

# Factors affecting discharge of patients from hospital with Seasonal Influenza- role of the Rapid Influenza testing in patient discharge



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# Conflict of interest

- Nil



# 2017 Influenza season

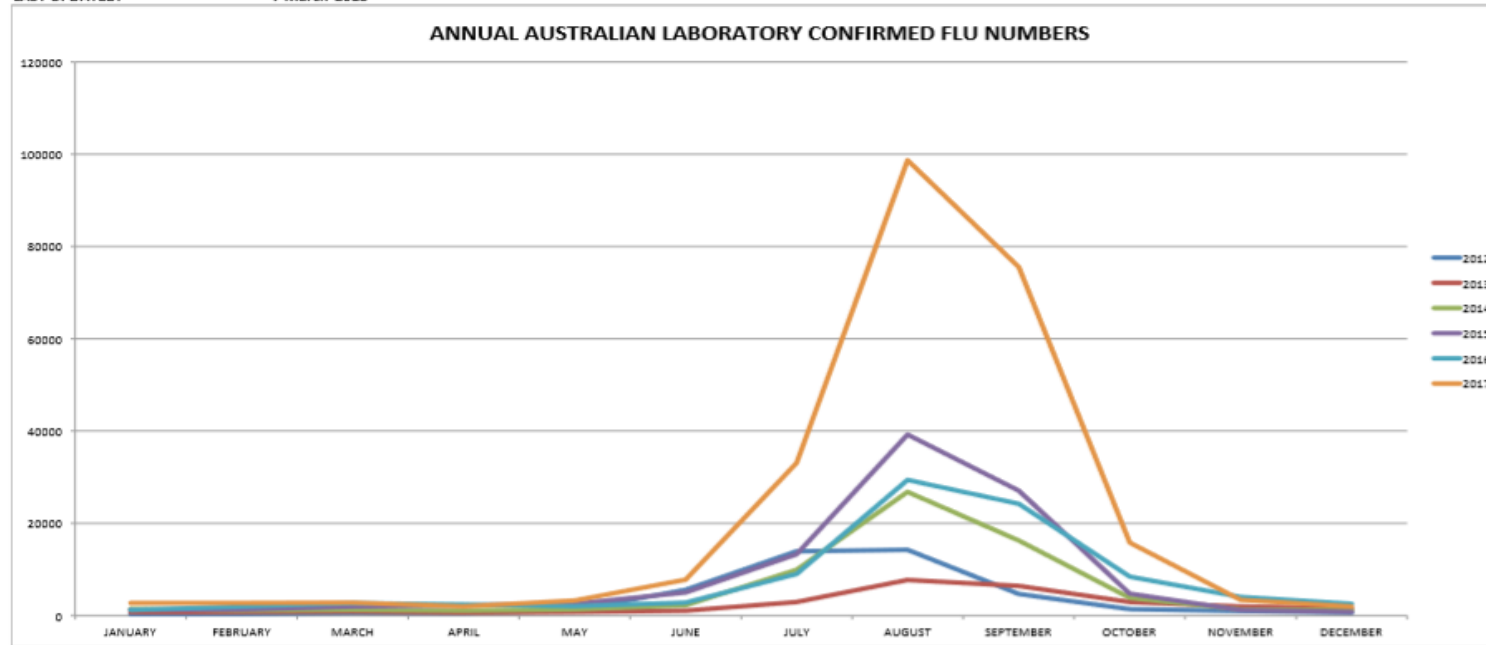


The Immunisation Coalition is the leading voice in whole-of-life immunisation in Australia, protecting all Australians against communicable diseases.  
For more information, please visit our website: [www.immunisationcoalition.org.au/news-media/2017-statistics/](http://www.immunisationcoalition.org.au/news-media/2017-statistics/)

## ANNUAL AUSTRALIAN INFLUENZA STATISTICS

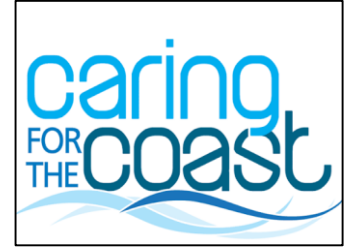
YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTALS	
2012		306	356	610	575	1164	5591	13927	14270	4696	1402	1020	647	44564
2013		717	740	862	635	776	1088	2909	7702	6428	2961	1993	1503	28314
2014		1425	1146	1260	1067	1332	2198	9919	26810	16290	3819	1305	1136	67697
2015		1249	1342	1966	2218	2527	5013	13279	39222	27083	4725	1178	788	100590
2016		1175	1969	2666	2434	2058	2830	9037	29421	24216	8448	4044	2539	99837
2017		2744	2738	2810	1978	3274	7761	33115	98687	75549	15838	3391	1997	249882

LAST UPDATED: 7 March 2018



Reference: These statistics are taken from the Aust Government Department of Health, National Notifiable Diseases Surveillance System.

# 2017 season



- 2017 influenza season was the largest since the 2009 pandemic year
- There was some variation across the country, with Western Australia not experiencing levels of influenza as high as the rest of Australia
- The high level of activity in the community resulted in a lot of people taking time off work and a significant burden on hospitals, with more than twice the number of people with influenza being admitted than is typical
- Influenza A(H3N2,H1N1,unsubtyped) 62%, Influenza B 37%
- Higher number of deaths during the year(n=745),which is consistent with the high number of cases in the community



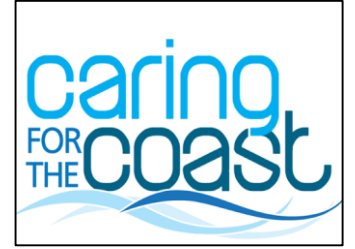
# Background

- Influenza virus can cause variety of symptoms -from mild not requiring hospital admission to severe respiratory failure requiring support in intensive care unit
- Although diagnosis of Influenza virus is not required when a patient presents with influenza like illness(ILI), it can be at times difficult to make a diagnosis when patient presents with atypical symptoms
- Rapid Influenza test have shown to reduce duration of antibiotic treatment therapy in adult patients and also length of stay in children, this effect has not been consistent in studies
- There are a variety of platforms now available for rapid tests all of which are more or less similar in their sensitivity and specificity



# Aim

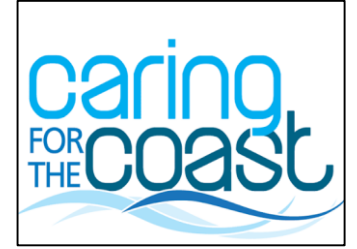
- NSW Health Pathology introduced Xpert™ Flu/RSV(Cepheid diagnostics, US) in all laboratories to harmonise testing
- We designed this study to understand the role of rapid tests in patients presenting with Influenza and also to identify factors associated with these patients getting admitted to hospital
- Role of these tests in facilitating discharge from the hospital



# Methods

- This was a retrospective observational study of patients who presented with Seasonal influenza to two hospitals during Influenza season 2017(March 1<sup>st</sup> to 30<sup>th</sup> September, 2017)
- Data was captured on clinical features, demographics, medical comorbidities and laboratory testing from electronic medical records
- Rapid Influenza testing was performed using Xpert Flu/RSV (Cepheid, US)
- Categorical variables were assessed using Fischer's exact tests and continuous variables using t test. SPSS Version 23(IBM, California) was used to perform multivariable analysis on factors which were significant ( $p < 0.05$ ) on univariate analysis

# Results



Patient characteristics	N=665
1) Median Age	65 years(6m-100yrs)
2) Influenza A	64%
3) Influenza B	36%
4) COPD	89(13%)
5) Asthma	82(12%)
6) Bronchiectasis	14(2%)
7) Pneumonia	67(10%)
8) Median LOS	48 hours
9) Influenza related deaths	36(5.4%)
10) Patients discharged	318(48%)
11) Isolation	83%



# Univariate analysis



Variable	Patients Discharged(n=318)	Patients Admitted(n=347)	P value
Age(Median)	62	68	0.073
Asthma	41(13)	41(12)	0.673
COPD	24(7)	65(19)	< 0.001
Bronchiectasis	9(3)	18(5)	0.124
Pneumonia	7(2)	60(17.2)	<0.001
Haematological SCT	9(3)	18(5)	0.124
Immunosuppression	16(5)	38(11)	0.005
RIT TAT ( $\leq$ 2hrs)	89(28)	62(18)	0.002
RIT TAT ( $\leq$ 6 hrs)	175(55)	161(46)	0.026
RIT TAT ( $\leq$ 12 hrs)	224(71)	226(65)	0.144

# Multivariate analysis



Variable	OR	95% CI	P value
COPD	2.42	1.44-4.06	0.001
Immunosuppression	2.25	1.20-4.24	0.011
Pneumonia	8.10	3.59-18.08	<0.001
RIT TAT $\leq$ 2	1.62	1.10-2.37	0.013



# Reflections

- Patients with COPD, pneumonia and those who are immunosuppressed as more likely to get admitted when presenting with ILI
- RIT with TAT of less than 2 hours facilitated discharges from the hospital
- These tests aid the clinicians to make prompt decision in otherwise stable patients to be discharged from ED
- Downstream benefits-nil requirement of isolation rooms, admission to hospital, use of antimicrobial therapy(AMS), no concerns of horizontal spread in hospital staff and other vulnerable patients

# Conclusions- System based improvement



- Plan to add the results to 'Census task list' which are electronically communicated to the hospital wards and ED
- Business case to introduce and start testing(Xpert Flu) in Category B laboratory(additional taxi costs in 2017 – 17000 AUD)
- Streamline process for test ordering and Influenza Mx algorithms in our hospitals

# Thank you

- Questions?

