

Public Health Wales Briefing:

All-cause mortality in nosocomial COVID-19 cases in Wales

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### Model

A logistic regression model was developed to adjust for potential confounding in the comparison between acquisition categories. Each acquisition category was compared to the reference group of the non-hospital onset cases. Age group, sex, wave and vaccination status were included in the model; co-morbidities and COVID-19 related symptom status were not available for inclusion.

### Results

- Overall, one quarter of patients with probable or definite nosocomial COVID-19 died within 28 days of their positive test (Table 1). Note that the cause of death may not have been COVID-19.
- The 28-day ACM in patients with nosocomial COVID-19 reduced with each subsequent wave of the pandemic (Table 1). In the first wave more than one third of patients died within 28 days of their positive test, compared to 13% in Wave 4 (Omicron).
- The 28-day ACM ranged from 24% to 28% in the major health boards, with all showing a downward trend across waves.

**Table 1. 28-day ACM in probable and definite nosocomial COVID-19 cases in Wales by wave and by health board**

	Wave 1		Wave 2		Wave 3		Wave 4		Total	
	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n
Wales	622 (34%)	1856	1428 (27%)	5236	245 (17%)	1476	113 (13%)	886	2408 (25%)	9,454
Aneurin Bevan UHB	97 (40%)	244	255 (29%)	879	35 (18%)	192	6 (7%)	91	393 (28%)	1406
Betsi Cadwaladr UHB	199 (32%)	630	179 (25%)	705	41 (15%)	281	38 (14%)	264	457 (24%)	1880
Cardiff and Vale UHB	95 (31%)	303	210 (27%)	777	29 (18%)	166	12 (13%)	93	346 (26%)	1339
Cwm Taf Morgannwg UHB	115 (33%)	354	317 (28%)	1115	59 (18%)	327	16 (11%)	141	507 (26%)	1937
Hywel Dda UHB	25 (29%)	87	207 (29%)	694	50 (19%)	270	19 (13%)	148	301 (25%)	1199
Swansea Bay UHB	86 (40%)	214	243 (25%)	985	28 (16%)	180	21 (15%)	136	378 (25%)	1515

- The 28-day ACM was higher in nosocomial cases (25% probable and definite combined) than in cases who were identified on admission to hospital (22% non-hospital onset). (Table 2)

**Table 2. 28-day ACM in COVID-19 cases in Wales by wave and by likely source of acquisition**

Acquisition	Wave 1		Wave 2		Wave 3		Wave 4		Total	
	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n	Deaths n (%)	Cases n
Non-hospital onset	507 (30%)	1,669	873 (25%)	3,569	378 (15%)	2,494	80 (12%)	682	1838 (22%)	8,414
Indeterminate hospital onset	168 (32%)	525	400 (29%)	1,366	85 (18%)	471	28 (13%)	215	681 (26%)	2,577
Probable hospital onset	249 (39%)	641	540 (30%)	1,810	70 (21%)	342	20 (10%)	202	879 (29%)	2,995
Definite hospital onset	373 (31%)	1,215	888 (26%)	3,426	175 (15%)	1,134	93 (14%)	684	1529 (24%)	6,459
Total	1297 (32%)	4,050	2701 (27%)	10,171	708 (16%)	4,441	221 (12%)	1,783	4927 (24%)	20,445