
Infectious disease episodes in Queensland hospitals: key contributors to the increase

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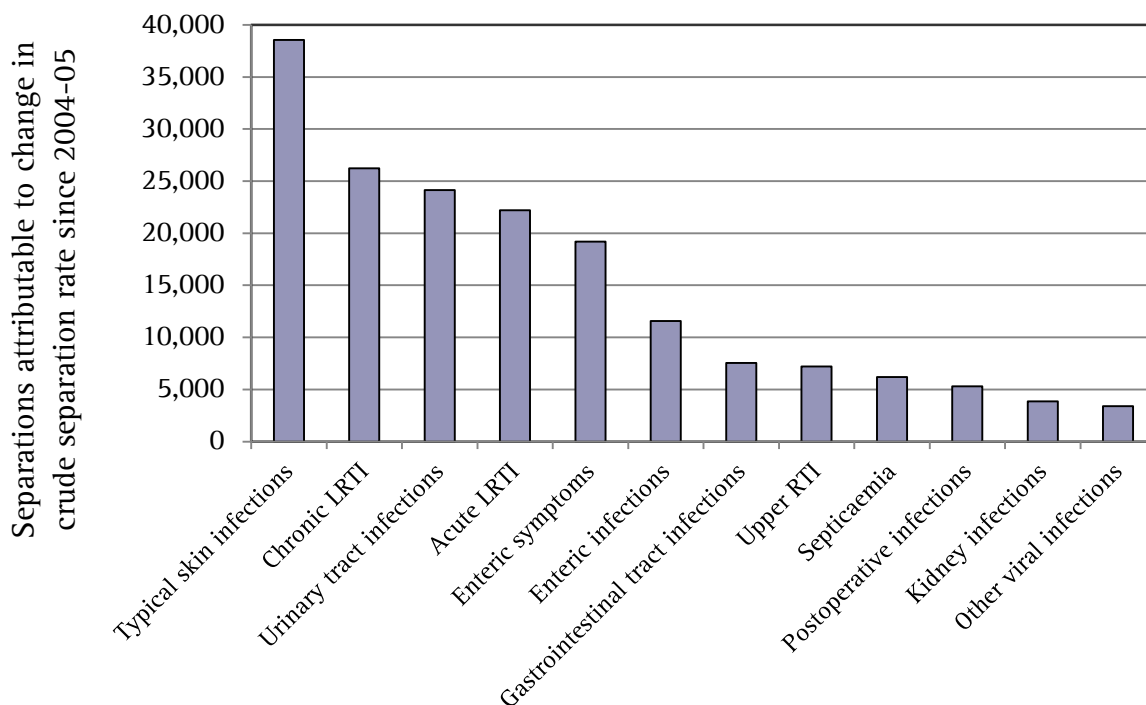
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Admissions for infectious diseases have increased in Queensland hospitals in recent years.^{1,2,3} Infectious disease trends can differ by types of disease. Baker et al.⁴ analysed rates of 37 broad categories of infectious diseases in New Zealand public hospitals. While admission rates for some infectious disease categories quadrupled between 1989-93 (e.g. septicaemia, sexually transmitted infections) and 2004-08, others fell by as much as 90% (e.g. HIV/AIDS).

This current analysis investigates the contribution of categories of infectious diseases to the increase in infectious disease rates in Queensland. It includes acute care separations from Queensland public and private hospitals with a principal diagnosis of an infectious disease between 2004-05 and 2014-15. Infectious diseases were categorised into the 37 broad categories proposed by Baker et al.⁴

Of these 37 categories, 27 had excess separations between 2005-06 and 2014-15; that is, they had more separations than would have occurred if the crude rate had remained the same as in 2004-05. These 27 categories had a cumulative 188,516 excess separations, of which 93.0% could be attributed to the top 12 categories (Figure 1) and 58.9% to the top four. See Appendix 1 for further details.

Figure 1. Excess separations for infectious disease by selected infectious disease broad categories, Queensland, 2004-05 to 2014-15



Source: Queensland Hospital Admitted Patient Data Collection.

Includes only episodes with an episode type of 'acute', 'newborn' (where the newborn has spent at least one day in acute care) or 'other care'. Episodes were excluded if the patient was not a Queensland resident or if the record was a transfer from another hospital.

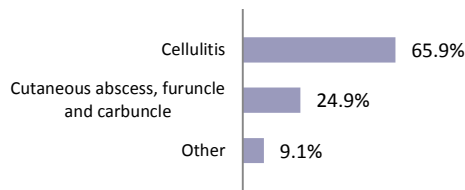
Queensland asked the Commonwealth Department of Health to remove 47 facilities (Primary Health Care Centres and Outpatient Clinics) from the declared hospital list, taking effect at 1 July 2014. For consistency of trends, records from these facilities have been removed from all years.

Which conditions are most responsible for excess separations?

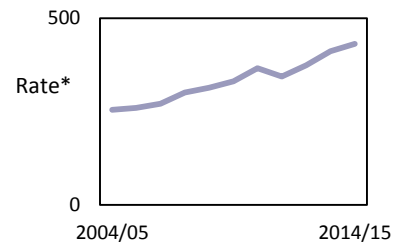
Typical skin infections

20%

of excess separations



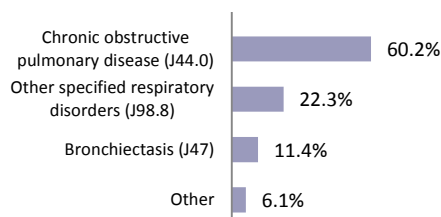
5.5% increase per year



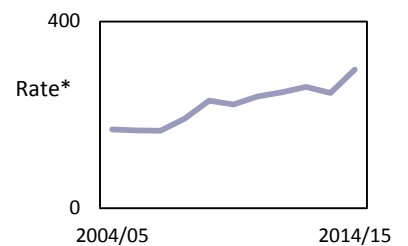
Chronic lower respiratory tract infections (LRTI)

14%

of excess separations



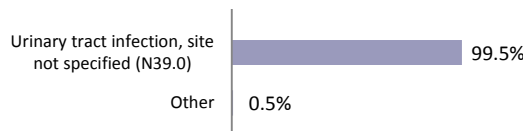
5.8% increase per year



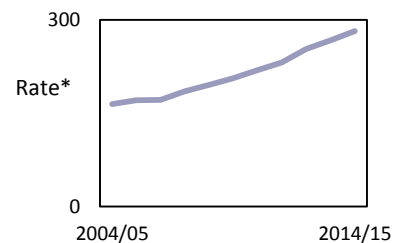
Urinary tract infections

13%

of excess separations



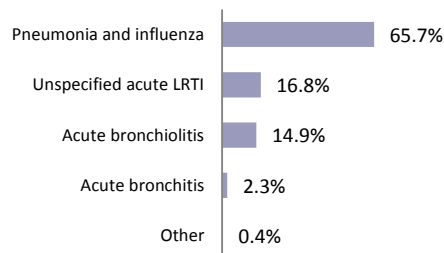
5.9% increase per year



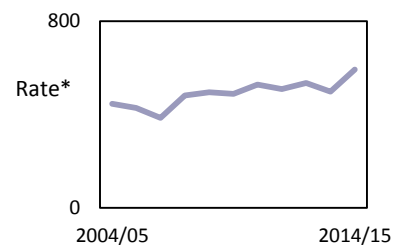
Acute lower respiratory tract infections (LRTI)

12%

of excess separations



2.9% increase per year



Source: Queensland Hospital Admitted Patient Data Collection.

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Subcategories in bar graphs represent the proportion of all separations (not excess separations) for each infectious disease category in 2014-15.

* Rate per 100,000 population. Separation rates are crude rates only, not age standardised.

Conclusion

While infectious diseases admission rates increased between 2004–05 and 2014–15, patterns differed by disease. More than half of the increase in infectious disease rates occurred in four categories: typical skin infections, chronic lower respiratory tract infections, urinary tract infections and lower respiratory tract infections.

Infectious disease categories that had the greatest contribution to increasing hospitalisation rates are possible targets for prevention. However, increases in hospital admission rates can reflect different trends – increased prevalence or severity of a disease, better diagnosis, lower mortality or different treatment practices.

Appendix 1. Crude rate, excess separations and annual percent change (APC) for infectious disease by infectious disease broad categories, Queensland, 2004–05 to 2014–15

Infectious disease category	Crude rate, 2014-15	Excess separations, 2005-06 to 2014-15	APC, 2004-05 to 2014-15
Typical skin infections	431.2	38,543	*5.5 (5.3, 5.7)
Chronic LRTI	296.6	26,227	*5.8 (5.5, 6.0)
Urinary tract infections	281.8	24,149	*5.9 (5.6, 6.2)
Acute LRTI	592.4	22,200	*2.9 (2.7, 3.1)
Enteric symptoms	458.5	19,177	*2.1 (1.9, 2.3)
Enteric infections	160.6	11,587	*4.1 (3.7, 4.4)
Gastrointestinal tract infections	359.6	7,540	*2.1 (1.9, 2.3)
Upper RTI	274.7	7,216	*1.7 (1.5, 2.0)
Septicaemia	84.7	6,183	*5.4 (4.9, 5.9)
Postoperative infections	161.5	5,302	*1.5 (1.2, 1.8)
Kidney infections	26.1	3,864	*5.8 (5.0, 6.7)
Other viral infections	140.1	3,392	*3.1 (2.7, 3.5)
CNS general infections	22.5	2,281	*7.0 (5.9, 8.1)
Other bacterial infections	21.4	1,958	*2.2 (1.4, 3.0)
Connective tissue infections	10.1	1,647	*8.8 (7.3, 10.4)
CNS viral infections	8.5	1,364	*4.0 (2.7, 5.3)
Reproductive system infections male	35.7	1,095	*3.4 (2.6, 4.1)
Breast infections	14.2	870	*4.6 (3.4, 5.8)
Joint infections	17.1	797	*2.9 (2.0, 3.9)
Other infectious diseases	7.1	784	*3.8 (2.2, 5.5)
Hepatic infections	10.0	748	*4.0 (2.7, 5.4)
Neoplasms from infection	79.5	368	*-0.5 (-0.9, -0.1)
Other mycoses	15.4	141	*-1.1 (-2.0, -0.2)
Tuberculosis	2.2	105	1.7 (-0.7, 4.1)
Other Protozoan infections	1.3	48	*-6.0 (-8.4, -3.6)
Eye infections	11.6	-51	*2.0 (0.7, 3.2)
Meningococcal disease	0.8	-58	*-7.3 (-10.1, -4.4)
Heart and circulatory infections	24.7	-173	0.2 (-0.6, 1.0)
Osteomyelitis	4.5	-189	*2.2 (0.2, 4.3)
Other skin infections	22.0	-418	0.1 (-0.7, 0.9)
Adverse effect of treatment	4.7	-581	*-3.7 (-5.3, -2.0)
Viral hepatitis	7.6	-2,030	*-5.3 (-6.4, -4.1)
Oral infections	144.5	-6,681	*-1.5 (-1.8, -1.2)
Ear infections	135.0	-7,386	*-1.8 (-2.1, -1.5)
Reproductive system infections female	77.8	-22,840	*-6.6 (-6.9, -6.2)
HIV/AIDS	3.2	**	**
Sexually transmitted infections	9.7	**	**

Source: Queensland Hospital Admitted Patient Data Collection.

Includes only episodes with an episode type of 'acute', 'newborn' (where the newborn has spent at least one day in acute care) or 'other care'. Episodes were excluded if the patient was not a Queensland resident or if the record was a transfer from another hospital.

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Rate per 100,000 population. Separation rates are crude rates only, not age standardised.

Trends that are significant at a .05 confidence level are shown with an asterisk(*) and bold font.

** Data suppressed due to changes in coding standards or practices during the trend period.

Appendix 2. Crude rate and annual percent change (APC) for selected infectious disease subcategories, Queensland, 2004–05 to 2014–15

Infectious disease category and subcategory	Crude rate, 2014-15	APC, 2004-05 to 2014-15
Acute lower RTI		
Pneumonia and influenza	388.9	*3.6 (3.4, 3.8)
Unspecified acute LRTI	99.2	*0.5 (0.1, 0.9)
Acute bronchiolitis	88.1	*3.7 (3.3, 4.2)
Acute bronchitis	13.8	-0.3 (-1.3, 0.7)
Other	2.3	*6.0 (3.2, 8.9)
Chronic LRTI		
Chronic obstructive pulmonary disease (J44.0)	178.6	*4.1 (3.8, 4.4)
Other specified respiratory disorders (J98.8)	66.3	*26.5 (25.4, 27.6)
Bronchiectasis (J47)	33.8	*4.3 (3.5, 5.0)
Other	18.0	-0.5 (-1.4, 0.4)
Typical skin infections		
Cellulitis	284.3	*5.7 (5.5, 6.0)
Cutaneous abscess, furuncle and carbuncle	107.5	*5.8 (5.4, 6.3)
Other	39.4	*2.9 (2.3, 3.6)
Urinary tract infections		
Urinary tract infection, site not specified (N39.0)	280.3	*6.0 (5.7, 6.3)
Other	1.4	*-5.8 (-8.7, -2.7)

Source: Queensland Hospital Admitted Patient Data Collection.

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