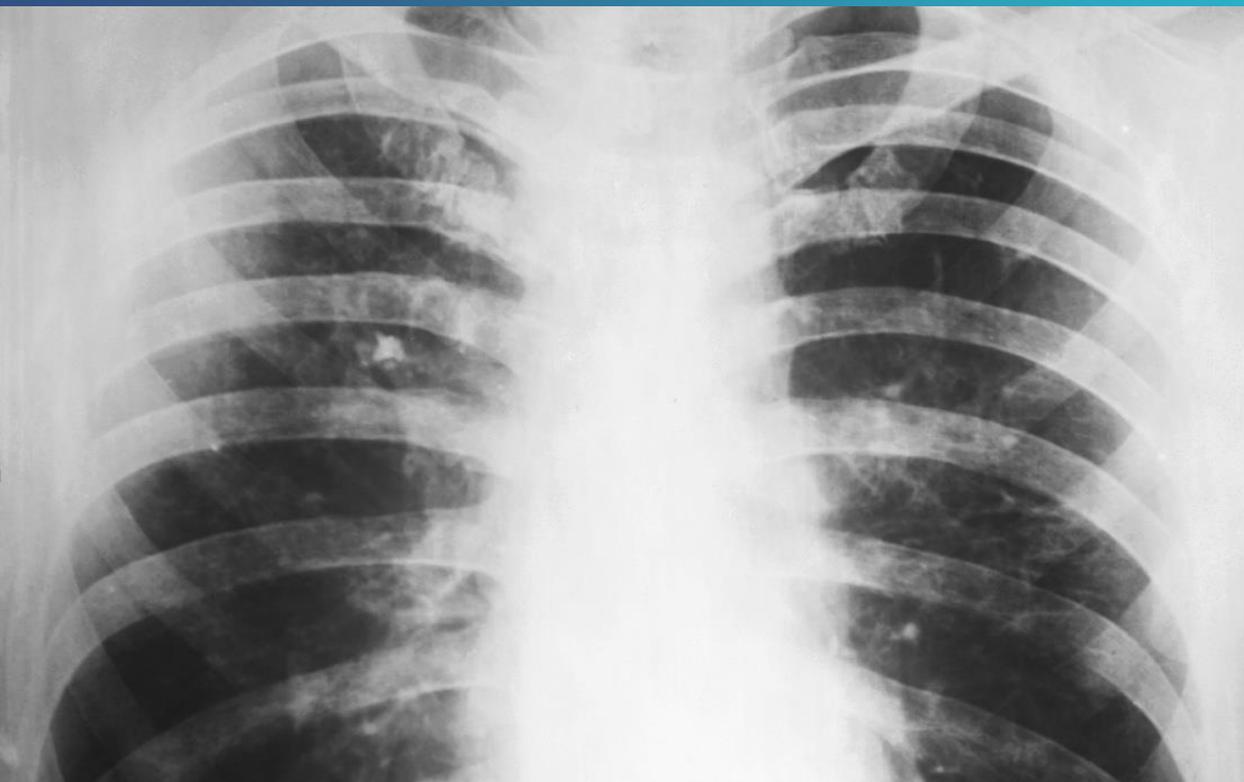




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Critical Care Surveillance: Ventilator Associated Pneumonia

Annual report:

Hywel Dda University
Health Board

2018

Version 1

Issued: 15/05/2019

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Data considerations

Data is captured at unit level in Ward Watcher across Wales. Once a month data is extracted and emailed to Public Health Wales. The information found in this report may differ slightly from that found in the quarter 4 report issued 31/1/19. This may be due to additional data being received for the annual report subsequently. For this reason the annual report should be referenced when mentioning annual VAP data.

This report relates to data provided from Bronglais, Glangwili, Prince Philip and Withybush hospitals.

Ventilator-Associated Pneumonia (VAP) definitions

The below details are a summary guide only, and should not be used to determine infection status. For a more detailed breakdown of the criteria, please see the HELICS definitions for ICU-acquired pneumonia.

To be classified as a ventilator-associated pneumonia, an invasive respiratory device must have been present (even intermittently) in the 48 hours preceding the onset of infection; there must be two or more serial chest X-rays (CXR) or CT scans with a suggestive image of pneumonia (only one definitive CXR or CT scan is sufficient if there is no underlying cardiac or pulmonary disease). Additionally, there will be a combination of symptoms which include fever, leucopenia, leucocytosis, purulent sputum (or a change in sputum), cough, dyspnoea, tachypnoea, suggestive auscultation, ronchi, wheezing, and/or worsening gas exchange.

In addition to the clinical criteria, the following criteria determine which category the infection falls under:

PN1 – Protected sample + quantitative culture (10^4 CFU/ml BAL/ 10^3 PB, DPA).

PN2 – Non-protected sample (ETA) + quantitative culture (10^6 CFU/ml).

PN3 – Alternative microbiological criteria.

PN4 – Sputum bacteriology or non-quantitative ETA.

PN5 – No microbiological criterion met (only clinical criteria).

PNX – Meets all requirements for PN1-4, but no CXR or CT scans have been done. Does not meet ECDC HELICS definition (but will be included for a Welsh VAP rate).

Hywel Dda UHB: Compliance

This section shows compliance by year for Hywel Dda UHB. We would expect to receive one export per month (12 per year per hospital). During 2014 the methods of data capture changed which may account for the decreased compliance during those years. However no data was received for Hywel Dda UHB for 2018, and compliance has been very low since the introduction of Ward Watcher, meaning any data should be interpreted with caution due to incompleteness.

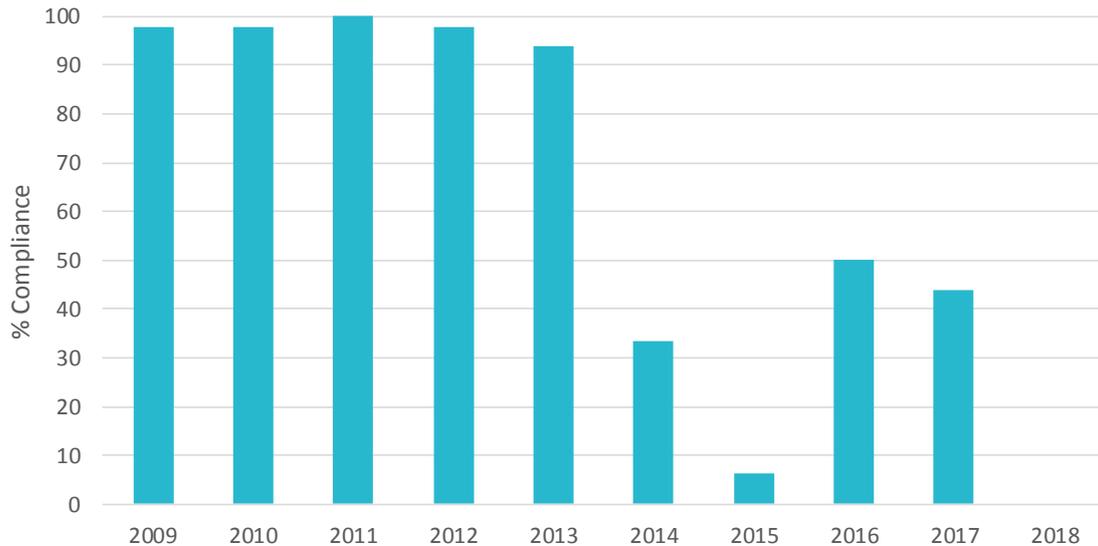


Figure 1: Compliance trend for Hywel Dda UHB (2009-2018)

Hywel Dda UHB: Annual VAP rates (HELICS definition)

The European Centre for Disease Prevention and Control (ECDC) classifies VAPs according to the HELICS criteria.¹ This section of the report details VAPs according to the HELICS criteria (PN1-PN5).

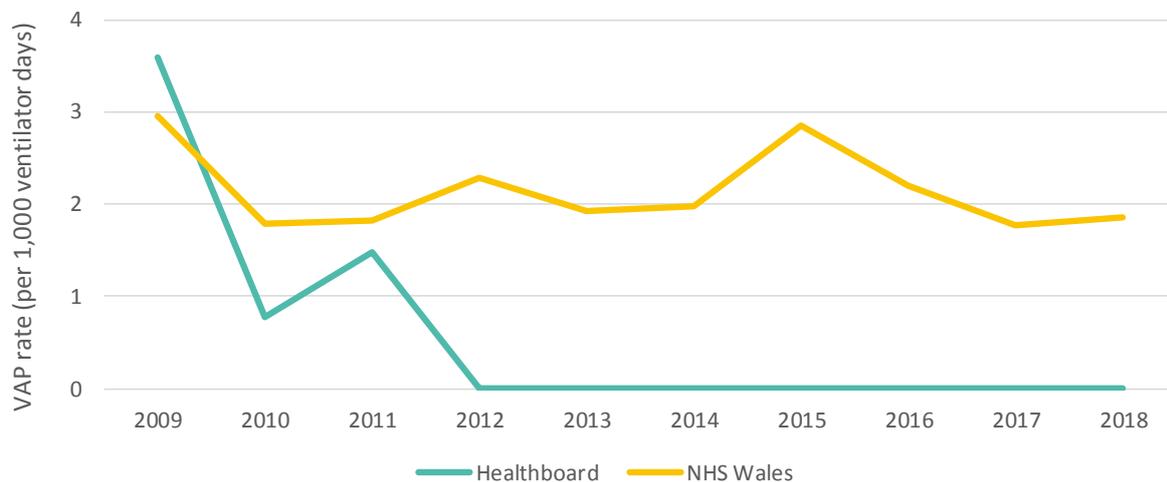


Figure 2: Hywel Dda UHB HELICS VAP trend rate compared with all Wales (2009-2018)

	Healthboard			NHS Wales		
	Ventilator days	VAP*	VAP rate (per 1,000 ventilator days)	Ventilator days	VAP*	VAP rate (per 1,000 ventilator days)
2009-2018	16,560	14	0.85	192,016	403	2.10
Year						
2018	-	-	-	22,530	42	1.86
2017	1,934	0	0.00	24,209	43	1.78
2016	1,931	0	0.00	23,625	52	2.20
2015	198	0	0.00	10,496	30	2.86
2014	615	0	0.00	12,648	25	1.98
2013	2,286	0	0.00	22,264	43	1.93
2012	2,080	0	0.00	21,849	50	2.29
2011	2,695	4	1.48	18,705	34	1.82
2010	2,593	2	0.77	18,380	33	1.80
2009	2,228	8	3.59	17,310	51	2.95

There was no data reported for Hywel Dda UHB in 2018, and there have been no infections reported since 2011. This is likely due to poor compliance in overall reporting to Public Health Wales.

*Excluding infections recorded as PNx (PNO) on WardWatcher.

	4.20
	3.15
2009-2018 Welsh average	2.10
	1.05
	0.00

Hywel Dda UHB: Welsh VAP rates (including PNx)

In 2016 a new PN code was added to capture infections meeting all requirements for PN1-4, but where no CXR or CT scans have been done. This was following reported incidence of VAPs in Wales being lower than other European regions and a study which was conducted by Public Health Wales.²

This section details all VAPs recorded including PNx and compares the rates with and without the additional code.

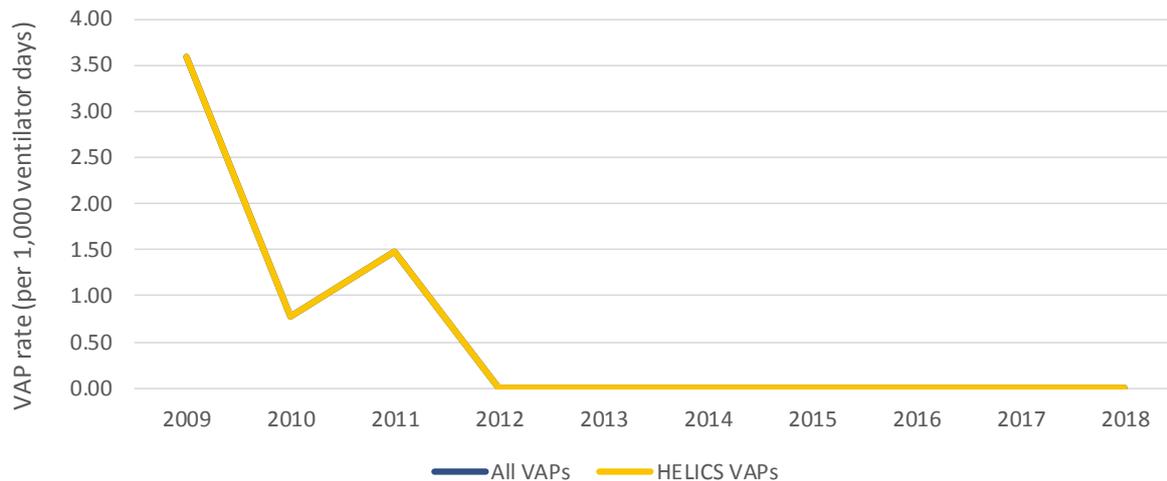


Figure 3: Hywel Dda UHB VAP rate trend compared with HELICS VAP rate (2009-2018)

Year	All VAPs			HELICS VAPs	
	Ventilator days	VAP*	VAP rate (per 1,000 ventilator days)	VAP**	VAP rate (per 1,000 ventilator days)
2009-2018	16560	14	0.85	14	0.85
2018	-	-	-	-	-
2017	1,934	0	0.00	0	0.00
2016	1,931	0	0.00	0	0.00
2015	198	0	0.00	0	0.00
2014	615	0	0.00	0	0.00
2013	2,286	0	0.00	0	0.00
2012	2,080	0	0.00	0	0.00
2011	2,695	4	1.48	4	1.48
2010	2,593	2	0.77	2	0.77
2009	2,228	8	3.59	8	3.59

There was no data reported for Hywel Dda UHB in 2018, and there have been no infections reported since 2011. This is likely due to poor compliance in overall reporting to Public Health Wales.

*Including infections recorded as PNx (PNO) on WardWatcher.

**Excluding infections recorded as PNx (PNO) on WardWatcher.



Hywel Dda UHB: VAP types

The following figure shows the number of VAPs broken down the by type of VAP recorded by the surveillance. The VAP types include those as noted by HELICS (PN1-PN5), and includes the Welsh PNx type from 2016 onwards.

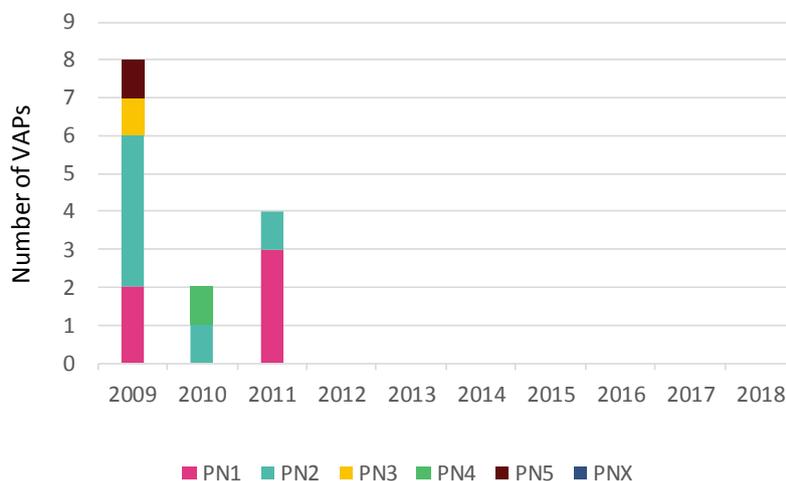


Figure 4: VAPs recorded by type for Hywel Dda UHB (2009-2018)

Table 1: VAP types for Hywel Dda UHB (2018)

	2018	
	Healthboard	NHS Wales
PN1	0	26
PN2	0	0
PN3	0	0
PN4	0	13
PN5	0	3
Total (HELICS)	0	42
PNX	0	24
Total (inc. PNX)	0	66

During 2018, the most common VAP type reported across Wales was PN1 followed by PNX. There were no VAPs reported in Hywel Dda UHB.

Hywel Dda UHB: Associated organisms

Infections categorised as PN1, PN2, PN3, or PN4 have microbiology data provided. Up to 3 organisms can be captured per infection.

Where only 1 organism is recorded we can deduce that this was the causative organism.

In 2018 there were 0 infections reported for Hywel Dda UHB and thus there is no microbiology data.

References

- 1) <https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/healthcare-associated-infections-HAI-ICU-protocol.pdf>
- 2) <https://www.frontiersin.org/articles/10.3389/fmicb.2016.01271/full>