

ERRATUM TO DOHERTY MODELLING TECHNICAL REPORT AND ADDENDUM

10TH AUGUST 2021

Update and further information on synthetic population size

The synthetic population used in the dynamic transmission model consists of a fixed number of households that represent the Australian population. The sizes of these households are chosen according to a distribution aligned with the average household size in Australia, and so the total simulation population changes slightly between simulations (the total changes by less than 0.05% from the average of 24,960,000). The difference in total population size from the census population estimate provided by Quantum does not materially impact epidemic dynamics and subsequent clinical outcomes.

Corrections to clinical outcomes tables

Technical report

We identified an error in the code that summed clinical outcomes for reporting in Tables 5.4–5.7 which incorrectly computed the number of unvaccinated individuals in the 40–59 age group. Note that the underlying model code that produced the outputs is not affected by this error. The plots of these outcomes over time are unchanged (Figures 2.1–3.3).

As a result of these corrections (indicated in red below), the total numbers of clinical outcomes are marginally reduced in Tables 5.4–5.7, the trends are consistent.

Secondly, when calculating the totals for Tables 5.1–5.3, both 60+ and 70+ age groups were summed, thereby ‘double counting’ the 70+ years outcomes. This error has been corrected.

Addendum -transmission reducing strategy

The errors in outputting summary tables for the Technical report were carried over to the second phase of work. The corresponding tables are 4.1-4.7.

The original tables and their corrections marked up in red are presented in the following pages for ease of comparison.

TECHNICAL REPORT TABLES

Table 5.1. Oldest first immunisation strategy (page 17)

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	1,174,450	900,431	617,291	471,107
Ward admissions	48,002	36,113	22,379	16,130
ICU admissions*	11,465	8,523	5,002	3,494
Deaths	10,311	7,276	3,563	2,309

Table 5.1. Revised

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	1,159,716	888,988	610,029	465,797
Ward admissions	42,981	32,268	20,057	14,469
ICU admissions*	10,521	7,809	4,594	3,210
Deaths	7,885	5,548	2,710	1,753

Table 5.2. All Adults immunisation strategy (page 18)

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	964,153	737,971	393,515	279,001
Ward admissions	42,567	29,960	14,130	9,669
ICU admissions	10,302	6,947	3,084	2,075
Deaths	8,894	5,294	1,984	1,281

Table 5.2. Revised

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	951,381	728,701	389,038	275,918
Ward admissions	38,180	26,889	12,728	8,720
ICU admissions	9,480	6,392	2,845	1,917
Deaths	6,845	4,060	1,520	980

Table 5.3: Cumulative infection outcomes over 180 days for 50%, 60% coverage (page 18)

	Oldest First		All Adults	
Achieved eligible population coverage	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
50%				
Symptomatic infections	222,193	952,257	171,467	792,686
Ward admissions	15,575	32,427	13,092	29,475
ICU admissions	4,082	7,384	3,446	6,856
Deaths	3,765	6,546	3,089	5,805
60%				
Symptomatic infections	148,992	751,440	120,173	617,798
Ward admissions	11,449	24,665	9,115	20,845
ICU admissions	2,978	5,545	2,313	4,634
Deaths	2,633	4,643	1,851	3,443

Table 5.3 Revised

	Oldest First		All Adults	
Achieved eligible population coverage	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
50%				
Symptomatic infections	210,916	948,800	161,872	789,509
Ward admissions	12,810	30,170	10,762	27,418
ICU admissions	3,547	6,974	2,997	6,483
Deaths	2,645	5,240	2,179	4,665
60%				
Symptomatic infections	140,236	748,752	113,164	615,537
Ward admissions	9,330	22,939	7,461	19,428
ICU admissions	2,572	5,237	2,004	4,388
Deaths	1,835	3,713	1,294	2,765

Table 5.3 Continued, reporting cumulative outcomes for 70%, 80% coverage (page 19)

	Oldest First		All Adults	
Achieved eligible population coverage	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
70%				
Symptomatic infections	93,398	523,893	58,165	335,350
Ward admissions	6,870	15,509	4,144	9,986
ICU admissions	1,693	3,309	993	2,091
Deaths	1,278	2,285	685	1,298
80%				
Symptomatic infections	67,946	403,162	40,010	238,991
Ward admissions	4,860	11,270	2,817	6,852
ICU admissions	1,163	2,331	666	1,409
Deaths	819	1,490	439	842

Table 5.3 (continued) Revised

	Oldest First		All Adults	
Achieved eligible population coverage	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
70%				
Symptomatic infections	87,839	522,190	54,791	334,247
Ward admissions	5,590	14,467	3,395	9,332
ICU admissions	1,463	3,131	862	1,983
Deaths	884	1,826	478	1,042
80%				
Symptomatic infections	63,895	401,902	37,684	238,234
Ward admissions	3,951	10,518	2,308	6,413
ICU admissions	1,004	2,207	578	1,338
Deaths	565	1,188	306	673

Table 5.4. Oldest first, 70% (page 19)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population*	0	0	3,539,772	4,989,859	5,859,393	3,196,468	5,199,031	468,491	2,835,618	125,031
Symptomatic infections	0	355,505	34,390	103,350	33,166	54,710	20,283	8,626	5,559	1,703
Ward admissions	0	3,305	738	3,167	1,933	4,956	2,919	3,039	1,280	1,043
ICU admissions	0	286	133	563	581	1,474	748	808	231	178
Deaths	0	86	21	141	160	608	703	992	394	459

Table 5.4. Revised

	Age group										
	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs		
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	
Denominator Population	0	5,075,816	3,539,772	4,989,859	5,859,393	563,430	3,196,468	5,199,031	468,491	2,835,618	125,031
Symptomatic infections	0	355,505	34,390	103,350	33,166	54,710	20,283	8,626	5,559	1,703	
Ward admissions	0	3,305	738	3,167	1,933	4,956	2,919	3,039	1,280	1,043	
ICU admissions	0	286	133	563	581	1,474	748	808	231	178	
Deaths	0	86	21	141	160	608	703	992	394	459	

Table 5.5. All Adults, 70% (page 20)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population*	0	5,075,816	5,062,890	3,466,741	4,606,867	3,354,501	4,887,948	779,933	2,613,873	346,776
Symptomatic infections	0	227,251	19,890	62,845	22,440	38,565	12,462	5,586	3,374	1,103
Ward admissions	0	1,993	468	2,099	1,202	3,343	1,726	1,897	748	654
ICU admissions	0	168	82	367	349	961	431	487	131	108
Deaths	0	45	13	84	92	361	373	552	207	257

Table 5.5. Revised

	Age group									
	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator Population	0	5,075,816	5,062,890	3,466,741	4,606,867	1,815,956	4,887,948	779,933	2,613,873	346,776
Symptomatic infections	0	227,251	19,890	62,845	22,440	38,565	12,462	5,586	3,374	1,103
Ward admissions	0	1,993	468	2,099	1,202	3,343	1,726	1,897	748	654
ICU admissions	0	168	82	367	349	961	431	487	131	108
Deaths	0	45	13	84	92	361	373	552	207	257

Table 5.6. Oldest first, 80% (page 20)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	5,709,467	2,820,164	5,862,689	3,193,172	5,320,048	347,833	2,837,516	123,133
Symptomatic infections	0	276,576	25,005	77,813	24,135	41,190	14,705	6,324	4,051	1,260
Ward admissions	0	2,420	523	2,327	1,362	3,601	2,066	2,170	910	752
ICU admissions	0	206	92	404	399	1,036	513	561	160	124
Deaths	0	57	13	92	101	396	451	644	254	302

Table 5.6. Revised

	Age group									
	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator Population	0	5,075,816	5,709,467	2,820,164	5,862,689	560,134	5,320,048	347,833	2,837,516	123,133
Symptomatic infections	0	276,576	25,005	77,813	24,135	41,190	14,705	6,324	4,051	1,260
Ward admissions	0	2,420	523	2,327	1,362	3,601	2,066	2,170	910	752
ICU admissions	0	206	92	404	399	1,036	513	561	160	124
Deaths	0	57	13	92	101	396	451	644	254	302

Table 5.7. All Adults, 80% (page 20)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	6,387,623	2,142,008	5,295,963	3,265,813	5,180,499	487,382	2,743,990	216,659
Symptomatic infections	0	163,282	13,695	44,046	15,467	27,074	8,523	3,833	2,326	757
Ward admissions	0	1,379	318	1,453	819	2,295	1,171	1,285	509	440
ICU admissions	0	113	55	252	235	648	288	325	88	71
Deaths	0	29	8	54	59	232	239	357	133	168

Table 5.7. Revised

	Age group									
	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator Population	0	5,075,816	6,387,623	2,142,008	5,295,963	1,126,860	5,180,499	487,382	2,743,990	216,659
Symptomatic infections	0	163,282	13,695	44,046	15,467	27,074	8,523	3,833	2,326	757
Ward admissions	0	1,379	318	1,453	819	2,295	1,171	1,285	509	440
ICU admissions	0	113	55	252	235	648	288	325	88	71
Deaths	0	29	8	54	59	232	239	357	133	168

ADDENDUM TABLES

Table 4.1. Transmission reducing, partial TTIQ (page 11)

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	1,124,136	703,688	309,362	230,164
Ward admissions	49,242	27,542	13,698	7,699
ICU admissions*	11,844	6,295	2,966	1,629
Deaths	10,443	4,702	1,908	996

Table 4.1. Revised

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	1,109,597	695,075	385,983	227,702
Ward admissions	44,250	24,719	12,337	6,951
ICU admissions*	10,903	5,785	2,733	1,505
Deaths	8,032	3,591	1,457	761

Table 4.2. Transmission reducing, optimal TTIQ (page 11)

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	113,553	6,551	2,762	1,160
Ward admissions	4,132	227	96	40
ICU admissions*	953	52	22	9
Deaths	726	39	17	7

Table 4.2. Revised

	Vaccine Coverage			
	50%	60%	70%	80%
Symptomatic infections	112,430	6,489	2,737	1,149
Ward admissions	3,760	207	88	37
ICU admissions*	885	48	21	8
Deaths	567	30	13	6

Table 4.3: Cumulative outcomes over first 180 days (page 12)

Achieved eligible population coverage	Partial TTIQ		Optimal TTIQ*	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
50%				
Symptomatic infections	215,541	908,594	17,112	96,441
Ward admissions	15,386	33,856	1,169	2,963
ICU admissions	4,053	7,791	297	656
Deaths	3,708	6,735	246	480
60%				
Symptomatic infections	112,488	591,119	914	5,637
Ward admissions	8,410	19,132	62	165
ICU admissions	2,112	4,183	16	36
Deaths	1,656	3,046	13	26

Table 4.3 Revised

Achieved eligible population coverage	Partial TTIQ		Optimal TTIQ	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
50%				
Symptomatic infections	204,523	905,074	16,259	96,170
Ward admissions	12,686	31,564	966	2,794
ICU admissions	3,529	7,374	259	626
Deaths	2,615	5,417	174	393
60%				
Symptomatic infections	105,943	589,132	867	5,622
Ward admissions	6,874	17,845	51	155
ICU admissions	1,828	3,956	14	34
Deaths	1,153	2,438	9	21

Table 4.3 (continued) (page 12)

70%				
Symptomatic infections	57,319	333,044	380	2,382
Ward admissions	4,063	9,635	27	70
ICU admissions	969	1,997	7	15
Deaths	672	1,237	6	11
80%				
Symptomatic infections	32,403	197,761	151	1,008
Ward admissions	2,245	5,454	11	29
ICU admissions	523	1,106	3	6
Deaths	347	649	2	5

Table 4.3 (continued) Revised

70%				
Symptomatic infections	53,982	332,001	361	2,376
Ward admissions	3,320	9,017	22	66
ICU admissions	838	1,895	6	15
Deaths	465	992	4	9
80%				
Symptomatic infections	30,528	197,174	144	1,005
Ward admissions	1,837	5,114	9	28
ICU admissions	453	1,052	2	6
Deaths	240	521	1	4

Table 4.4. Transmission reducing 70%, partial TTIQ (page 13)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population*	0	5,075,816	4,599,519	3,930,112	5,505,295	3,237,854	5,161,851	506,030	2,736,171	224,478
Symptomatic infections	0	226,084	21,032	64,770	20,775	35,837	12,175	5,309	3,337	1,043
Ward admissions	0	1,983	478	2,125	1,151	3,108	1,691	1,801	743	618
ICU admissions	0	164	85	369	333	896	420	465	131	103
Deaths	0	46	13	84	86	338	365	524	207	245

Table 4.4. Revised

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	4,599,519	3,930,112	5,505,295	917,528	5,161,851	506,030	2,736,171	224,478
Symptomatic infections	0	226,084	21,032	64,770	20,775	35,837	12,175	5,309	3,337	1,043
Ward admissions	0	1,983	478	2,125	1,151	3,108	1,691	1,801	743	618
ICU admissions	0	164	85	369	333	896	420	465	131	103
Deaths	0	46	13	84	86	338	365	524	207	245

Table 4.5. Transmission reducing 70%, optimal TTIQ (page 13)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population*	0	5,075,816	4,599,519	3,930,112	5,505,295	3,237,854	5,161,851	506,030	2,736,171	224,478
Symptomatic infections	0	1,606	149	487	137	250	75	33	19	6
Ward admissions	0	14	3	17	8	23	11	12	4	4
ICU admissions	0	1	1	3	3	7	3	3	1	1
Deaths	0	0	0	1	1	3	3	4	2	2

Table 4.5. Revised

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	4,599,519	3,930,112	5,505,295	917,528	5,161,851	506,030	2,736,171	224,478
Symptomatic infections	0	1,606	149	487	137	250	75	33	19	6
Ward admissions	0	14	3	17	8	23	11	12	4	4
ICU admissions	0	1	1	3	3	7	3	3	1	1
Deaths	0	0	0	1	1	3	3	4	2	2

Table 4.6. Transmission reducing 80%, partial TTIQ (page 14)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	5,847,392	2,682,239	5,656,653	3,217,835	5,269,008	398,730	2,783,769	176,800
Symptomatic infections	0	135,408	11,943	37,803	11,724	20,931	6,861	3,031	1,875	587
Ward admissions	0	1,128	265	1,218	634	1,762	937	1,006	408	340
ICU admissions	0	93	46	208	180	496	228	255	70	54
Deaths	0	25	6	45	44	176	190	276	107	128

Table 4.6. Revised

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	5,847,392	2,682,239	5,656,653	766,170	5,269,008	398,730	2,783,769	176,800
Symptomatic infections	0	135,408	11,943	37,803	11,724	20,931	6,861	3,031	1,875	587
Ward admissions	0	1,128	265	1,218	634	1,762	937	1,006	408	340
ICU admissions	0	93	46	208	180	496	228	255	70	54
Deaths	0	25	6	45	44	176	190	276	107	128

Table 4.7. Transmission reducing 80%, optimal TTIQ (page 14)

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	5,847,392	2,682,239	5,656,653	3,217,835	5,269,008	398,730	2,783,769	176,800
Symptomatic infections	0	687	57	199	56	105	31	14	8	3
Ward admissions	0	6	1	7	3	10	4	5	2	2
ICU admissions	0	1	0	1	1	3	1	1	0	0
Deaths	0	0	0	0	0	1	1	2	1	1

Table 4.7. Revised

	<16 yrs		16-39 yrs		40-59 yrs		60+ yrs		70+ yrs	
	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac	Vacc'd	Unvac
Denominator population	0	5,075,816	5,847,392	2,682,239	5,656,653	766,170	5,269,008	398,730	2,783,769	176,800
Symptomatic infections	0	687	57	199	56	105	31	14	8	3
Ward admissions	0	6	1	7	3	10	4	5	2	2
ICU admissions	0	1	0	1	1	3	1	1	0	0
Deaths	0	0	0	0	0	1	1	2	1	1