

# A comparative review of the impact of the introduction of on-site molecular testing on the management of adult patients hospitalised with suspected influenza virus infection.

O'Connor S<sup>1</sup>, Schmid M<sup>1</sup>, Lyne J<sup>2</sup>, O'Meara M<sup>3</sup>, Kennedy I<sup>4</sup>, ZhangXiang Y<sup>1</sup>, Hickey E<sup>5</sup>, Barry C<sup>5</sup>, Fitzmaurice J<sup>5</sup>, McHugh J<sup>6</sup>, Scanlon E<sup>6</sup>, Creedon G<sup>7</sup>, Foley M<sup>8</sup>, Hobbert D<sup>1</sup>, Nolan M<sup>2</sup>

<sup>1</sup>Pharmacy Department, University Hospital Kerry, Tralee, Ireland (UHK), <sup>2</sup>Department of Microbiology (UHK), <sup>3</sup>Department of Surgery (UHK), <sup>4</sup>Department of Medicine (UHK), <sup>5</sup>Infection Prevention & Control (UHK), <sup>6</sup>Medical Records (UHK), <sup>7</sup>Pathology Department (UHK), <sup>8</sup>Laboratory Services (UHK).

## BACKGROUND

On-site molecular flu testing was introduced at University Hospital Kerry (UHUK) prior to the 2018-2019 season.

## AIM

This retrospective cohort study investigated the impact of on-site influenza testing on the clinical management of adult inpatients with a high suspicion of influenza virus infection by comparing key clinical parameters before and after its introduction.



Influenza A virus

## METHOD

Data from January 2018 and January 2019 were used to compare:

- Up-take of influenza testing, using laboratory records
- Turnaround times (TATs), recorded using iLab
- Infection Control isolation data
- Oseltamivir use, as prescribed in inpatient drug kardexes.

## RESULTS

### 1. Uptake & Positivity Rate

- There was a 55% increase in uptake in January 2019 compared to January 2018 (2019 = 73 tests, 2018 = 47 tests).
- The positivity rate fell from 47% (22/47) in January 2018 to 32% (23/73) in January 2019.

### 2. Turn-around time (TAT)

The median TAT fell from 7.2 days in 2018 (range = 4-11) to 0.5 days in 2019 (range = 0-3).

### 3. Isolation of Influenza Negative Patients

Prolonged TATs in January 2018 meant the twenty-five patients who subsequently tested influenza negative were isolated for a total of 41 nights (median = 3 nights, range = 1-7 nights).

In 2019, the fifty patients who tested influenza negative required a total of 29 isolation nights while awaiting test results (median = 1, range = 0-2 nights).

In January 2019, test results were known for 96% (48/50) of influenza negative patients within 24 hours, and no patients were isolated after their test results were known.

### 4. Oseltamivir Use in Influenza Negative Patients

- In January 2018, prolonged TATs resulted in empiric oseltamivir use in 60% (15/25) of influenza negative patients.
- In 2019, 28% (14/50) of influenza negative patients were treated empirically with oseltamivir while awaiting test results. Treatment was stopped within 24 hours in 79% (11/14) of cases, once test results were known.

Table 1. Oseltamivir use in influenza negative patients (treatment days)

	Average	Median	Range
2018	4.67	5.00	2 - 7
2019	1.56	1.00	1 - 3



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## 5. Isolation of Influenza Positive Patients

Table 2. Isolation of Influenza Positive Patients

	2018	2019
Appropriate isolation	36% (8/22)	78% (18/23)
No isolation precautions taken	64% (12/22)	22% (5/23)
Unable to isolate in CCU*	9% (2/22)	17% (4/23)
Inpatient influenza exposure risk (bed-nights)	49% (48/98)	10% (12/110)
Inpatient influenza exposure risk in CCU* (bed-nights)	15% (7/48)	83% (10/12)

\*no isolation facilities in Coronary Care Unit, CCU

## 6. Isolation and Oseltamivir Use in Influenza Positive Inpatients

In 2019, oseltamivir was prescribed appropriately for 96% (22/23) of influenza positive inpatients compared to 64% (14/22) in 2018.

Table 3. Management of influenza positive inpatients 2018/2019

	2018	2019
Appropriate isolation and oseltamivir given	27% (6/22)	74% (17/23)
Appropriate isolation, no oseltamivir given	9% (2/22)	4% (1/23)
NOT isolated and no oseltamivir given	9% (2/22)	0

## CONCLUSIONS & RELEVANCE

- Increased testing in January 2019 despite a national fall in hospitalised flu cases compared to January 2018<sup>3,4</sup> suggests that clinicians were more likely to consider flu when rapid diagnostics were available onsite.
- A fall in the positivity rate in 2019 highlights the difficulties with the clinical diagnosis of influenza, in the absence of onsite diagnostics.
- Onsite testing significantly reduced the TAT.
- The reduced TAT was associated with a measurable improvement in the appropriateness of patient isolation, thereby reducing the clinical risk of in-hospital influenza exposure.
- However, the absence of isolation facilities in the coronary care unit meant this risk was not mitigated in that ward.
- The shorter TAT was also associated with more appropriate oseltamivir use, suggesting clinicians were less likely to commence empiric treatment when test results were more immediately available, resulting in an overall reduction in consumption.

## REFERENCES

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