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Increasing risk of breakthrough COVID-19 in outbreaks with high attack rates in European long-term care facilities, July–October 2021

Supplement

Table S1. Description of reported outbreaks of COVID-19 in European long-term care facilities (n=240 LTCFs) in 10 EU/EEA countries

	N of LTCFs	%
LTCF type		
General nursing home	160	66.7
Residential home	39	16.3
Mixed LTCF	36	15.0
LTCF for mentally disabled	4	1.7
Other	1	0.4
LTCF size (no of residents)		
<40 residents	71	29.6
40-79 residents	81	33.8
>=80 residents	88	36.7
Index case		
Resident, fully vaccinated	125	52.1
Resident, partially vaccinated	0	0.0
Resident, unvaccinated	9	3.8
LTCF staff member, fully vaccinated	63	26.3
LTCF staff member, partially vaccinated	6	2.5
LTCF staff member, unvaccinated	16	6.7
Other	4	1.7
Unknown	17	7.1
Testing strategy residents		
All residents in LTCF	146	60.8
All residents in affected ward	35	14.6
Symptomatic residents only	9	3.8
Other strategy	15	6.3
Unknown	35	14.6
Testing strategy staff members		
All staff in LTCF	117	48.8
All staff in affected ward	37	15.4
Symptomatic staff only	6	2.5
Other strategy	24	10.0
Unknown	56	23.3
End month vaccination residents		
January 2021	68	28.3
February 2021	106	44.2
March 2021	30	12.5
April 2021	5	2.1
May 2021	1	0.4
>=June 2021	15	6.3
Unknown	15	6.3
End month vaccination staff		

January 2021	63	25.6
February 2021	83	33.7
March 2021	17	6.9
April 2021	2	0.8
May 2021	8	3.3
>=June 2021	14	5.7
Unknown	59	24.0

Table S2. Start month of outbreak and identified SARS-Cov-2 variants of concern (VOCs) reported outbreaks of COVID-19 in European long-term care facilities (n=240) in 10 EU/EEA countries

Month start outbreak	N of LTCFs	%	SARS-Cov-2 VOC			
			B.1.1.7 (Alpha)	B.1.617.2 (Delta)	P.1 (Gamma)	VOC not identified
July 2021	41	17.1	0	20	1	20
August 2021	146	60.8	1	50	0	95
September 2021	51	21.3	0	20	0	31
October 2021	1	0.4	0	1	0	0
Unknown	1	0.4	0	1	0	0

Table S3. Number and percentage of COVID-19 infections in LTCF residents and LTCF staff by vaccination status and outbreak attack rate category in residents

Attack rate category (residents) / vaccination status	Residents			Staff members		
	n/N	% cases	(95% CI)	n/N	% cases	(95% CI)
Quartile 1, AR <7.5%, not stratified	191/6,443	3.0	(2.6-3.4)	70/4,313	1.6	(1.3-2.0)
Fully vaccinated	182/6,291	2.9	(2.5-3.3)	56/3,974	1.4	(1.1-1.8)
Partially vaccinated	0/43	0.0	(0.0-8.2)	2/75	2.7	(0.3-9.3)
Unvaccinated	9/109	8.3	(3.8-15.1)	12/264	4.5	(2.4-7.8)
Quartile 2, 7.5≤AR<20%, not stratified	485/3,953	12.3	(11.3-13.3)	105/2,135	4.9	(4.0-5.9)
Fully vaccinated	452/3,797	11.9	(10.9-13.0)	77/1,935	4.0	(3.2-4.9)
Partially vaccinated	3/12	25.0	(5.5-57.2)	5/29	17.2	(5.8-35.8)
Unvaccinated	30/144	20.8	(14.5-28.4)	23/171	13.5	(8.7-19.5)
Quartile 3, 20≤AR<45%, not stratified	1,140/3,619	31.5	(30.0-33.0)	169/2,023	8.4	(7.2-9.6)
Fully vaccinated	1,097/3,513	31.2	(29.7-32.8)	158/1,915	8.3	(7.1-9.6)
Partially vaccinated	7/13	53.8	(25.1-80.8)	3/14	21.4	(4.7-50.8)
Unvaccinated	36/93	38.7	(28.8-49.4)	8/94	8.5	(3.7-16.1)
Quartile 4, AR ≥45%, not stratified	1,829/2,534	72.2	(70.4-73.9)	331/1,568	21.1	(19.1-23.2)
Fully vaccinated	1,773/2,439	72.7	(70.9-74.5)	314/1,466	21.4	(19.3-23.6)
Partially vaccinated	2/4	50.0	(6.8-93.2)	4/12	33.3	(9.9-65.1)
Unvaccinated	54/91	59.3	(48.5-69.5)	13/90	14.4	(7.9-23.4)

n=number of infections, N=denominator (number of residents or staff in category); 95% CI=95% confidence interval; AR=attack rate in residents

Table S4. Number and percentage of COVID-19-related hospitalisations and deaths in LTCF residents by vaccination status and outbreak attack rate category in residents

Attack rate category (residents) / vaccination status	Hospitalisation			Death		
	n/N	%	(95% CI)	n/N	%	(95% CI)
Quartile 1, AR <7.5%, not stratified	50/6443	0.8	(0.6-1)	19/6443	0.3	(0.2-0.5)
Fully vaccinated	47/6291	0.7	(0.5-1)	18/6291	0.3	(0.2-0.5)
Partially vaccinated	0/43	0.0	(0-8.2)	0/43	0.0	(0-8.2)
Unvaccinated	3/109	2.8	(0.6-7.8)	1/109	0.9	(0-5)
Quartile 2, 7.5≤AR<20%, not stratified	84/3953	2.1	(1.7-2.6)	40/3953	1.0	(0.7-1.4)
Fully vaccinated	79/3797	2.1	(1.7-2.6)	36/3797	0.9	(0.7-1.3)
Partially vaccinated	1/12	8.3	(0.2-38.5)	1/12	8.3	(0.2-38.5)
Unvaccinated	4/144	2.8	(0.8-7)	3/144	2.1	(0.4-6)
Quartile 3, 20≤AR<45%, not stratified	202/3619	5.6	(4.9-6.4)	113/3619	3.1	(2.6-3.7)
Fully vaccinated	192/3513	5.5	(4.7-6.3)	108/3513	3.1	(2.5-3.7)
Partially vaccinated	1/13	7.7	(0.2-36)	0/13	0.0	(0-24.7)
Unvaccinated	9/93	9.7	(4.5-17.6)	5/93	5.4	(1.8-12.1)
Quartile 4, AR ≥45%, not stratified	286/2534	11.3	(10.1-12.6)	183/2534	7.2	(6.2-8.3)
Fully vaccinated	282/2439	11.6	(10.3-12.9)	170/2439	7.0	(6-8.1)
Partially vaccinated	0/4	0.0	(0-60.2)	0/4	0.0	(0-60.2)
Unvaccinated	4/91	4.4	(1.2-10.9)	13/91	14.3	(7.8-23.2)

n=number of COVID-19-related hospitalisations and deaths, respectively, N=denominator (number of residents in category); 95% CI=95% confidence interval; AR=attack rate in residents