A Multicentre Retrospective Cohort Study on Covid-19-related Physical Interventions and Adult Hospital Admissions for ENT Infections

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Abstract

Objectives: To report changes in adult hospital admission rates for acute ENT infections following the introduction of Covid-19-related physical interventions such as hand washing, use of face mask and social distancing of 2-metres in the United Kingdom. Design: Retrospective cohort study comparing a one-year period after the introduction of Covid-related physical interventions (2020-21) with a one-year period before this (2019-20). Settings: 3 UK secondary care ENT departments Participants: Adult patients admitted with acute tonsillitis, peritonsillar abscess, epiglottitis, glandular fever, peri-orbital cellulitis, acute otitis media, acute mastoiditis, retropharyngeal abscess and parapharyngeal abscess. Main outcome measures: Number of adult hospital admissions Results: In total there were significantly fewer admissions for ENT infections (n=1073, 57.56%, p<0.001; RR 2.36, 95% CI [2.17, 2.56]) in the 2020-2021 period than in the 2019-2020 period. There were significant reductions in admissions for tonsillitis (64.4%; p<0.001), peritonsillar abscess (60.68%; p<0.001), epiglottitis (66.67%; p<0.001), glandular fever (38.79%; p=0.001), acute otitis media (26.85%; p=0.01) and retropharyngeal and/or parapharyngeal abscesses (45.45%; p=0.04) Conclusion: Our study demonstrates a sizeable reduction in adult admissions for ENT infections since the introduction of Covid-19-related physical interventions. There is evidence to support the use of physical interventions in the prevention of viral transmission of respiratory disease. Preventing ENT infections requiring admission through simple physical interventions could be of great benefit to the quality of life of patients and economical benefit to healthcare systems.

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NHS Code(s)	ENT Infections
J030, J038, J039	Acute tonsillitis
J36X	Peritonsillar abscess
J051	Epiglottitis
B279	Glandular fever
H050	Peri-orbital cellulitis
H669	Acute otitis media
H700	Acute mastoiditis
J390	Retropharyngeal abscess/parapharyngeal abscess

Table 1: NHS Codes for conditions of interest.

	DRI		QMC		RHH		Total	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
Admission	550	235	265	157	1049	399	1864	791
Average age (years)	33	36	30.49	31.75	32.42	36.18	32	35
Age range (years)	17-97	17-96	17-78	17-81	16-94	16-99	16-97	17-99

Table 2: Number of adult admissions and ages across each centre for each time period

ENT Infections	DRI		QMC		RHH		Total		Relative Risk (95% CI for RR)	*p*-value
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21		
Tonsillitis	300	111	118	65	554	170	972	346	2.81 (2.49, 3.18)	<0.001
Peritonsillar abscess	136	58	110	53	255	86	501	197	2.54 (2.16, 3.0)	<0.001
Epiglottitis	11	2	3	5	25	6	39	13	3.0 (1.60, 5.62)	<0.001
Glandular fever	39	19	18	19	59	33	116	71	1.63 (1.22, 2.20)	0.001
Periorbital cellulitis	13	13	0	1	34	17	47	31	1.52 (0.96, 2.39)	0.07
Acute otitis media	41	27	4	4	104	78	149	109	1.37 (1.07, 1.75)	0.01
Acute mastoiditis	4	1	1	4	2	1	7	6	1.17 (0.39, 3.47)	0.78
Retropharyngeal and/or parapharyngeal abscess	6	4	11	6	16	8	33	18	1.8 (1.03, 3.26)	0.04
Total	550	235	265	157	1049	399	1864	791	2.36 (2.17, 2.56)	<0.001

Table 3: ENT infections in adults requiring admissions across for each centre and time period.

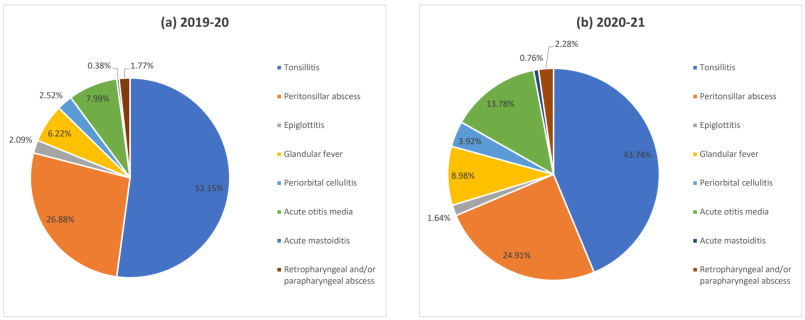

Figure 1. The proportion of adult admissions by infection in (a) 2019-20 and (b) 2020-21

Change in Admissions	DRI		QMC		RHH		Total	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Tonsillitis	-189	-63.00%	-53	-44.92%	-384	-69.31%	-626	-64.40%
Peritonsillar abscess	-78	-57.35%	-57	-51.82%	-169	-66.27%	-304	-60.68%
Epiglottitis	-9	-81.82%	2	66.67%	-19	-76.00%	-26	-66.67%
Glandular fever	-20	-51.28%	1	5.56%	-26	-44.07%	-45	-38.79%
Periorbital cellulitis	0	0.00%	1	N/A	-17	-50.00%	-16	-34.04%
Acute otitis media	-14	-34.15%	0	0.00%	-26	-25.00%	-40	-26.85%
Acute mastoiditis	-3	-75.00%	3	300.00%	-1	-50.00%	-1	-14.29%
Retropharyngeal and/or parapharyngeal abscess	-2	-33.33%	-5	-45.45%	-8	-50.00%	-15	-45.45%
Total	-315	-57.27%	-108	-40.75%	-650	-61.96%	-1073	-57.56%

Table 4. Change in admissions for ENT conditions in 2020-21 period compared with 2019-20 period.

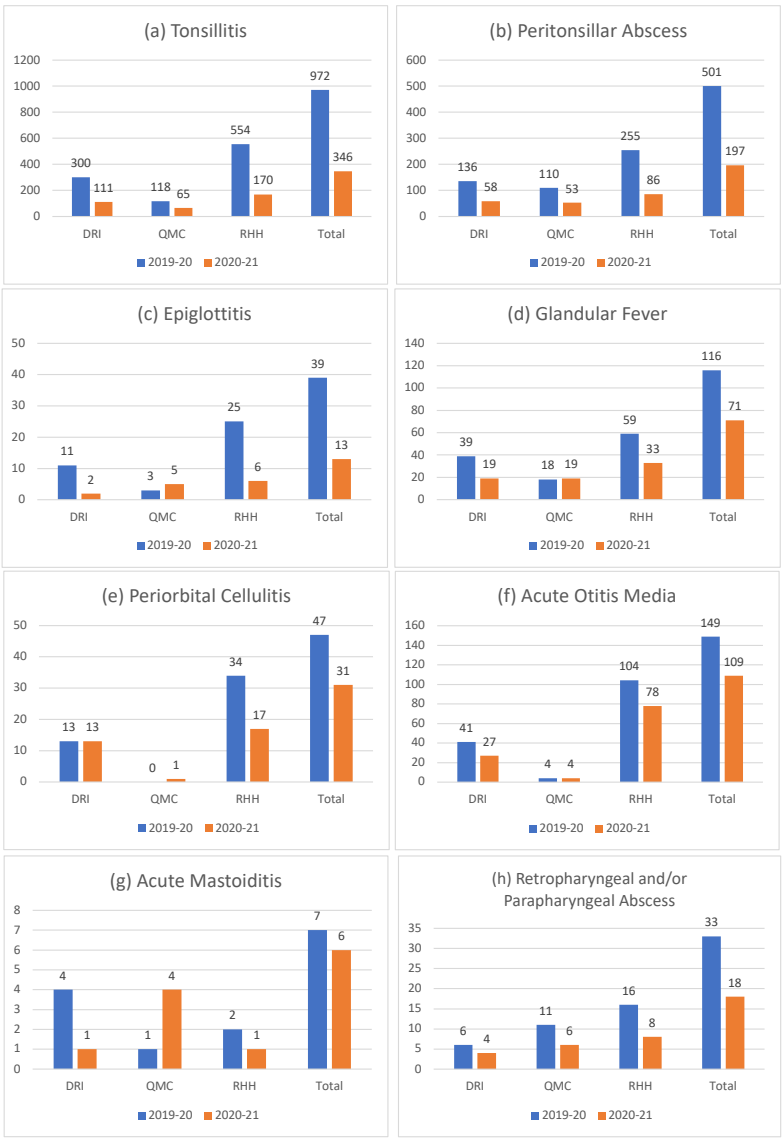

Figure 2: Admissions by centre and in total for (a) tonsillitis, (b) peritonsillar abscess, (c) epiglottitis, (d) glandular fever, (e) peri-orbital cellulitis, (f) acute otitis media, (g) acute mastoiditis and (h) retropharyngeal abscess and/or parapharyngeal abscess