52	0	0.00	0.00%	2	0.70	20.00%	4	1.41	40.00%
6	*RM2*	*1,600*	3	1.88	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
8	*RM2*	*2,685*	6	2.23	0	0.00	0.00%	1	0.37	16.67%	2	0.74	33.33%
9	*RM2*	*1,572*	2	1.27	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Totale	**RM2**	**9,620**	**27**	**2.81**	**2**	**0.21**	**7.41%**	**3**	**0.31**	**11.11%**	**6**	**0.62**	**22.22%**
10	*RM3*	12,224	73	5.97	2	0.16	2.74%	1	0.08	1.37%	15	1.23	20.55%
11	*RM3*	1,560	2	1.28	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Fiumicino	*RM3*	1,580	2	1.27	0	0.00	0.00%	0	0.00	0.00%	0	0.00	0.00%
Totale	**RM3**	**15,364**	**77**	**5.01**	**2**	**0.13**	**2.60%**	**1**	**0.07**	**1.30%**	**15**	**0.98**	**19.48%**
1	RM4	1,532	4	2.61	0	0.00	0.00%	0	0.00	0.00%	2	1.31	50.00%
2	RM4	1,554	10	6.44	1	0.64	10.00%	1	0.64	10.00%	1	0.64	10.00%
Totale	**RM4**	**3,086**	**14**	**4.54**	**1**	**0.32**	**7.14%**	**1**	**0.32**	**7.14%**	**3**	**0.97**	**21.43%**
G2	**RM5**	**1,350**	**5**	**3.70**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**	**1**	**0.74**	**20.00%**
H2	**RM6**	**2,853**	**4**	**3.15**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**	**0**	**0.00**	**0.00%**
Total		34,720	137	3.95	5	0.14	3.65%	5	0.14	3.65%	25	0.72	18.25%

SARS-CoV-2 coinfection was excluded from this analysis. Out of 357 remaining patients, 33 patients tested positive for Influenza A or B and 59 patients tested positive for SARS-CoV-2. The statistical univariate analysis revealed statistically significant differences between subcohort: patients with Influenza were younger (median age 42 years; IQR 32-58) and complained more often of having a cough (96.97% vs 79.66%, p=0.01), while patients with COVID-19 were older (median age 50 years; IQR 33-64) and more often reported malaise/fatigue (91.53% vs 66.67%, p<0.01) and dysgeusia (10.17% vs 0.00%, p=0.03).

DISCUSSION

In the past three years, the use of personal protective equipment (PPE) and precautionary measures introduced during the COVID-19 emergency have led to a substantial decrease in the circulation of respiratory viruses. As these measures are being left behind, the number of influenza-like-illnesses (ILIs) is rising more than expected, with a substantial increase in risk for patient morbidity and mortality: in fact, seasonal respiratory illnesses are an important cause of outpatient visits, hospital admission and death.[3] Different germs are responsible for a substantially identical clin-

Table 7. Characteristics of patients who tested positive for Influenza and SARS-CoV-2.

	Influenza (%)	COVID-19 (%)	*p-value*
Age [IQR]	*median* 42 [32-58]	50 [33-64]	**<0.01**
Days from symptom onset [IC 95%]	*mean* 2.58 [±1.30]	2.32 [±1.49]	0.91
Male	18 (54.55)	27 (45.76)	0.21
Female	15 (45.45)	32 (54.24)	‘’
Fever	30 (90.91)	48 (81.36)	0.12
Malaise/fatigue	22 (66.67)	54 (91.53)	**<0.01**
Headache	14 (42.42)	30 (50.85)	0.22
Myalgia/joint pain	23 (69.70)	43 (72.88)	0.37
Cough	32 (96.97)	47 (79.66)	**0.01**
Sore throat	16 (48.48)	36 (61.02)	0.13
Dyspnea/shortness of breath	6 (18.18)	6 (10.17)	0.15
Coryza/nasal congestion	25 (75.76)	41 (69.49)	0.27
Nausea/loss of appetite	8 (24.24)	8 (13.56)	0.11
Diarrhea	4 (12.12)	4 (6.78)	0.21
Dysgeusia	0 (0.00)	6 (10.17)	**0.03**
Total	33 (100)	59 (100)	-

ical presentation therefore pathogen identification through POCT is pivotal for diagnostical assessment, appropriate therapy prescription and for possible actions concerning public health (i.e. quarantine). In this study, we wanted to estimate Influenza A/B and SARS-CoV-2 infection incidence in patients presenting ILI using rapid diagnostics through POCT in GP practices in a defined period of time (*primary outcome*) and to describe their clinical features and to compare them between FLU and COVID-19 subcohort (*secondary outcome*).

Estimating ILIs incidence. Incidence rate was calculated as number of Influenza-Like Illness (ILI) cases out of 1000 patients assisted per week. The incidence rate survey covered a time frame from 23/01/2023 to 05/02/2023 (weeks 4 and 5 of 2023). Incidence rate data were compared with InfluNet incidence rate data of the same period.[1] During week 4/2023 ILIs incidence was 5.01 cases for every 1000 patients, with a maximum of 7.17 cases/1000 patients in the territory of ASL RM2 and a minimum of 0 cases in the territory of ASL RM5. Overall, Influenza A was responsible for 7.74% of ILIs, Influenza B for 4.60% and SARS- CoV-2 for 13.79%. In the same week the InfluNet network reported a national incidence of 8.52 cases/1000 with peaks in the 0-4 year-old age group (25.20 cases/1000) and the 5–14-year-old age group (10.54 cases/1000), which are not comprised in the average GP patient group. Moreover, leaving out data from the 0-4 years-old age group of which no cases was reported in our observation protocol, the incidence, corrected for homogeneous age groups (≥5 years old), in Lazio region was 7,10 cases/1000. This number is a little higher than the one we obtained in our observation. Also, in the

National samples analyzed, 6.32% was positive for Influenza A, 2.72% for Influenza B and 5.84% for SARS-CoV-2.

During week 5/2023 ILI incidence was 3.95 cases/1000, with a maximum of 5.01 cases/1000 in the territory of ASL RM3 and a minimum of 2.81 cases/1000 in the territory of ASL RM2. Overall, Influenza A was responsible for 3.65% of ILIs, Influenza B for 3.65% and SARS- CoV-2 for 18.25%. In the same week the InfluNet network reported a national incidence of 8.29 cases/1000 with peaks in the 0-4-year-old age group (25.16 cases/1000) and the 5–14-year-old age group (11.71 cases/1000), which, again, are not comprised in the average GP patient group. In this case, leaving out data from the 0-4 years-old age group, the incidence, corrected for homogeneous age groups (≥5 years old), in Lazio region was 6.95 cases/1000, a figure which is slightly higher compared to that obtained in our observation. In the National samples analyzed, 4.73% was positive for Influenza A, 3.63% for Influenza B and 5.2% for SARS-CoV-2. At a regional level, during week 5/2023, none of the samples tested positive for Influenza.[1]

Some possible explanations for the observed differences could reside in the different research modality and data gathering method. First, the InfluNet network esteems ILI cases only on clinical basis and testing is made merely by a small number of GPs: no laboratory test or physical examination is mandatory to diagnose every ILI case. Secondly, InfluNet network also involves Primary Care Pediatricians that could contribute substantially to the accuracy and the number of results, given the extremely high incidence of ILIs in the pediatric population (0-14 age group). In our observation, instead, all patients were examined and tested for the first time by the GPs. Those tested in pharmacies, as well as those who decided not to be tested, were not included in our study and thus possibly determining a minor underestimation in our data.

It is also interesting to note that InfluNet estimates viral circulation on an average of 1.000 weekly tests on a national basis, while our GP network performed an average of 140 weekly tests in Rome and its province only.[1]

Influenza vs COVID-19. The majority of patients referred to the GP with a median time of 2 days (IQR 2-3) since the symptom onset, suggesting the fact that the GP clinics are reasonably one of the first health facilities reached by the patients. While most of the examined features were similar between those two subcohorts, the statistical univariate analysis revealed some significant differences. Patients with Influenza were younger (median age 42 years; IQR 32-58) than patients with COVID-19 (median age 50 years; IQR 33-64). A possible explanation for this observed phenomenon could reside in differences in vaccination rates: while the SARS-CoV-2 vaccination rate it is high in all ages, the flu vaccination rate is very low in the general population (around 10%) and higher in the elderly.[8,9,10] Moreover, patients with Influenza complained more often of having a cough (96.97% vs 79.66%, p=0.01), while patients with COVID-19 more often reported malaise/fatigue (91.53% vs 66.67%, p<0.01) and dysgeusia (10.17% vs 0.00%, p=0.03). It is also interesting to note that none of the 33 patients tested positive for Influenza reported dysgeusia. Only one patient out of 358 (0.28%) had Influenza-SARS-CoV-2 co-infection, which also seems to be rare in other surveys.[11]

CONCLUSION

The purpose of this study was the evaluation of the use of rapid diagnostics in outpatient setting through POCT methods in GP practices to esteem Influenza A/B and SARS-CoV-2 virus circulation in patients presenting ILI in a defined time frame and to describe their clinical features. Once the etiology of the infection was determined through POCT, we were able to estimate viral circulation in the city of Rome and its province during week 04/2023 and 05/2023. Comparing our findings with InfluNet data, we found that our network could eventually underestimate viral circulation. Observed differences could reside in the different research modality and data gathering method. On the other hand, our network could perform a high number of test per week. Statistically significant differences were found between patients with Influenza and patients with COVID-19: patients with Influenza were younger and more often complained of having a cough, while patients with COVID-19 were older and consistently reported malaise/fatigue and dysgeusia. Ultimately, the use of POCT methods is a useful tool to determine the etiology of ILIs, providing key information to improve patient care, epidemiological surveillance networks and outpatient clinical research.

REFERENCES

1. InfluNet-Epi: sistema di sorveglianza epidemiologico delle sindromi influenzali. 2023. https://www.epicentro.iss.it/influenza/flunews#epi (accessed 27 April 2023)
2. Onay ZR, Mavi D, Ayhan Y, Can Oksay S, Bilgin G, Girit S. Did Hospital Admissions Caused by Respiratory Infections and Asthma Decrease During the COVID-19 Pandemic? Medeni Med J. 2022 Mar 18;37(1):92-98. doi: 10.4274/MMJ.galenos.2022.02779.
3. Guo RN, Zheng HZ, Ou CQ, Huang LQ, Zhou Y, Zhang X, et al. Impact of Influenza on Outpatient Visits, Hospitalizations, and Deaths by Using a Time Series Poisson Generalized Additive Model. PLoS One. 2016 Feb 19;11(2):e0149468. doi: 10.1371/journal.pone.0149468.
4. Ma X, Conrad T, Alchikh M, Reiche J, Schweiger B, Rath B. Can we distinguish respiratory viral infections based on clinical features? A prospective pediatric cohort compared to systematic literature review. Rev Med Virol. 2018; 28:e1997. https://doi.org/10.1002/rmv.1997
5. Clark NM, Lynch JP 3rd. Influenza: epidemiology, clinical features, therapy, and prevention. Semin Respir Crit Care Med. 2011 Aug;32(4):373-92. doi: 10.1055/s-0031-1283278.
6. European Commission implementing decisions (EU) 2018/945 of 22 June 2018 on the communicable diseases and related special health issues to be covered by epidemiological surveillance as well as relevant case definitions. Off. J. Eur. Union. 2018;170:1–74.
7. Epicentro – ISS. Definizione di caso. 2018. https://www.epicentro.iss.it/influenza/definizione-caso (accessed 27 April 2023).
8. Governo Italiano - Report Vaccini Anti COVID-19. 2023. https://www.governo.it/it/cs-covid19/report-vaccini/ (accessed 27 April 2023).
9. Commissario straordinario per l'emergenza Covid-19 - Open Data su consegna e somministrazione dei vaccini anti COVID-19 in Italia. 2023. https://github.com/italia/covid19-open-data-vaccini (accessed 27 April 2023).
10. Elaborazioni del Ministero della Salute - Istituto superiore di sanità, sulla base dei riepiloghi inviati da Regioni e Province autonome - 5 luglio 2022 https://www.salute.gov.it/imgs/C_17_tavole_19_3_1_file.pdf (accessed 27 April 2023).
11. Pawlowski C, Silvert E, O'Horo JC, Lenehan PJ, Challener D, Gnass E, et al. SARS-CoV-2 and influenza coinfection throughout the COVID-19 pandemic: an assessment of coinfection rates, cohort characteristics, and clinical outcomes. PNAS Nexus. 2022;1(3):pgac071. doi: 10.1093/pnasnexus/pgac071.

DISCLOSURES

Funding: The POCT are owned by the investigators. The diagnostic material was provided to the investigators by the Social Cooperative Primary Care as part of a social initiative or provided directly by the investigators.

Acknowledgements: We thank all the doctors from GP-Net Roma for participating in data collection: Dr. Piero Amodeo, Dr. Paola Antolini, Dr. Teresa Battista, Dr. Prospero Cerabona, Dr. Flaminia Crisciotti, Dr. Elena D'Angelo, Dr. Alessandro Di Russo, Dr. Giuseppe Fucito, Dr. Giorgio Gentili, Dr. Andrea Liberti, Dr. Gianmarco Marrocco, Dr. Serafina Mastroianni, Dr. Mauro Mocci, Dr. Lara Morelli, Dr. Marina Moscatelli, Dr. Ombretta Papa, Dr. Giampiero Pirro, Dr. Fabrizio Rossi, Dr. Alessandro Sabatini, Dr. Maria Teresa Santarelli, Dr. Maria Grazia Scelsa, Dr. Maria Cristina Stirpe, Dr. Fabio Valente.

Conflicts of interests: The authors declares that they have no conflict of interests.