

Supplementary material

A note on the effect of vaccination policies for European countries: a simulation study

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1 Results of vaccination strategies for different values of R_0 for baseline scenario

1.1 Model Graph and Parameters

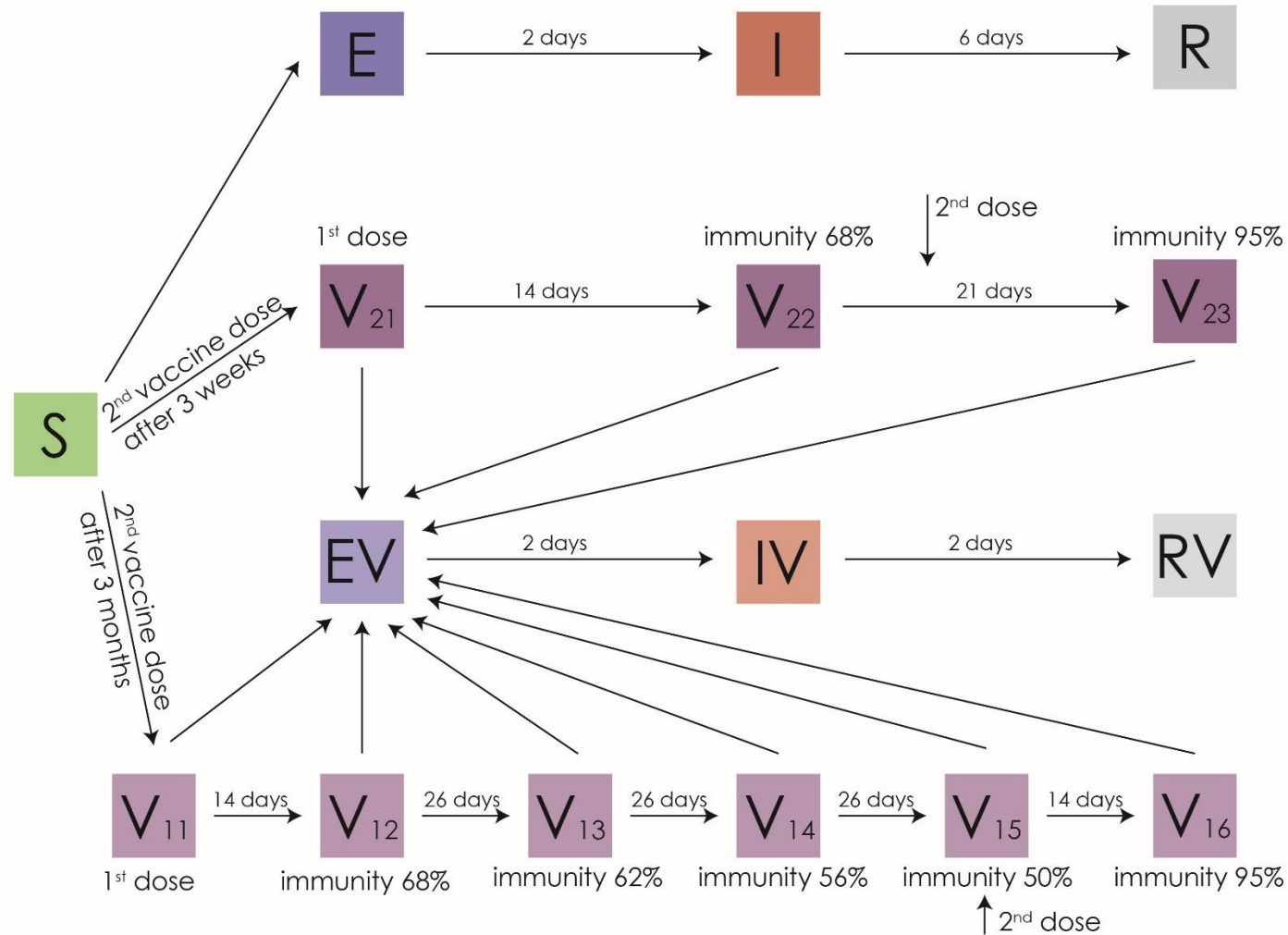


Figure 1: A schematic representation of the S(V)EIR epidemic model for the baseline scenario regarding immunity waning.

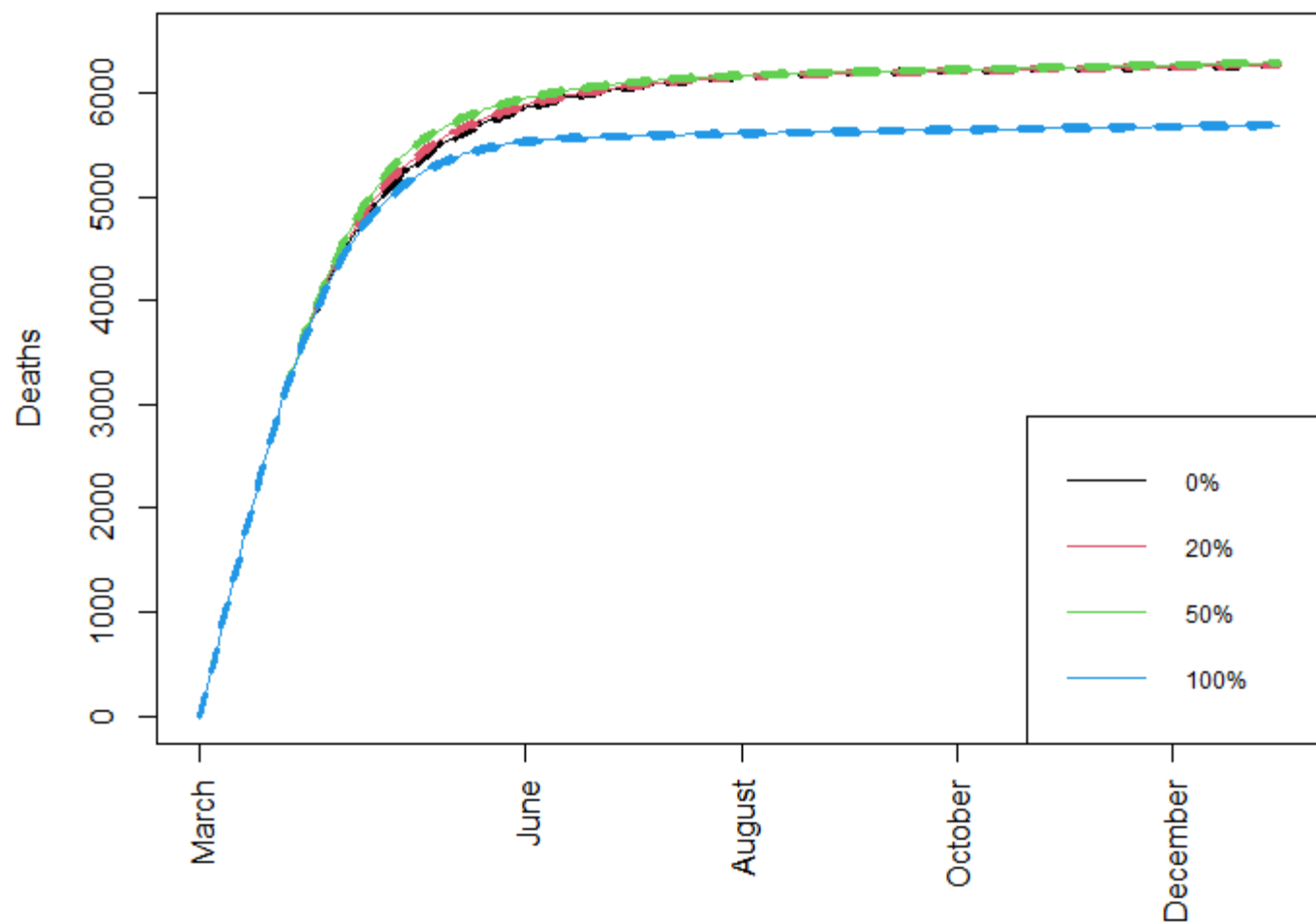


Figure 2: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with standard vaccine availability

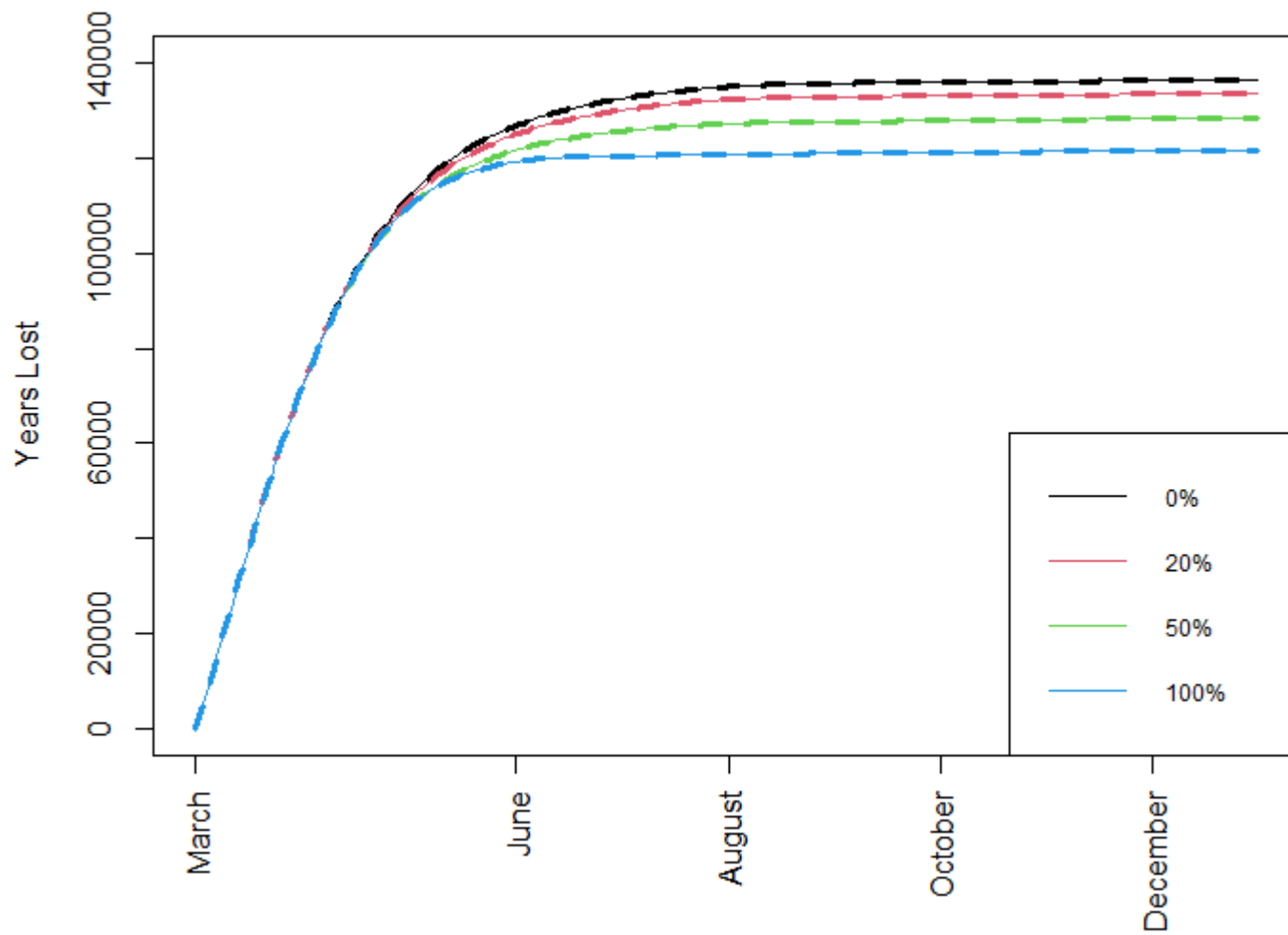


Figure 3: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with standard vaccine availability

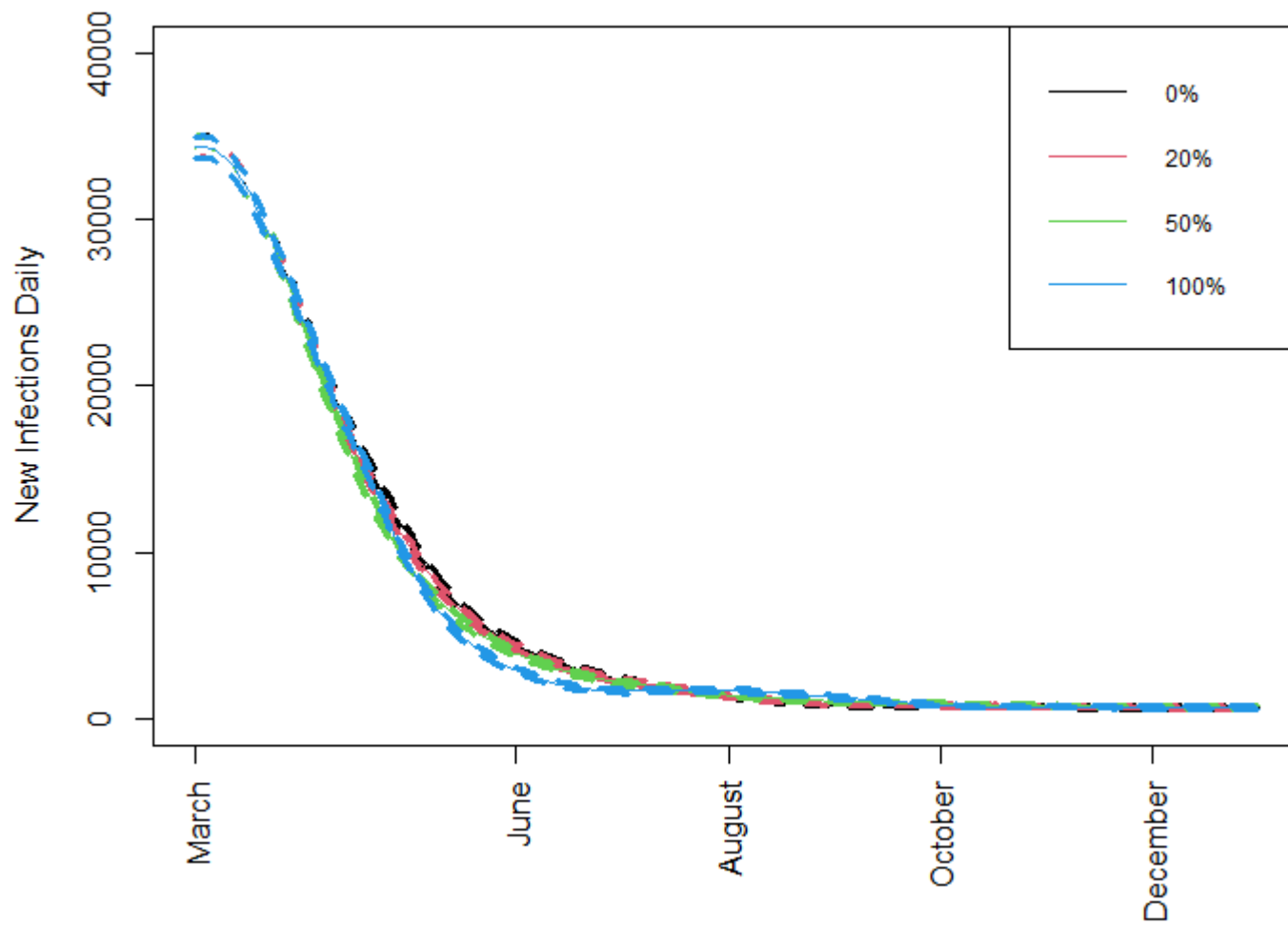


Figure 4: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with standard vaccine availability

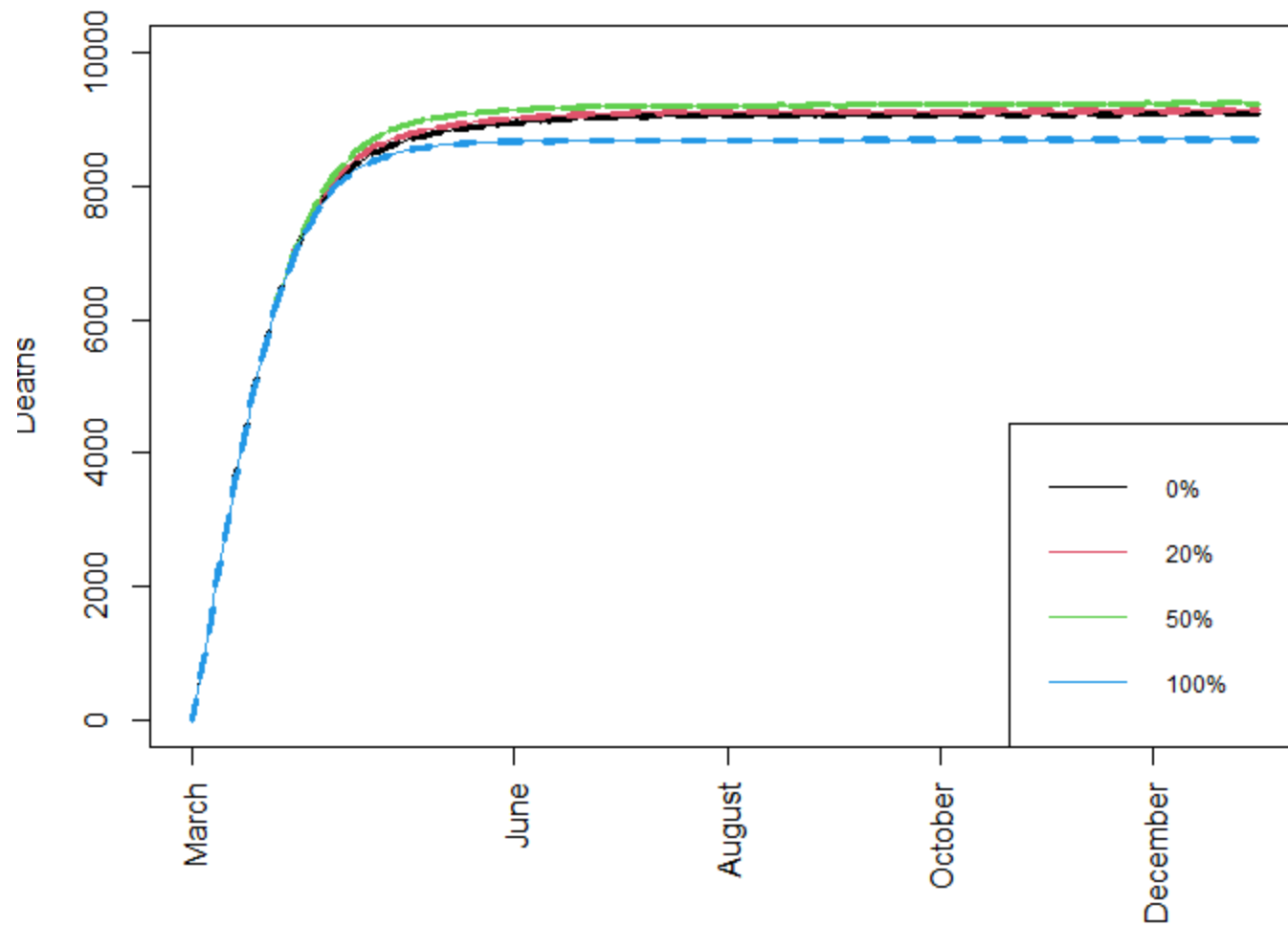


Figure 5: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Baseline scenario and with standard vaccine availability

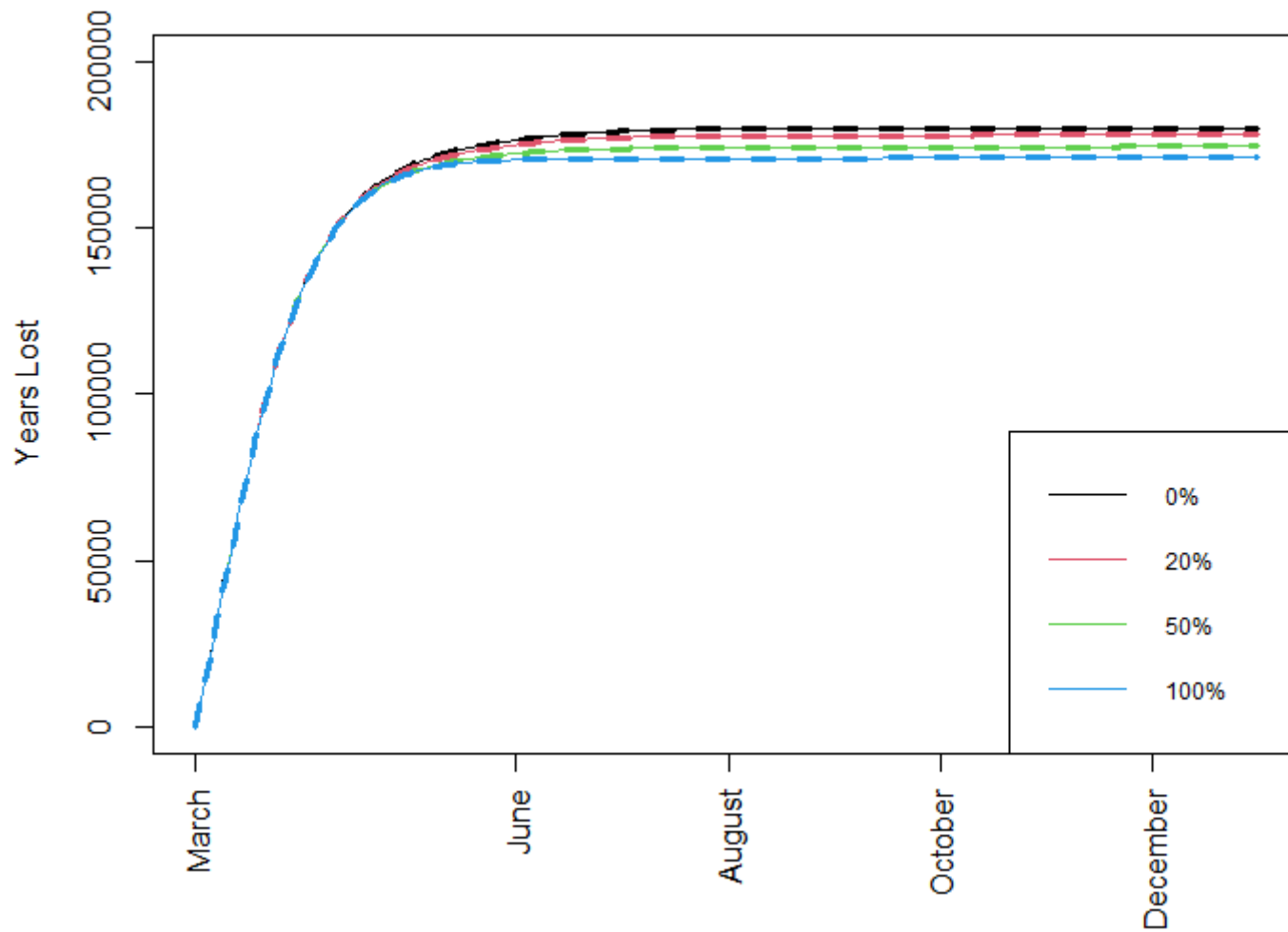


Figure 6: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Baseline scenario and with standard vaccine availability

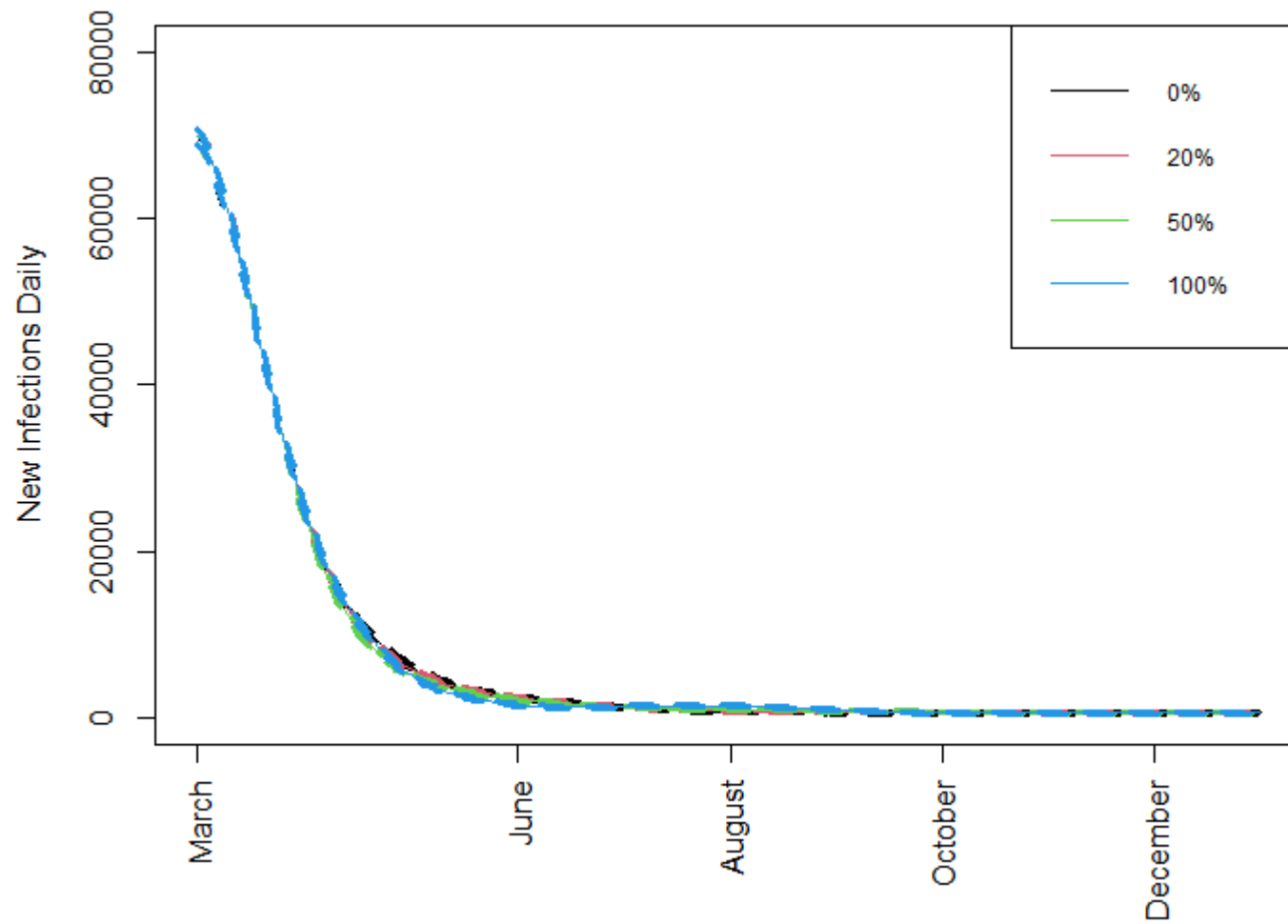


Figure 7: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with standard vaccine availability

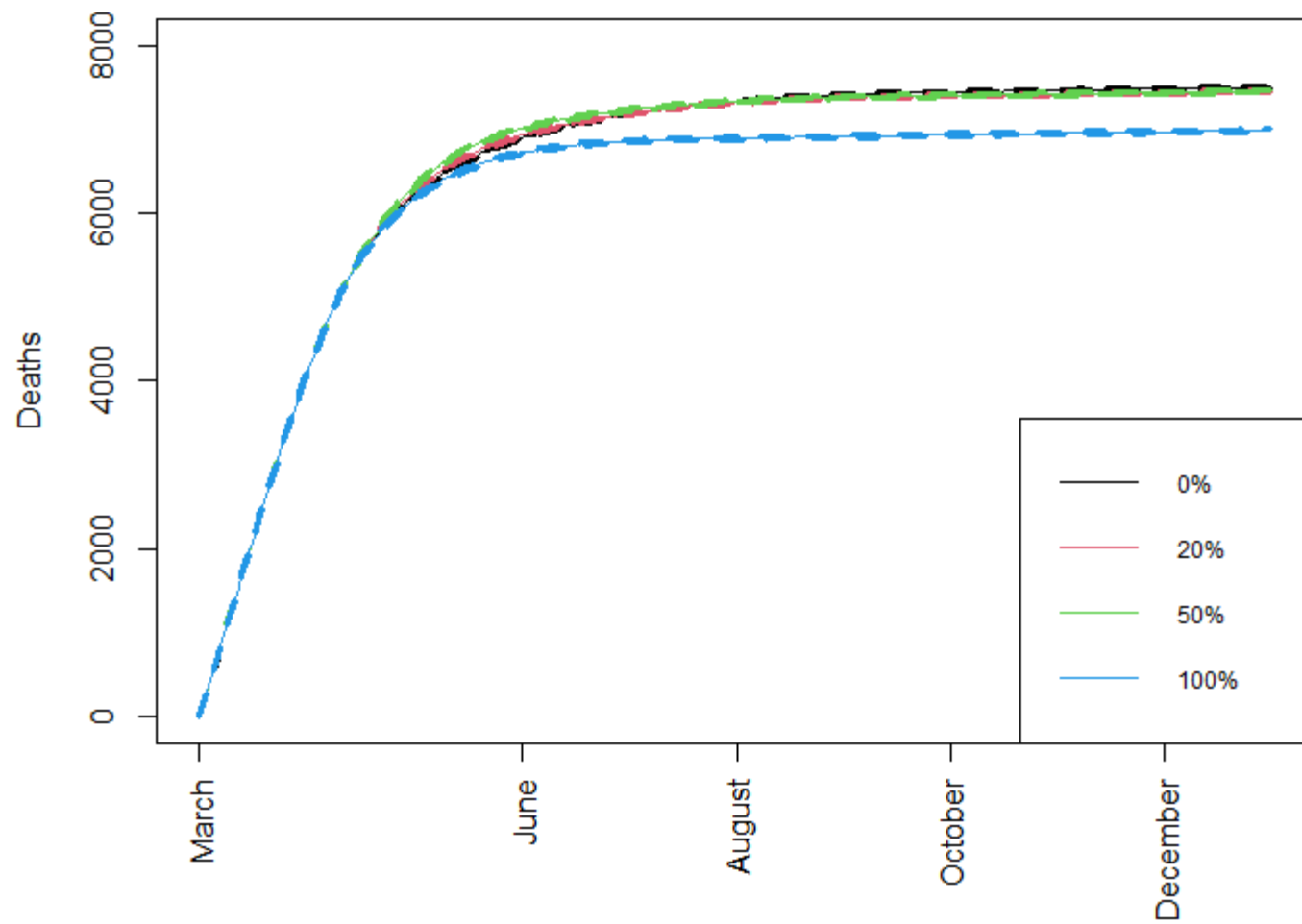


Figure 8: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with limited vaccine availability

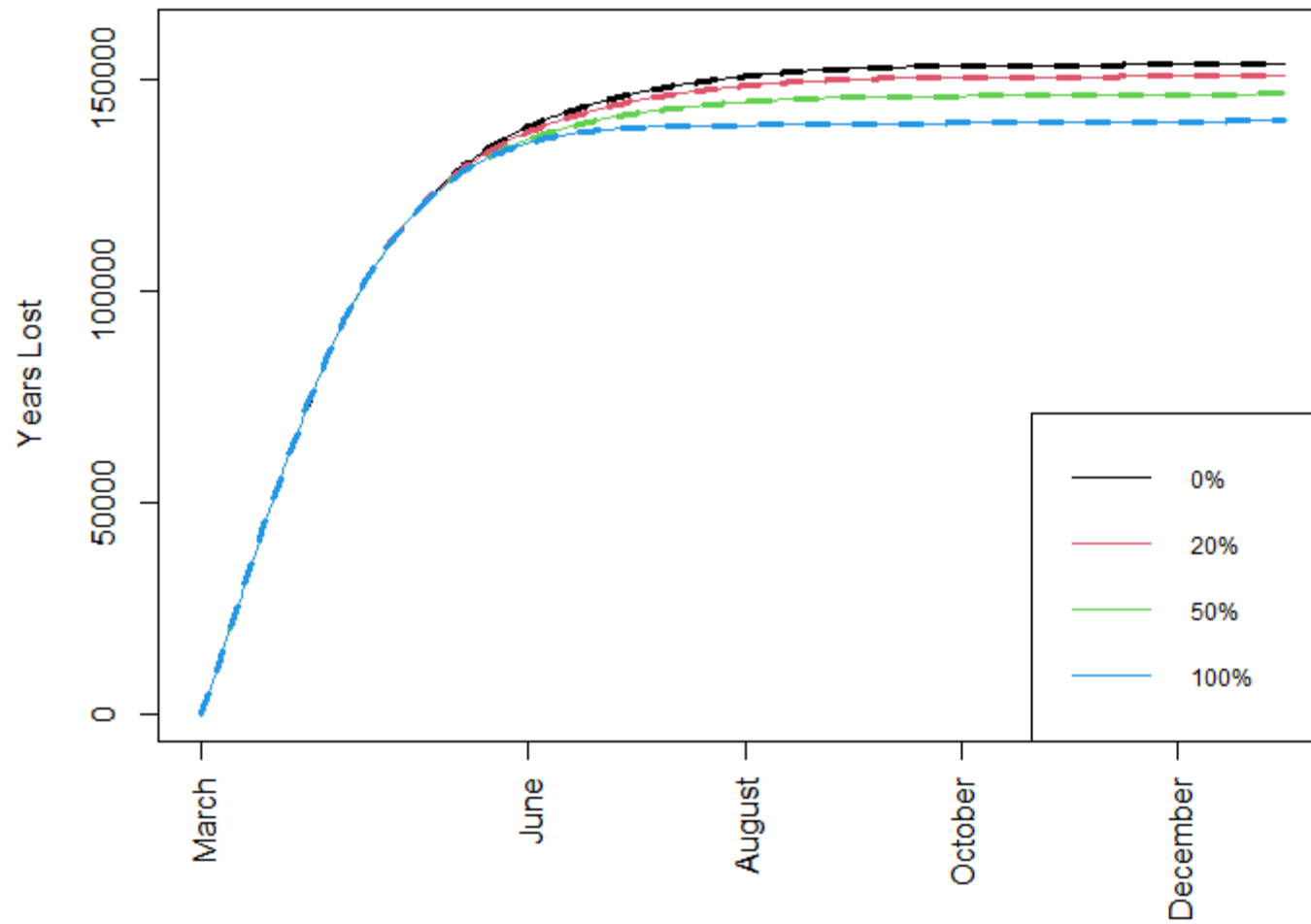


Figure 9: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with limited vaccine availability

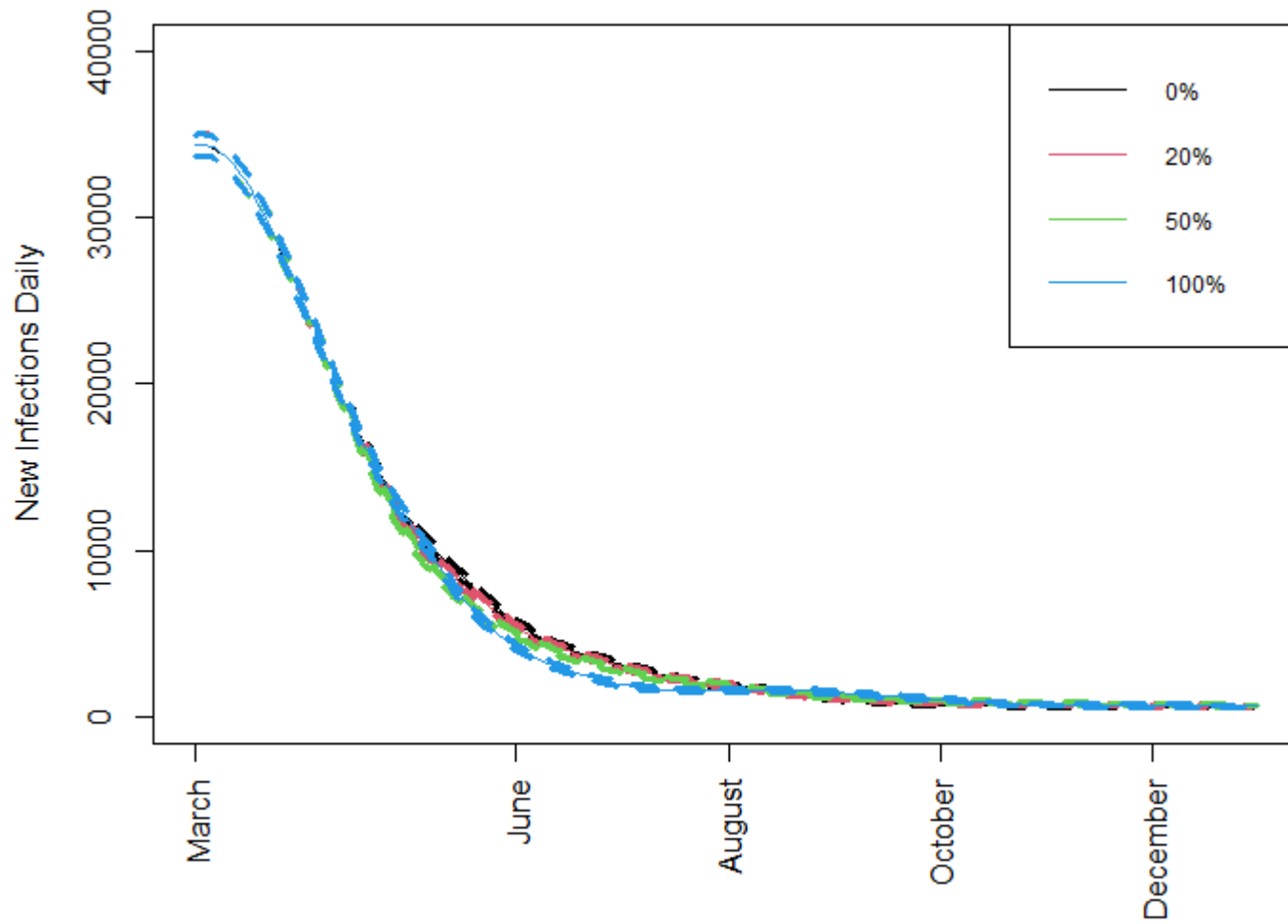


Figure 10: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Baseline scenario and with limited vaccine availability

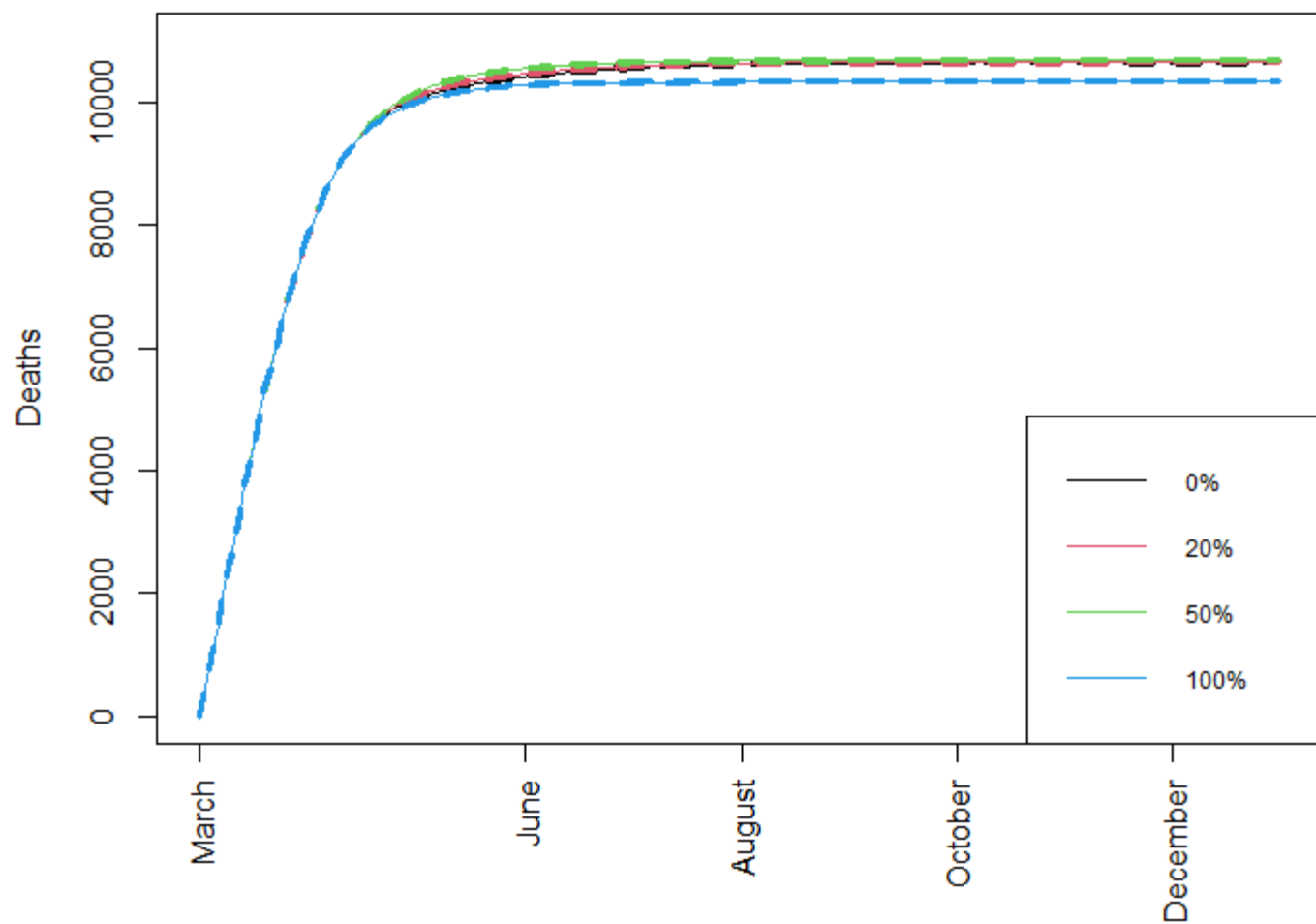


Figure 11: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Baseline scenario and with limited vaccine availability

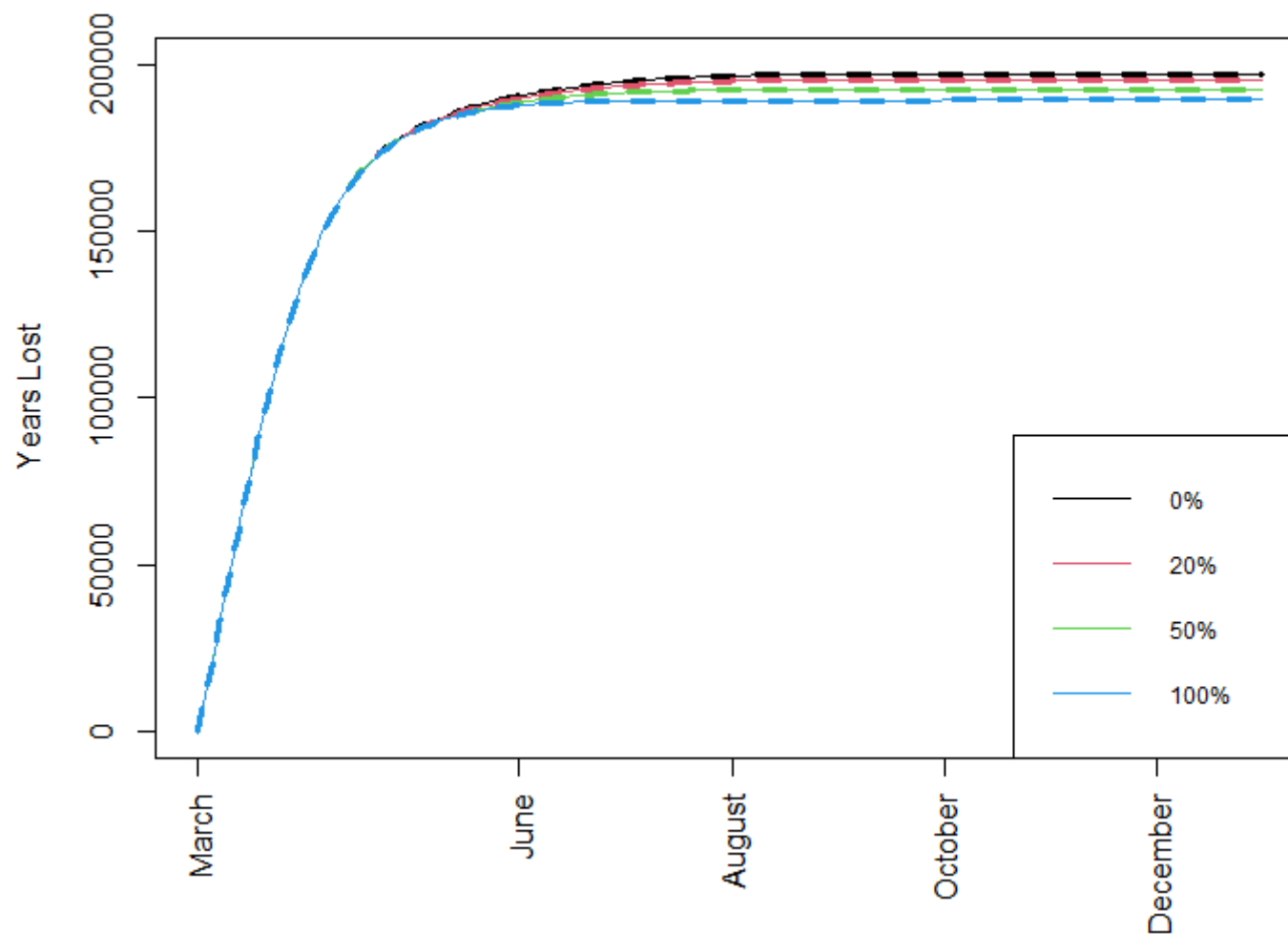


Figure 12: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Baseline scenario and with limited vaccine availability

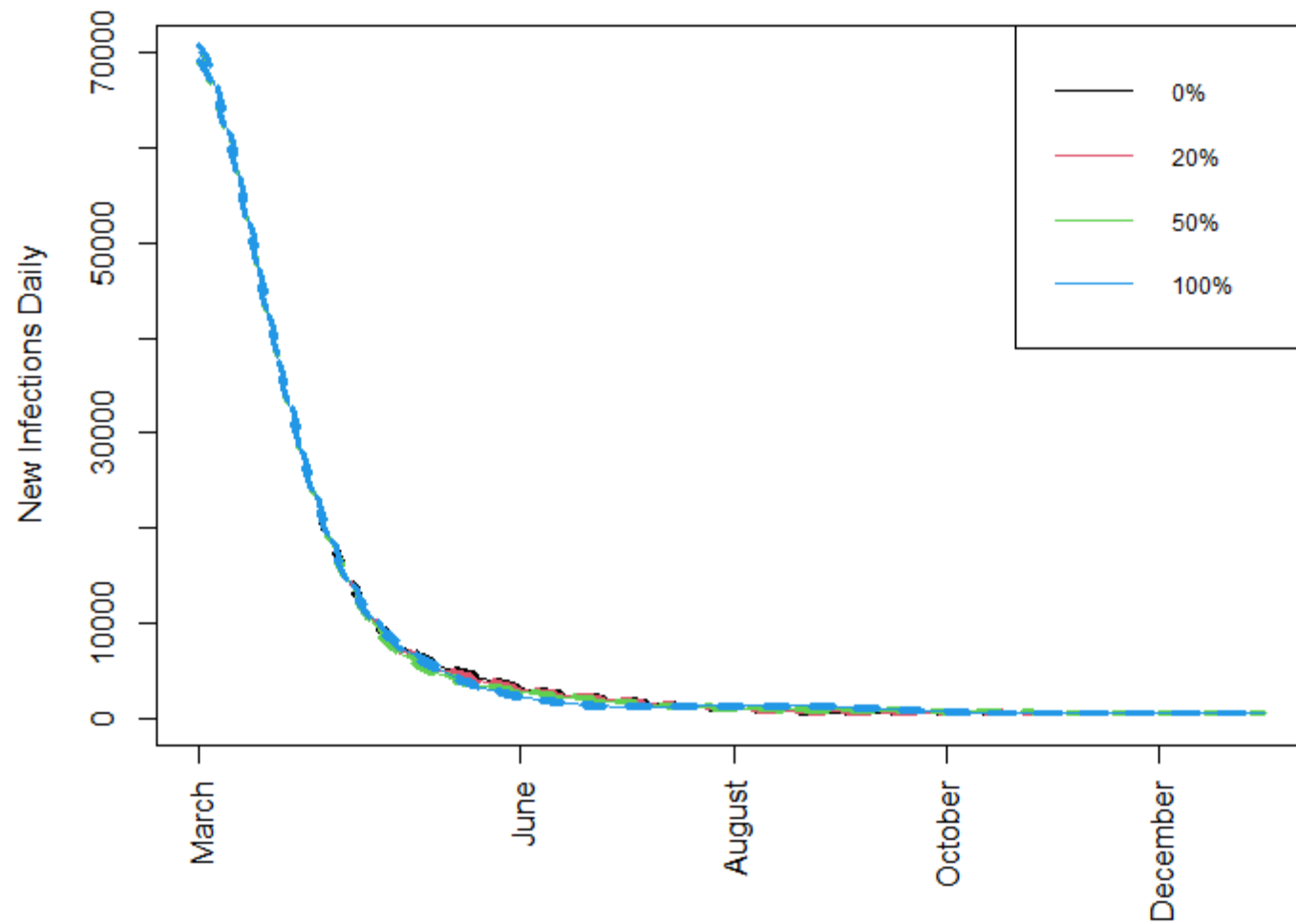


Figure 13: New Infections daily for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Baseline scenario and with limited vaccine availability

1.2 Tables for $R_0=1.2$

1.2.1 Baseline Scenario-Vaccine Availability

1.2.1.1 Cumulative Number of Deaths

1.2.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	143 (143-144)	146 (145-146)	146 (146-146)	146 (146-146)
40-64	1854 (1846-1863)	3649 (3646-3652)	3747 (3745-3749)	3748 (3746-3750)	3749 (3747-3751)
65+	1897 (1886-1906)	2384 (2373-2393)	2425 (2416-2436)	2461 (2451-2471)	2495 (2485-2505)
Total Deaths	3832 (3812-3850)	6190 (6176-6203)	6333 (6321-6346)	6371 (6359-6383)	6407 (6395-6419)
Total Years Lost	73352.5 (72982-73685.5)	134837.5 (134670.5-135044)	138298.5 (138122-138435.5)	138654 (138524-138784)	138995.5 (138865.5-139125.5)

1.2.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	139 (139-139)	141 (141-141)	141 (141-141)	141 (141-141)
40-64	1852 (1844-1859)	3550 (3547-3552)	3632 (3630-3634)	3634 (3631-3635)	3635 (3632-3636)
65+	1910 (1900-1919)	2498 (2488-2506)	2542 (2533-2551)	2580 (2571-2589)	2617 (2609-2626)
Total Deaths	3843 (3824-3859)	6201 (6188-6211)	6330 (6319-6341)	6371 (6359-6381)	6410 (6399-6420)
Total Years Lost	73383.5 (73020-73656.5)	132451.5 (132291.5-132567.5)	135400 (135277-135523)	135799.5 (135646.5-135892.5)	136162 (136016-136255)

1.2.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	74 (74-75)	131 (131-132)	132 (132-132)	132 (132-132)	132 (132-132)
40-64	1847 (1838-1853)	3366 (3363-3369)	3419 (3417-3422)	3422 (3419-3424)	3423 (3420-3425)
65+	1928 (1919-1941)	2723 (2713-2735)	2772 (2762-2784)	2816 (2806-2827)	2858 (2848-2869)
Total Deaths	3855 (3837-3875)	6233 (6220-6249)	6338 (6326-6353)	6386 (6373-6399)	6430 (6417-6443)

Total Years Lost	73306 (72973-73630.5)	128005 (127845-128232.5)	130138.5 (130008.5-130312.5)	130610 (130450-130747)	131007.5 (130847.5-131144.5)
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1.2.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	129 (129-130)	130 (130-130)	130 (130-130)	130 (130-130)
40-64	1854 (1846-1862)	3304 (3300-3309)	3311 (3307-3316)	3313 (3310-3319)	3314 (3311-3319)
65+	1881 (1870-1889)	2278 (2268-2286)	2312 (2302-2320)	2340 (2330-2348)	2367 (2357-2375)
Total Deaths	3816 (3796-3832)	5724 (5710-5738)	5768 (5754-5781)	5799 (5786-5813)	5828 (5815-5841)
Total Years Lost	73240.5 (72870-73536.5)	122923 (122733-123182.5)	123571.5 (123381.5-123777.5)	123901 (123741-124137)	124193.5 (124033.5-124399.5)

1.2.1.2 Cumulative Number of Infections

1.2.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205692 (201056-210308)	407403 (395412-419507)	449126 (434390-464064)	483022 (465868-500426)	514726 (495223-534530)
18-39	355723 (349647-361850)	657034 (642333-671954)	675324 (658976-691931)	678502 (661464-695861)	681604 (663874-699700)
40-64	354386 (348331-360467)	668880 (654066-683859)	695936 (679082-713033)	699982 (682338-717904)	703266 (684908-721941)
65+	42180 (40320-44094)	57708 (54237-61357)	59220 (55278-63394)	60525 (56142-65195)	61809 (56997-66971)

1.2.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205563 (201024-210191)	403485 (391605-415485)	445046 (430414-459859)	479322 (462237-496643)	511262 (491857-531012)
18-39	355280 (349268-361332)	643554 (628986-658220)	662802 (646528-679252)	668244 (651052-685670)	671562 (653659-689750)
40-64	353940 (347968-360029)	655699 (641042-670620)	682914 (666185-699958)	689238 (671522-707328)	693104 (674617-712012)
65+	42170 (40289-44097)	58765 (55217-62461)	60310 (56284-64541)	61671 (57194-66410)	63013 (58098-68248)

1.2.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205382 (200846-210114)	396362 (384695-408329)	437560 (423185-452361)	472510 (455670-489830)	504882 (485694-524631)
18-39	354592 (348511-360648)	618118 (603982-632366)	638982 (623014-655121)	646856 (629797-664156)	650152 (632378-668213)
40-64	353262 (347216-359440)	630735 (616477-645284)	658194 (641843-674894)	667522 (649974-685486)	671722 (653378-690546)
65+	42128 (40257-44041)	60744 (57067-64557)	62360 (58188-66723)	63826 (59184-68701)	65248 (60157-70642)

1.2.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205698 (201113-210283)	394808 (383203-406569)	434849 (420571-449360)	470048 (453294-487112)	502502 (483371-521985)
18-39	355640 (349658-361635)	611915 (598340-625688)	638422 (622750-654357)	645310 (628653-662313)	648467 (631115-666220)
40-64	354362 (348317-360332)	623402 (609535-637325)	651674 (635668-667804)	661004 (643853-678331)	664376 (646514-682482)
65+	42111 (40235-44022)	59390 (55683-63234)	61865 (57562-66355)	63053 (58343-68022)	64212 (59091-69658)

1.2.2 Pessimistic Scenario-Limited Vaccine Availability (in March)

1.2.2.1 Cumulative Number of Deaths

1.2.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	154 (154-154)	159 (159-159)	159 (159-159)	159 (159-159)
40-64	1866 (1860-1874)	3898 (3895-3899)	4075 (4074-4076)	4089 (4087-4089)	4089 (4088-4090)
65+	2215 (2203-2228)	3258 (3246-3267)	3310 (3298-3319)	3350 (3338-3359)	3388 (3376-3398)
Total Deaths	4162 (4144-4184)	7324 (7309-7334)	7559 (7546-7569)	7614 (7600-7623)	7653 (7640-7664)
Total Years Lost	75938.5 (75674.5-76323)	149014 (148840-149107)	155029 (154915-155122)	155802.5 (155658.5-155865.5)	156142 (156028-156242)

1.2.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	151 (150-151)	155 (155-155)	155 (155-155)	155 (155-155)
40-64	1867 (1859-1877)	3825 (3823-3828)	3982 (3980-3983)	3991 (3990-3992)	3992 (3991-3993)
65+	2216 (2204-2231)	3339 (3326-3351)	3377 (3365-3390)	3409 (3396-3420)	3438 (3426-3450)
Total Deaths	4164 (4144-4190)	7329 (7313-7344)	7529 (7515-7543)	7571 (7557-7583)	7602 (7589-7615)
Total Years Lost	75975.5 (75651.5-76434)	147230.5 (147026-147404.5)	152494 (152350-152615)	153061.5 (152940.5-153168.5)	153368 (153254-153482)

1.2.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	145 (145-145)	148 (148-148)	148 (148-148)	148 (148-148)
40-64	1867 (1858-1876)	3695 (3691-3698)	3812 (3808-3814)	3817 (3814-3819)	3819 (3815-3820)
65+	2216 (2205-2231)	3518 (3505-3533)	3556 (3544-3570)	3587 (3575-3602)	3617 (3606-3631)
Total Deaths	4164 (4144-4189)	7372 (7355-7390)	7531 (7515-7547)	7568 (7553-7585)	7601 (7586-7616)
Total Years Lost	75975.5 (75628.5-76404)	144262.5 (144051.5-144457.5)	148272.5 (148068.5-148430.5)	148713 (148539-148878)	149056.5 (148859.5-149184.5)

1.2.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	144 (144-144)	144 (144-144)	144 (144-145)	145 (144-145)
40-64	1866 (1858-1875)	3669 (3667-3673)	3685 (3683-3689)	3690 (3687-3693)	3690 (3688-3694)
65+	2216 (2204-2228)	3176 (3162-3188)	3217 (3203-3229)	3250 (3237-3263)	3281 (3269-3293)
Total Deaths	4163 (4143-4185)	7003 (6987-7019)	7061 (7045-7077)	7100 (7084-7117)	7133 (7118-7149)
Total Years Lost	75945.5 (75621.5-76353)	141035 (140877-141239)	141875.5 (141717.5-142079.5)	142330 (142149-142564.5)	142674 (142476.5-142878)

1.2.2.2 Cumulative Number of Infections

1.2.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206162 (201603-210764)	417407 (405262-429764)	461677 (446744-476928)	495237 (477894-512968)	526188 (506541-546273)
18-39	358522 (352482-364667)	699518 (684046-715276)	732116 (714376-750214)	736142 (717629-755067)	739127 (719942-758772)
40-64	357402 (351357-363469)	711259 (695620-727046)	753188 (734975-771656)	761116 (741827-780696)	764295 (744313-784625)
65+	44752 (42793-46734)	70042 (65978-74200)	71776 (67201-76497)	73160 (68141-78394)	74504 (69050-80241)

1.2.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206258 (201712-210906)	414768 (402665-427061)	458530 (443602-473710)	492297 (474941-509989)	523520 (503846-543580)

18-39	358615 (352604-364766)	689157 (673803-704760)	721230 (703591-739142)	727619 (708985-746585)	731326 (711934-751098)
40-64	357486 (351486-363592)	701126 (685662-716788)	742336 (724278-760656)	751767 (732520-771335)	756234 (736167-776687)
65+	44772 (42849-46761)	70796 (66730-75026)	72306 (67768-77066)	73540 (68581-78781)	74754 (69370-80449)

1.2.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206328 (201653-210936)	409949 (397782-422139)	452664 (437741-467696)	486884 (469538-504402)	518488 (498817-538400)
18-39	358704 (352609-364844)	670237 (655261-685338)	701106 (683902-718505)	710849 (692405-729541)	714906 (695679-734428)
40-64	357535 (351431-363545)	682653 (667366-697948)	722224 (704384-740109)	734131 (714930-753427)	739709 (719579-759974)
65+	44774 (42843-46743)	72526 (68342-76848)	73998 (69345-78843)	75240 (70172-80573)	76459 (70970-82265)

1.2.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206182 (201574-210835)	409496 (397547-421637)	449038 (434442-463896)	483642 (466617-501010)	515293 (495951-535044)
18-39	358640 (352646-364764)	667095 (652384-682075)	693590 (676803-710720)	705292 (687207-723742)	708350 (689574-727523)
40-64	357446 (351419-363594)	679200 (664187-694420)	708838 (691620-726315)	723600 (704890-742639)	726938 (707526-746747)
65+	44766 (42830-46770)	71100 (66913-75429)	74298 (69434-79370)	75584 (70277-81140)	76812 (71078-82855)

1.3 Tables for $R_0=1.4$

1.3.1 Baseline Scenario-Vaccine Availability

1.3.1.1 Cumulative Number of Deaths

1.3.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	131 (131-131)	182 (183-182)	182 (183-182)	182 (183-182)	182 (183-182)
40-64	3336 (3336-3337)	4755 (4763-4746)	4778 (4787-4769)	4779 (4788-4770)	4780 (4789-4771)
65+	3925 (3915-3935)	4383 (4377-4390)	4389 (4383-4395)	4395 (4389-4401)	4401 (4395-4406)
Total Deaths	7404 (7394-7415)	9338 (9341-9336)	9368 (9372-9365)	9376 (9380-9373)	9384 (9388-9380)
Total Years Lost	135445.5 (135375.5-135545.5)	184391 (184642.5-184170)	185196.5 (185478-184968.5)	185342 (185623.5-185114)	185487.5 (185769-185252.5)

1.3.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (21-20)
18-39	131 (131-131)	178 (179-178)	179 (179-178)	179 (179-178)	179 (179-178)
40-64	3331 (3331-3331)	4665 (4674-4655)	4681 (4690-4671)	4682 (4691-4672)	4683 (4692-4673)
65+	3949 (3937-3962)	4533 (4525-4540)	4541 (4535-4549)	4550 (4543-4556)	4558 (4552-4564)
Total Deaths	7423 (7411-7436)	9394 (9396-9391)	9420 (9423-9417)	9431 (9433-9426)	9440 (9444-9435)
Total Years Lost	135463.5 (135379.5-135554.5)	182527 (182794.5-182276)	183190 (183418-182892.5)	183356.5 (183577.5-183045)	183442.5 (183744-183131)

1.3.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (20-20)
18-39	130 (130-130)	172 (172-171)	172 (172-172)	172 (172-172)	172 (172-172)
40-64	3322 (3323-3325)	4502 (4512-4495)	4508 (4518-4501)	4510 (4520-4502)	4511 (4520-4503)
65+	3984 (3970-3994)	4806 (4797-4813)	4821 (4811-4827)	4834 (4825-4840)	4848 (4840-4853)
Total Deaths	7448 (7435-7461)	9498 (9499-9497)	9520 (9520-9519)	9536 (9537-9534)	9551 (9552-9548)
Total Years Lost	135385 (135317-135545)	179227 (179464-179012.5)	179585.5 (179815.5-179417.5)	179810 (180047-179612)	179938 (180152-179733)

1.3.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (20-20)
18-39	131 (131-131)	174 (174-173)	174 (174-173)	174 (174-173)	174 (174-173)
40-64	3336 (3336-3336)	4518 (4528-4509)	4524 (4534-4515)	4525 (4535-4517)	4526 (4536-4517)
65+	3895 (3886-3905)	4272 (4266-4279)	4278 (4272-4285)	4280 (4274-4287)	4282 (4276-4289)
Total Deaths	7374 (7365-7384)	8982 (8986-8979)	8995 (8999-8992)	8999 (9003-8997)	9002 (9006-8999)
Total Years Lost	135235.5 (135172.5-135305.5)	176076 (176334-175801.5)	176371.5 (176629.5-176097)	176489 (176747-176244.5)	176533 (176791-176258.5)

1.3.1.2 Cumulative Number of Infections

1.3.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345538 (339485-351500)	486384 (474256-498460)	515664 (501285-530060)	541945 (525450-558486)	566778 (548240-585388)
18-39	545224 (537607-552807)	742948 (728423-757418)	748351 (732956-763753)	750946 (734926-767032)	753508 (736869-770276)
40-64	561893 (554253-569683)	780841 (765997-796008)	791470 (775350-807974)	794336 (777550-811551)	797174 (779727-815089)
65+	79840 (77276-82458)	93771 (89792-97888)	94662 (90329-99199)	95516 (90822-100454)	96370 (91315-101703)

1.3.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345436 (339414-351463)	483856 (471866-495903)	513237 (498968-527611)	539750 (523376-556309)	564698 (546294-583358)
18-39	544712 (537032-552297)	732614 (718311-746885)	740627 (725203-756066)	744388 (728208-760631)	746981 (730180-763904)
40-64	561348 (553654-569210)	770428 (755638-785499)	782618 (766466-799109)	787262 (770268-804652)	790152 (772497-808256)
65+	79833 (77256-82447)	94773 (90708-98951)	95714 (91280-100312)	96624 (91828-101621)	97528 (92371-102919)

1.3.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345146 (339213-351116)	479122 (467421-490989)	508804 (494847-522989)	535650 (519561-552022)	560812 (542663-579303)
18-39	543699 (536184-551261)	713605 (699927-727448)	726805 (711674-742144)	731324 (715384-747529)	733946 (717374-750836)
40-64	560468 (552777-568128)	751466 (737117-765883)	766841 (750920-782865)	773003 (756131-790043)	775891 (758361-793658)
65+	79766 (77186-82341)	96574 (92398-100835)	97625 (93050-102326)	98616 (93665-103757)	99592 (94274-105169)

1.3.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345613 (339630-351653)	480140 (468358-492100)	510030 (495966-524334)	536800 (520574-553305)	561906 (543620-580525)
18-39	545279 (537571-552874)	718430 (704623-732223)	739286 (723640-754978)	742840 (726473-759305)	745458 (728456-762604)
40-64	561980 (554198-569644)	752790 (738433-767005)	776176 (759876-792396)	781252 (764110-798373)	784117 (766319-801958)
65+	79743 (77156-82354)	94982 (90747-99326)	96988 (92242-101914)	97767 (92674-103073)	98526 (93102-104218)

1.3.2 Pessimistic Scenario-Limited Vaccine Availability (in March)

1.3.2.1 Cumulative Number of Deaths

1.3.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	190 (191-190)	192 (192-191)	192 (192-191)	192 (192-191)
40-64	3360 (3359-3358)	4960 (4971-4948)	5029 (5041-5017)	5030 (5042-5018)	5031 (5043-5018)
65+	4552 (4543-4563)	5691 (5688-5698)	5699 (5695-5705)	5705 (5702-5711)	5711 (5709-5716)
Total Deaths	8056 (8046-8065)	10859 (10868-10854)	10939 (10947-10932)	10947 (10956-10940)	10955 (10965-10946)
Total Years Lost	140608 (140515-140625)	200125 (200487.5-199814)	202431.5 (202763.5-202060)	202577 (202916-202205.5)	202722.5 (203068.5-202314)

1.3.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	188 (189-188)	189 (189-188)	189 (189-189)	189 (189-189)
40-64	3360 (3359-3362)	4904 (4914-4894)	4958 (4968-4948)	4959 (4970-4949)	4960 (4971-4950)
65+	4552 (4536-4562)	5777 (5768-5783)	5780 (5770-5786)	5782 (5773-5788)	5784 (5775-5790)
Total Deaths	8056 (8039-8068)	10887 (10889-10883)	10946 (10946-10941)	10950 (10952-10946)	10954 (10956-10950)
Total Years Lost	140608 (140466-140738)	198940 (199230.5-198682)	200708 (200938-200396.5)	200825.5 (201092.5-200567.5)	200943 (201210-200685)

1.3.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	184 (184-183)	184 (185-184)	184 (185-184)	184 (185-184)
40-64	3360 (3360-3359)	4806 (4814-4795)	4834 (4844-4823)	4836 (4846-4825)	4837 (4847-4826)
65+	4551 (4541-4565)	5942 (5936-5950)	5945 (5938-5953)	5947 (5940-5955)	5949 (5942-5957)
Total Deaths	8055 (8045-8068)	10950 (10952-10946)	10982 (10986-10979)	10987 (10991-10984)	10991 (10995-10988)
Total Years Lost	140601 (140531-140669)	196941 (197139-196613.5)	197875.5 (198180-197601.5)	198023 (198327.5-197749)	198140.5 (198445-197866.5)

1.3.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	184 (184-183)	184 (185-184)	184 (185-184)	184 (185-184)
40-64	3360 (3360-3360)	4793 (4805-4785)	4799 (4811-4790)	4802 (4813-4793)	4803 (4814-4794)
65+	4551 (4542-4567)	5624 (5620-5634)	5632 (5628-5642)	5634 (5630-5644)	5636 (5632-5646)
Total Deaths	8055 (8046-8071)	10619 (10627-10620)	10634 (10643-10635)	10640 (10648-10641)	10644 (10652-10645)
Total Years Lost	140601 (140538-140713)	194325 (194657-194101.5)	194634.5 (195020-194434.5)	194812 (195167.5-194612)	194929.5 (195285-194729.5)

1.3.2.2 Cumulative Number of Infections

1.3.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346419 (340364-352484)	492893 (480622-505243)	523136 (508571-537842)	549032 (532372-565880)	573481 (554784-592407)
18-39	549726 (542022-557383)	774984 (759834-790367)	787686 (771215-804436)	790225 (773129-807647)	792728 (775022-810821)
40-64	566912 (559063-574774)	814064 (798303-830050)	835066 (817520-852894)	838196 (819962-856763)	840954 (822074-860223)
65+	84203 (81573-86913)	107626 (103111-112292)	108570 (103688-113671)	109425 (104186-114922)	110279 (104678-116169)

1.3.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346430 (340374-352594)	491406 (479175-503793)	521448 (506954-536193)	547532 (530936-564426)	572060 (553435-591062)
18-39	549784 (542172-557570)	768079 (753068-783419)	781724 (765274-798559)	786230 (768952-803951)	788812 (770908-807214)
40-64	566922 (559166-574832)	807097 (791557-823024)	827930 (810582-845704)	833211 (814952-851934)	836314 (817374-855774)
65+	84208 (81559-86916)	108248 (103695-112976)	109098 (104195-114231)	109888 (104631-115388)	110666 (105063-116543)

1.3.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346374 (340462-352418)	488590 (476641-500795)	518329 (504083-532857)	544738 (528380-561422)	569404 (551001-588198)
18-39	549721 (542107-557652)	755368 (740698-770470)	771186 (754933-787939)	777681 (760441-795474)	780214 (762351-798671)
40-64	566932 (559200-574734)	794468 (779266-809811)	815601 (798578-832840)	823838 (805681-842262)	826968 (808126-846127)
65+	84214 (81527-86887)	109794 (105034-114612)	110624 (105530-115842)	111416 (105983-117013)	112200 (106415-118169)

1.3.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346438 (340405-352503)	488572 (476548-500792)	517968 (503683-532520)	544478 (528083-561204)	569164 (550746-587964)
18-39	549897 (542240-557607)	754238 (739723-768942)	775549 (759162-792179)	782274 (764930-799930)	784812 (766846-803134)
40-64	567013 (559226-574899)	792181 (777032-807582)	815386 (798277-832817)	824432 (806171-843071)	827210 (808299-846548)
65+	84226 (81556-86907)	108486 (103774-113277)	111144 (105809-116599)	111916 (106246-117758)	112664 (106673-118896)

2 Results of vaccination strategies for different values of R_0 for optimistic scenario

2.1 Model Graph and Parameters

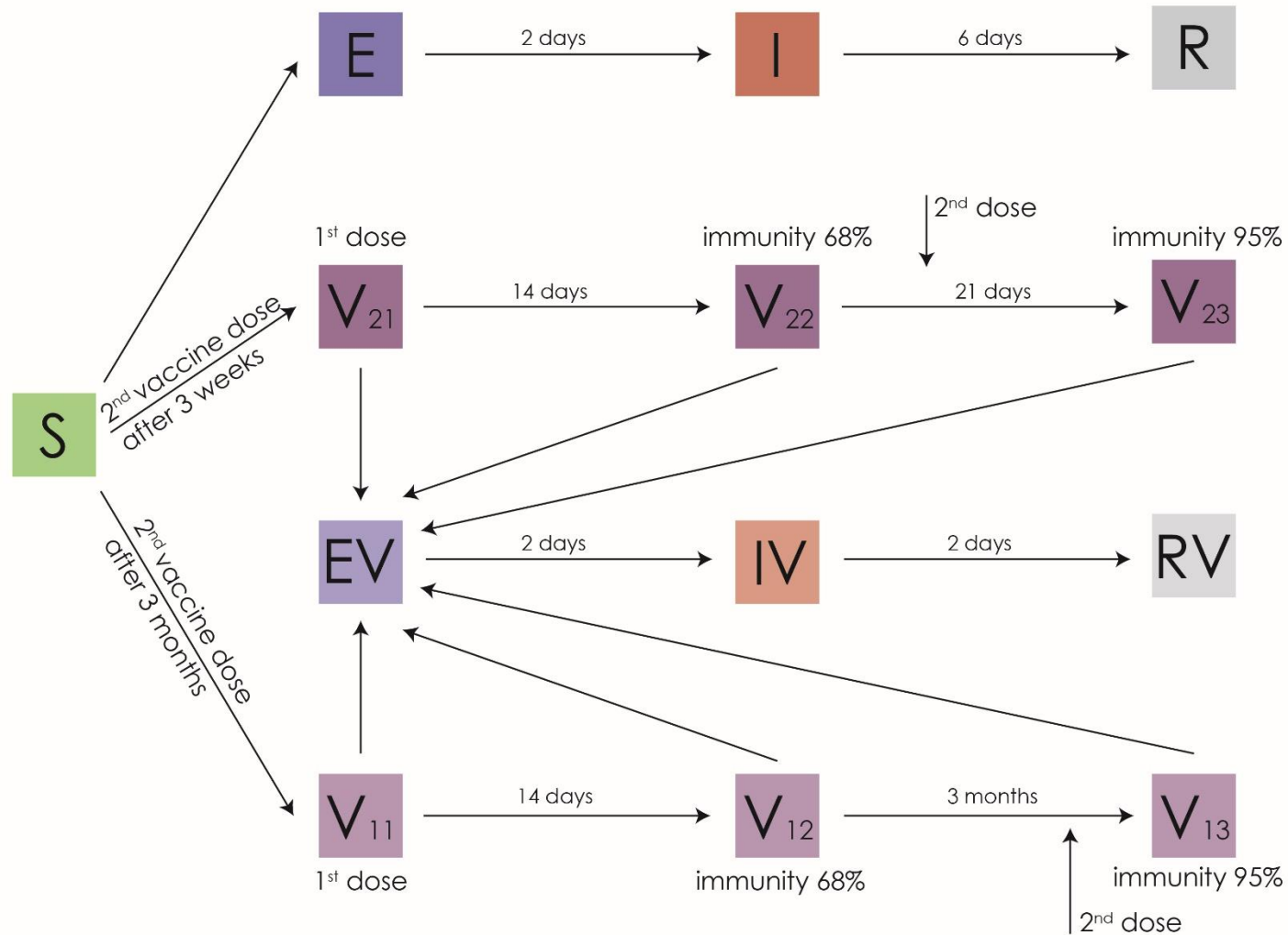


Figure 14: A schematic representation of the S(V)EIR epidemic model for the Optimistic scenario regarding immunity waning.

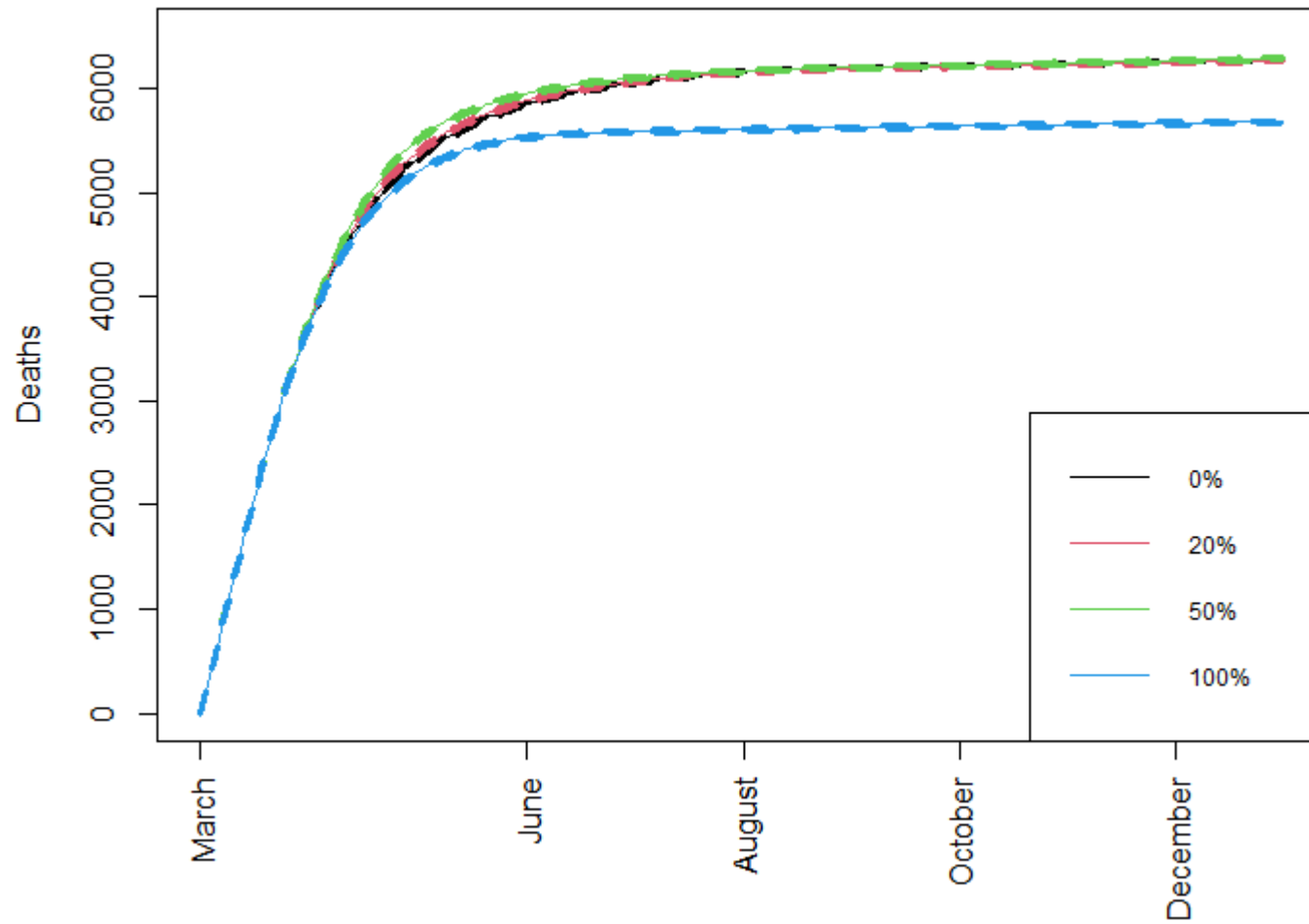


Figure 15: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with standard vaccine availability

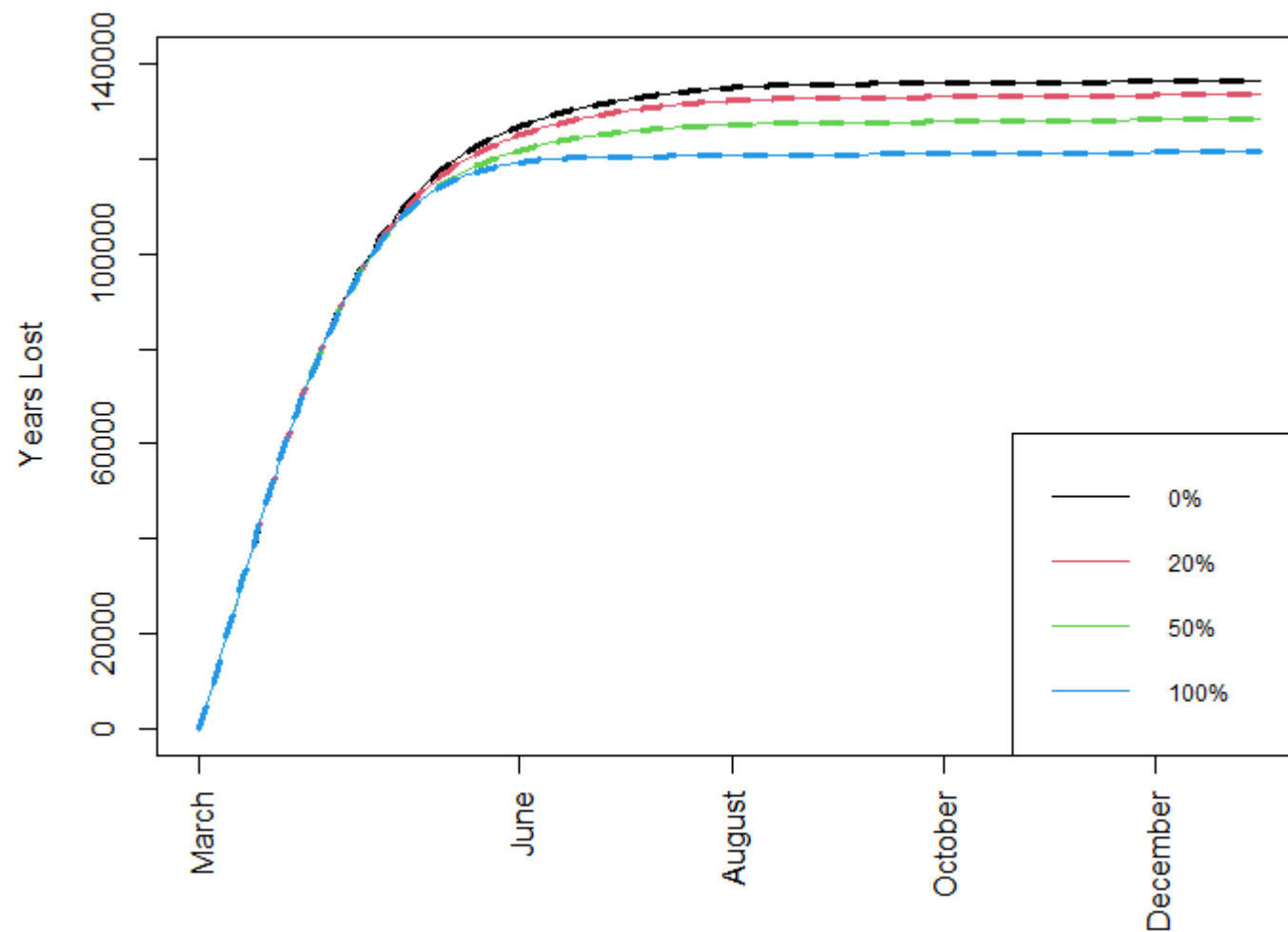


Figure 16: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with standard vaccine availability

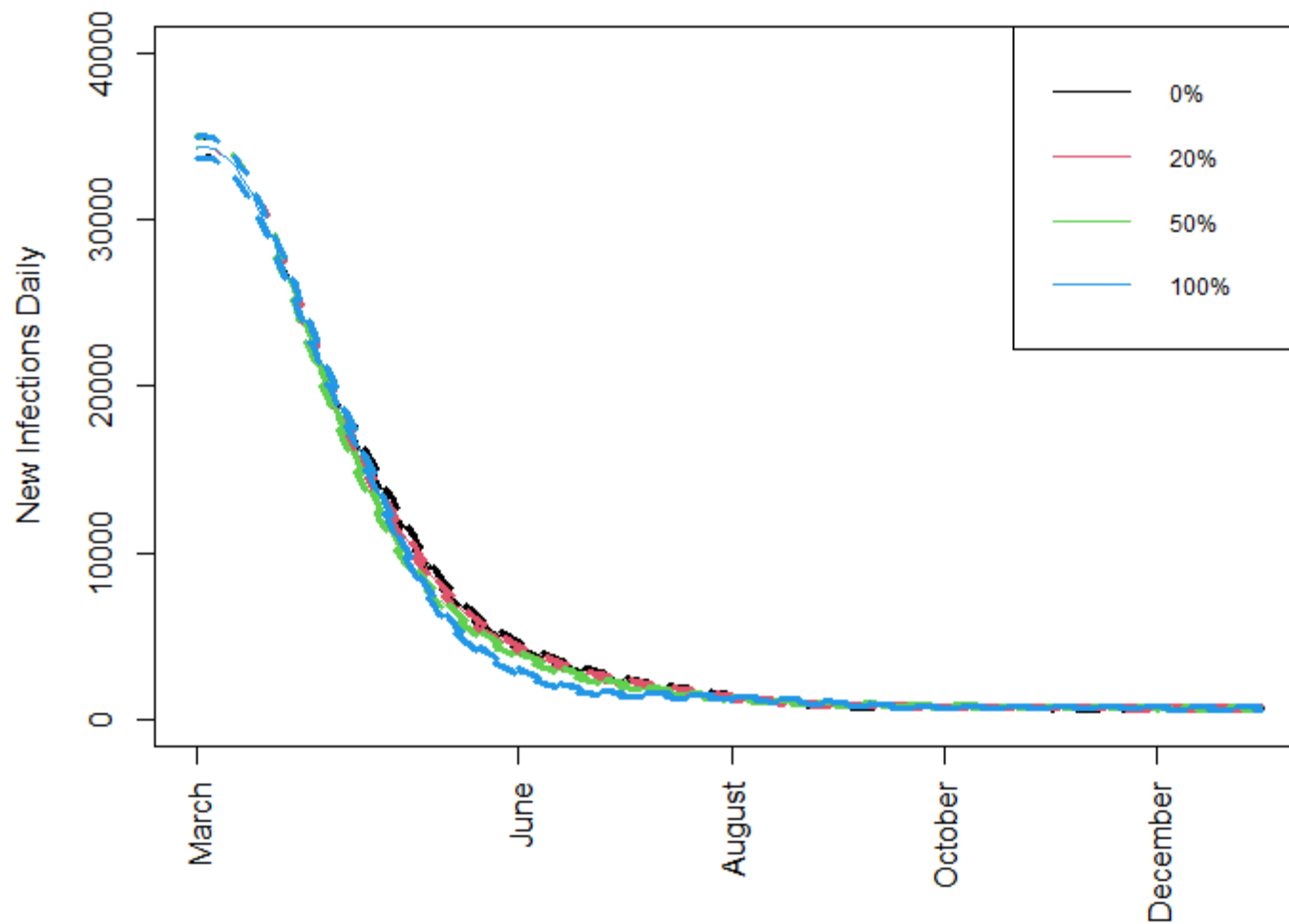


Figure 17: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with standard vaccine availability

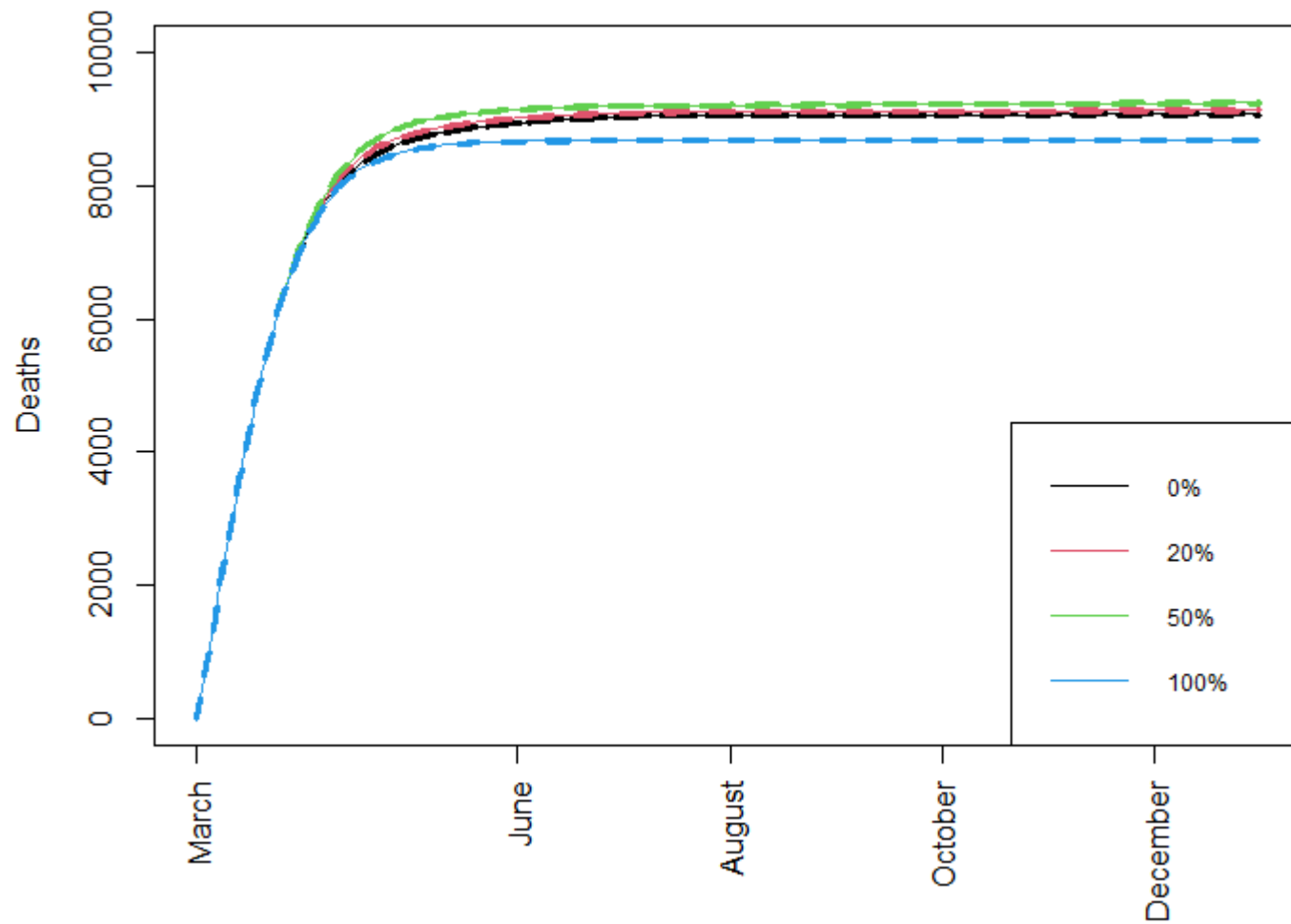


Figure 18: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Optimistic scenario and with standard vaccine availability

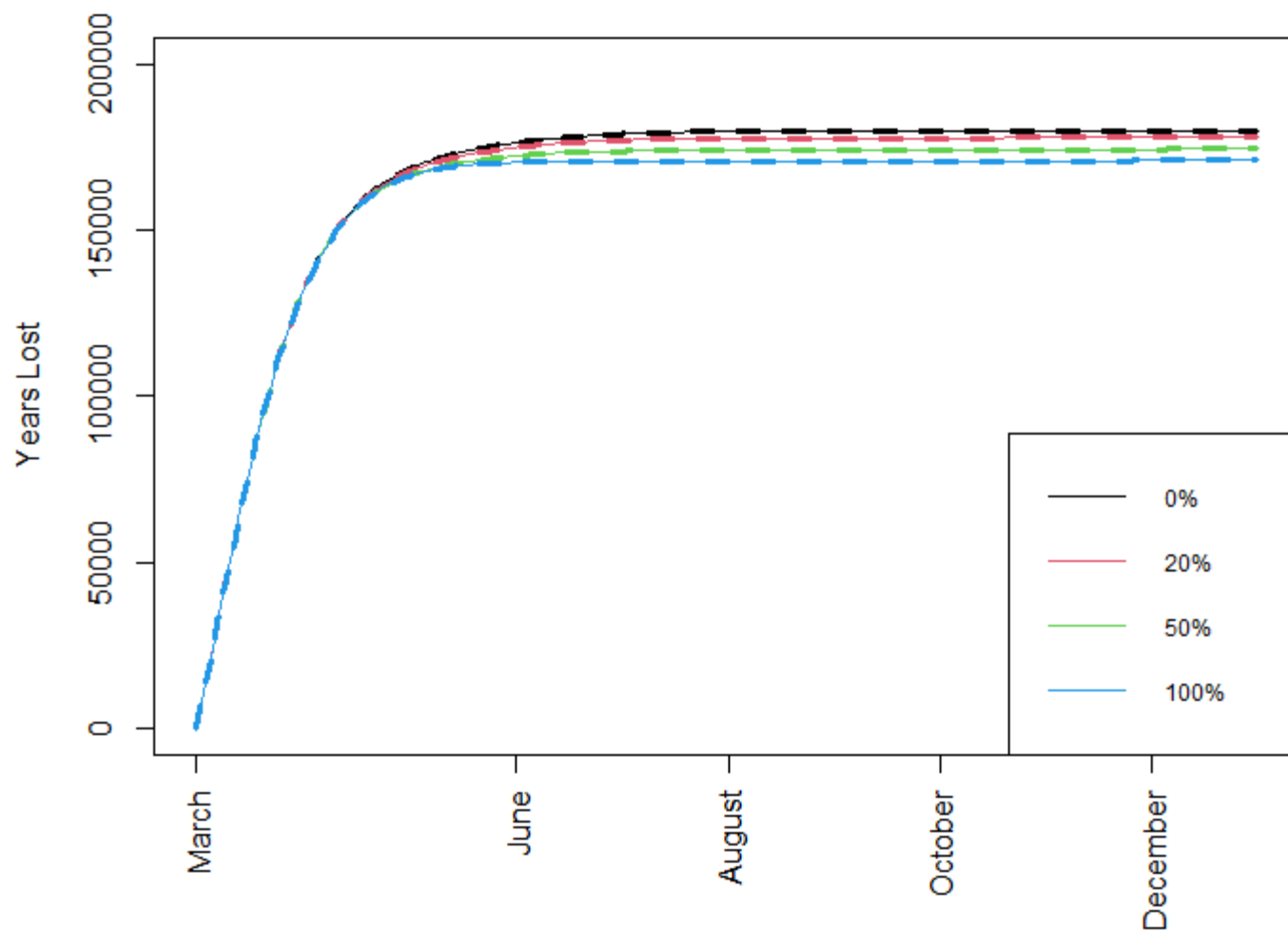


Figure 19: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Optimistic scenario and with standard vaccine availability

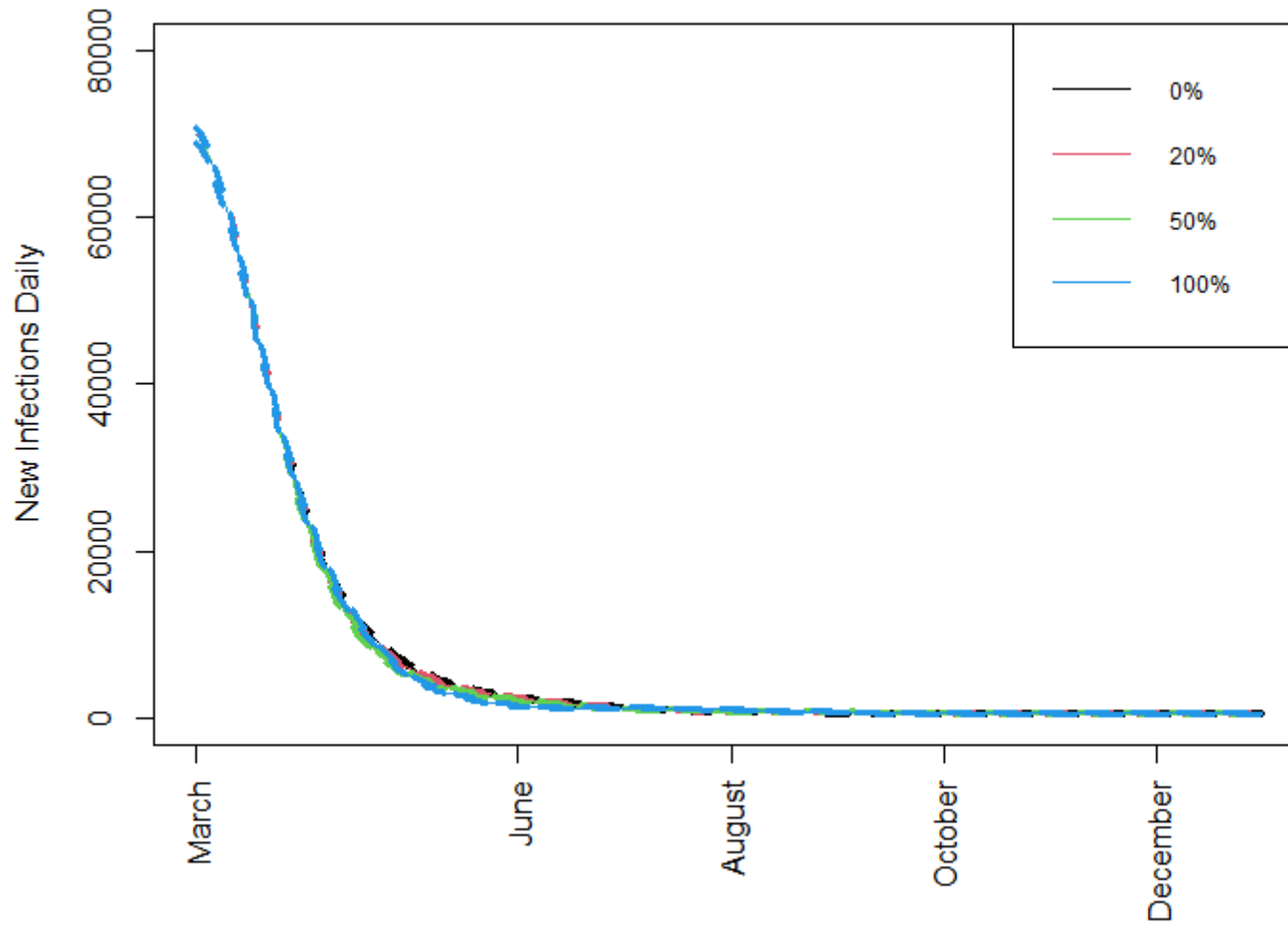


Figure 20: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with standard vaccine availability

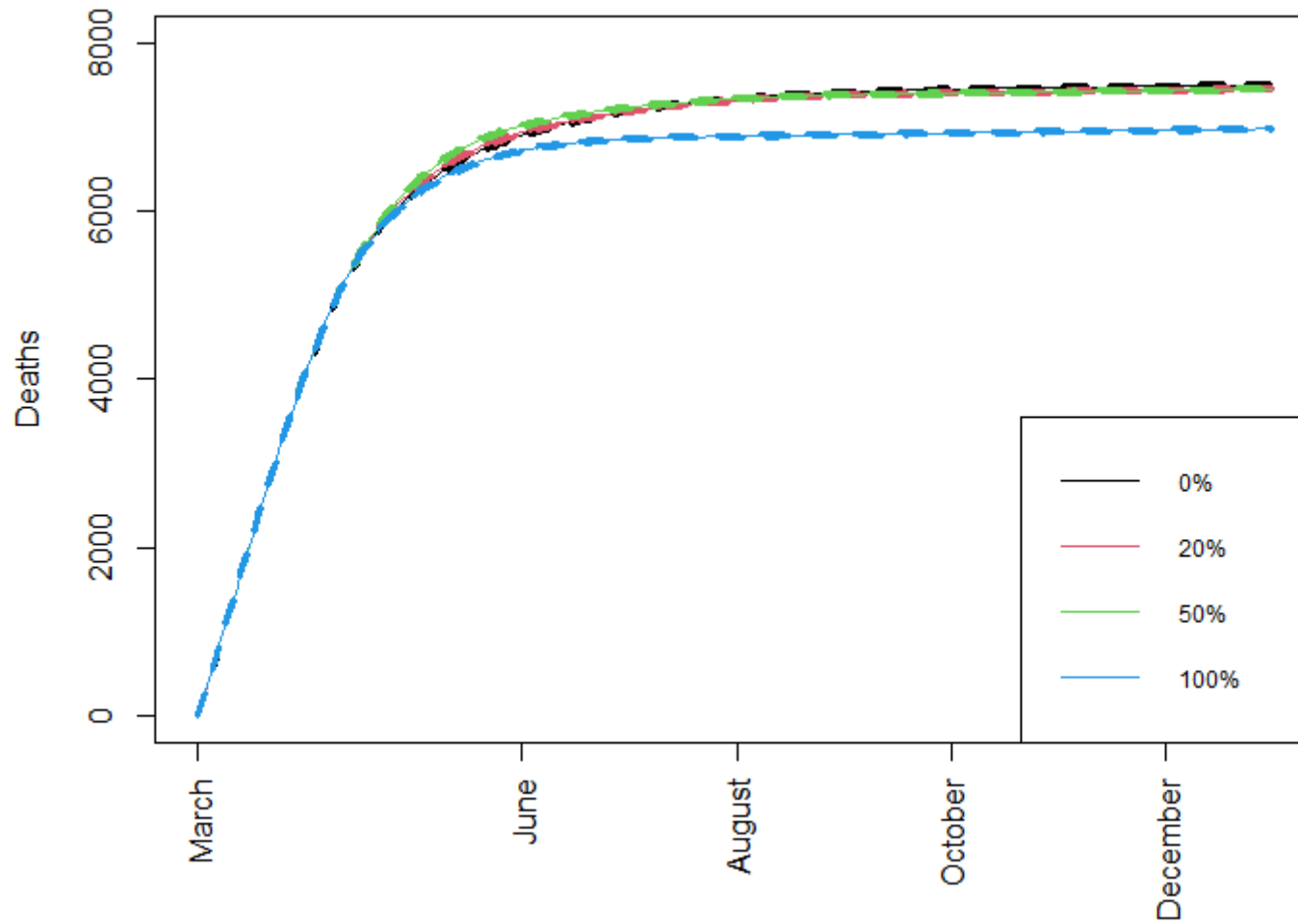


Figure 21: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with limited vaccine availability

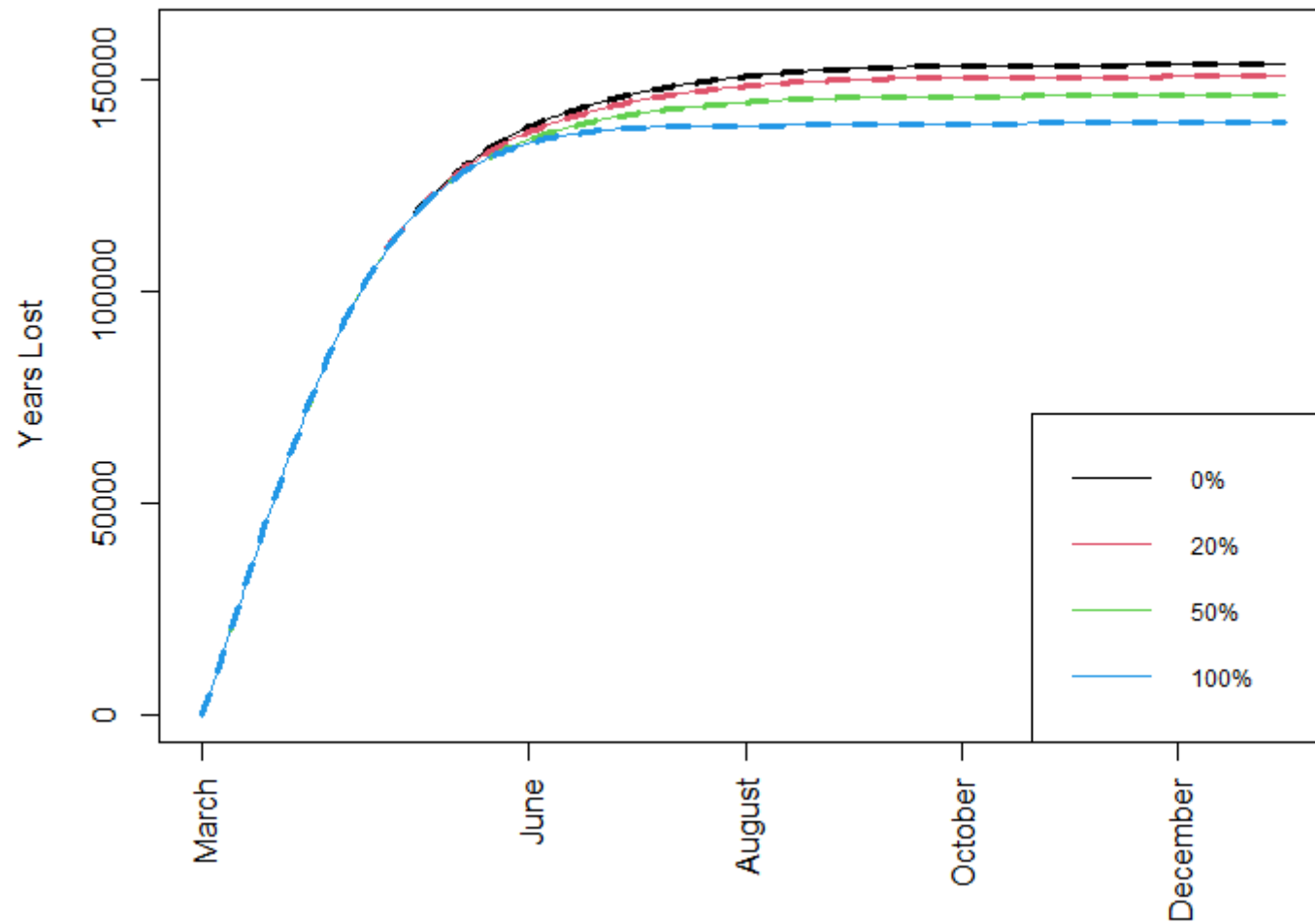


Figure 22: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with limited vaccine availability

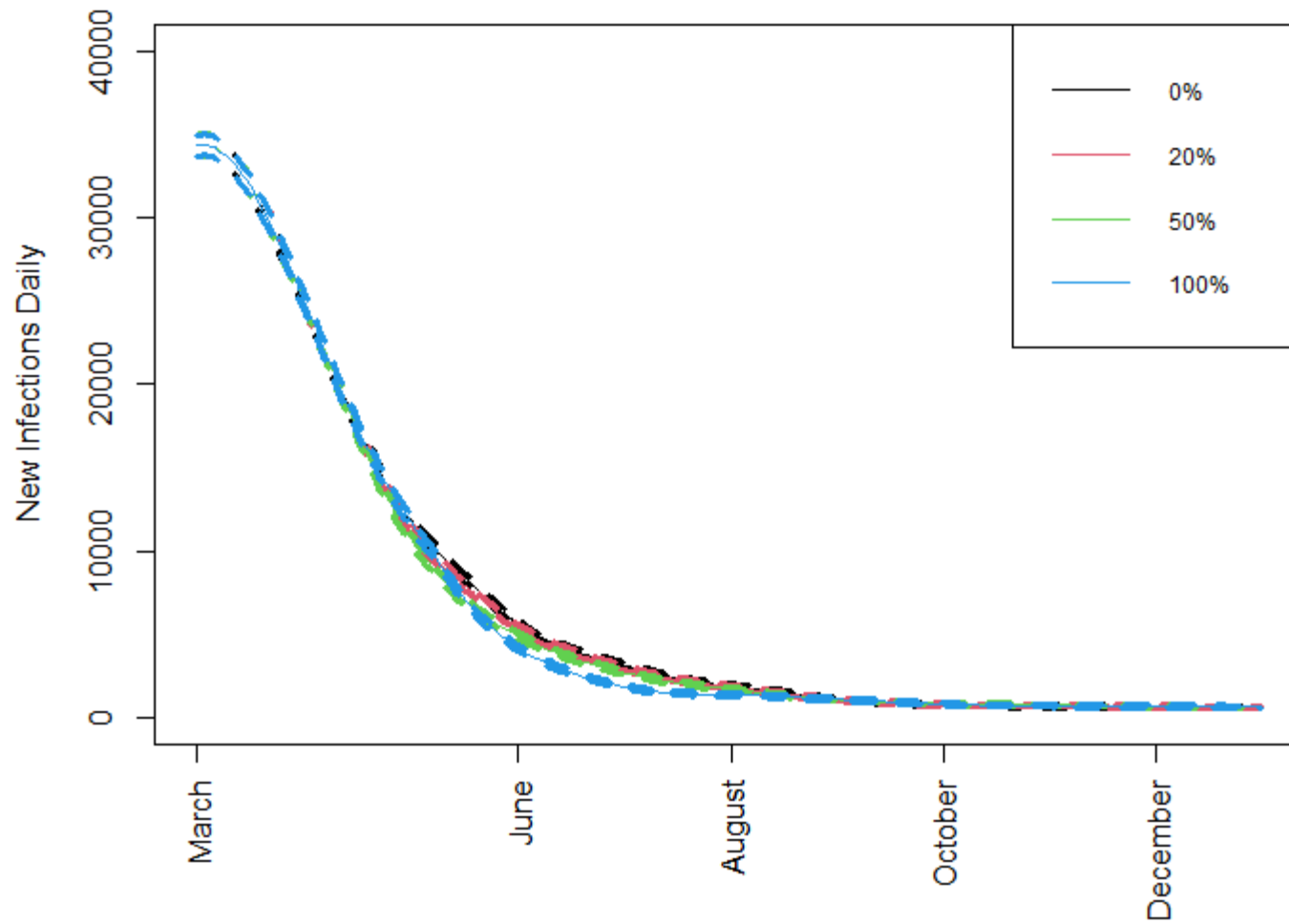


Figure 23: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Optimistic scenario and with limited vaccine availability

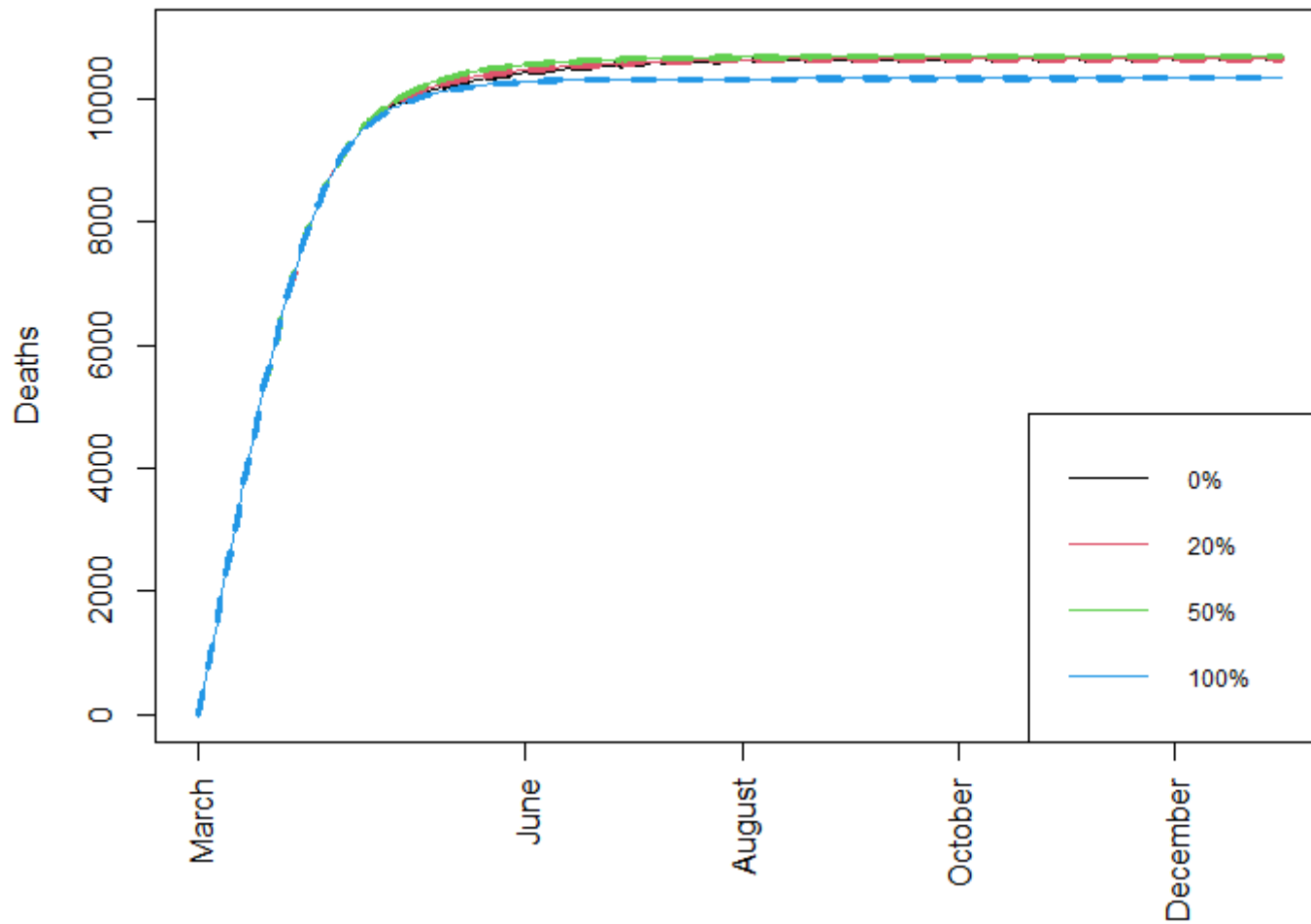


Figure 24: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Optimistic scenario and with limited vaccine availability

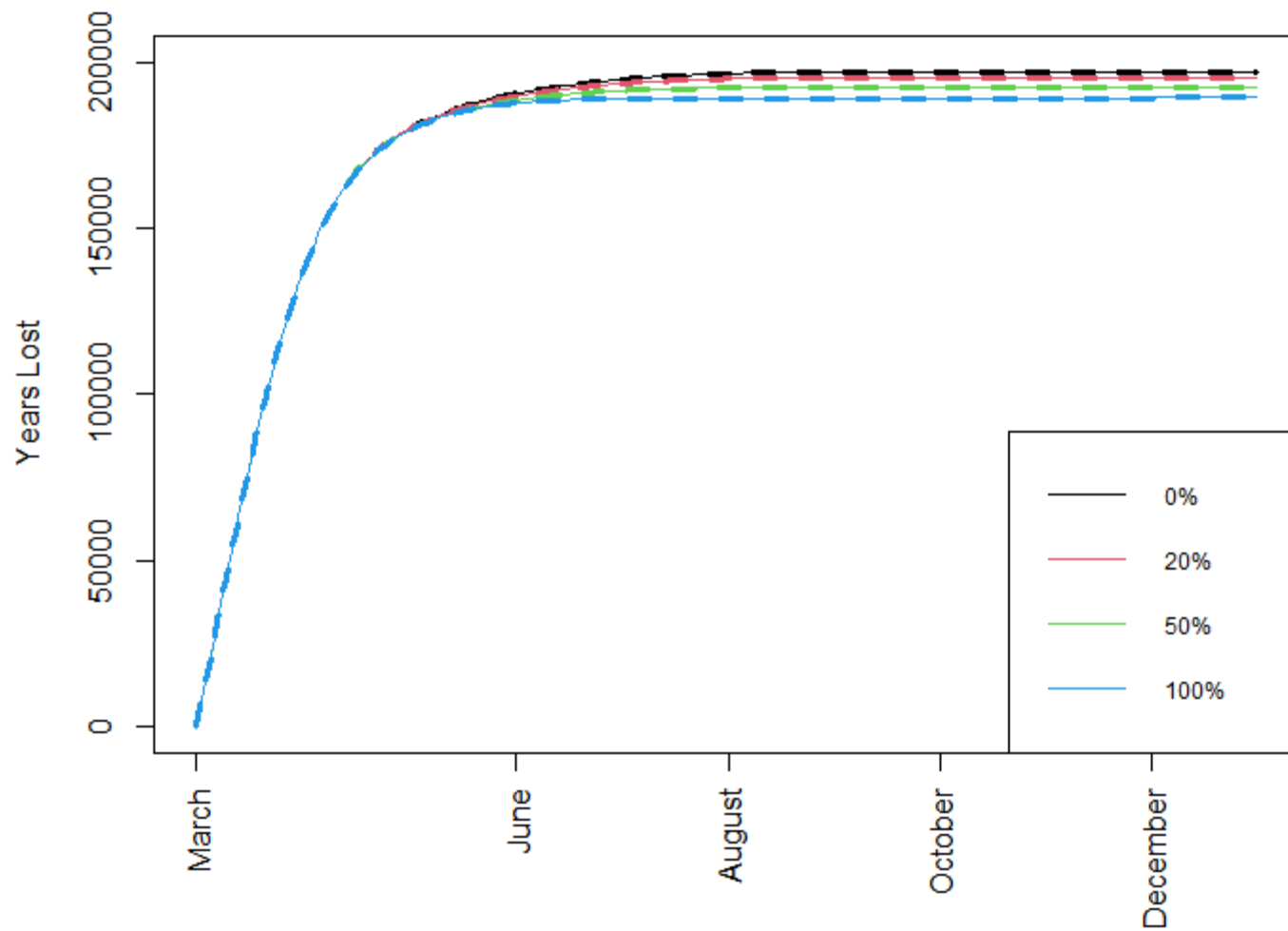


Figure 25: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Optimistic scenario and with limited vaccine availability

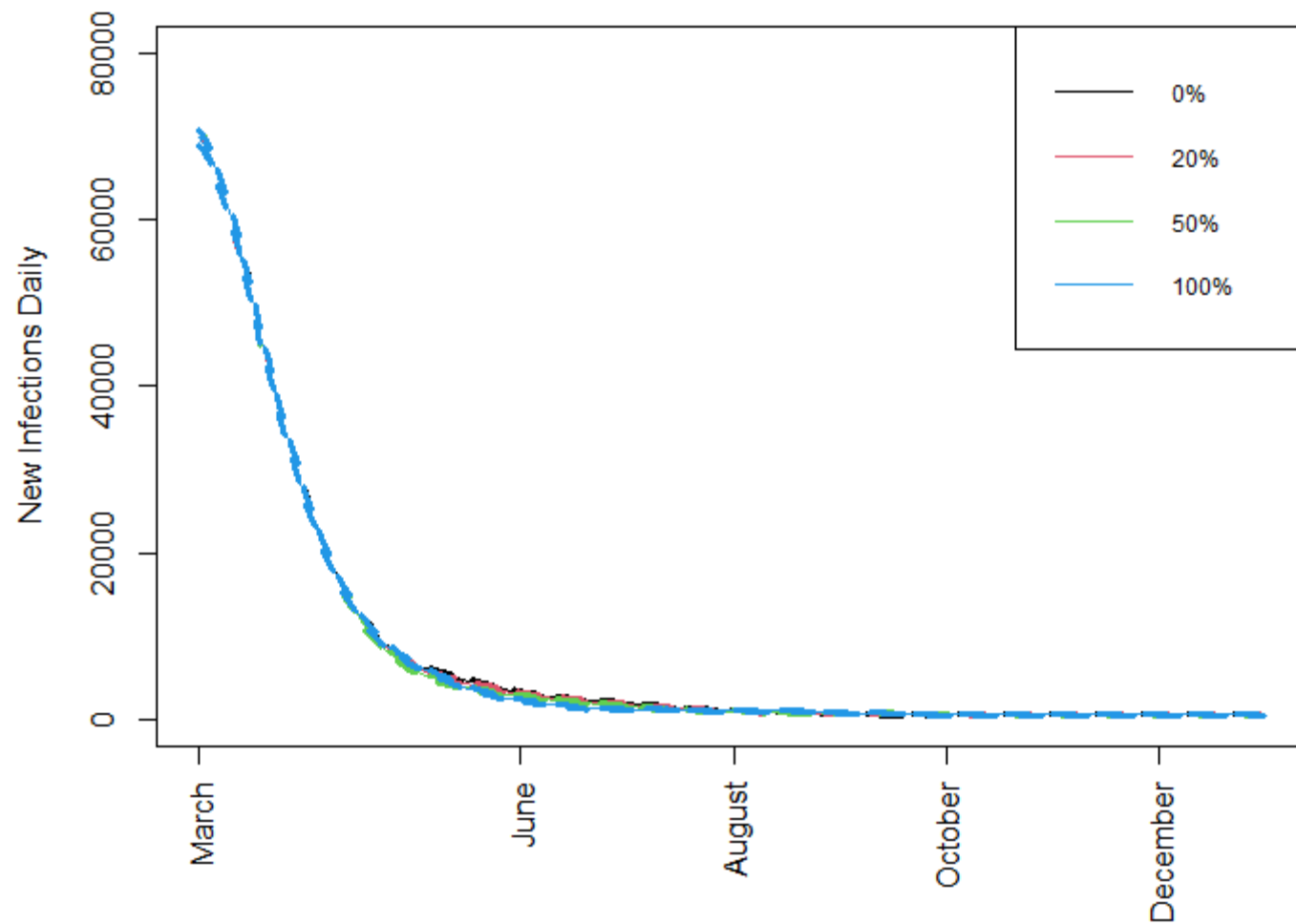


Figure 26: New Infections daily for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Optimistic scenario and with limited vaccine availability

2.2 Tables for $R_0=1.2$

2.2.1 Optimistic Scenario-Vaccine Availability

2.2.1.1 Cumulative Number of Deaths

2.2.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	143 (143-143)	146 (146-146)	146 (146-146)	146 (146-146)
40-64	1854 (1846-1862)	3649 (3647-3650)	3747 (3746-3747)	3748 (3747-3749)	3749 (3748-3749)
65+	1895 (1886-1906)	2382 (2372-2393)	2425 (2414-2435)	2460 (2450-2469)	2494 (2485-2503)
Total Deaths	3830 (3812-3849)	6188 (6176-6200)	6333 (6321-6343)	6370 (6359-6380)	6406 (6396-6415)
Total Years Lost	73338.5 (72982-73655.5)	134823.5 (134693.5-134930.5)	138298.5 (138191.5-138368.5)	138647 (138547-138740)	138988.5 (138895.5-139051.5)

2.2.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	139 (139-139)	141 (141-141)	141 (141-141)	141 (141-141)
40-64	1851 (1844-1858)	3549 (3547-3552)	3631 (3630-3633)	3632 (3631-3634)	3633 (3632-3635)
65+	1910 (1898-1921)	2498 (2486-2507)	2542 (2530-2552)	2580 (2568-2589)	2617 (2606-2625)
Total Deaths	3842 (3822-3860)	6200 (6186-6212)	6329 (6316-6341)	6369 (6356-6380)	6408 (6396-6418)
Total Years Lost	73353.5 (73006-73640.5)	132421.5 (132277.5-132574.5)	135370 (135256-135500)	135739.5 (135625.5-135862.5)	136102 (135995-136218)

2.2.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	74 (74-75)	131 (131-132)	132 (132-132)	132 (132-132)	132 (132-132)
40-64	1847 (1840-1855)	3366 (3363-3367)	3418 (3415-3418)	3420 (3417-3420)	3421 (3418-3421)
65+	1930 (1919-1941)	2724 (2713-2735)	2772 (2762-2783)	2815 (2805-2826)	2857 (2848-2868)
Total Deaths	3857 (3839-3877)	6234 (6220-6247)	6337 (6324-6348)	6383 (6370-6394)	6427 (6415-6438)
Total Years Lost	73320 (73033-73690.5)	128012 (127845-128172.5)	130108.5 (129948.5-130185.5)	130543 (130383-130620)	130940.5 (130787.5-131017.5)

2.2.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
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0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (74-75)	129 (129-130)	130 (129-130)	130 (129-130)	130 (130-130)
40-64	1854 (1845-1861)	3304 (3299-3306)	3308 (3304-3311)	3310 (3305-3312)	3311 (3306-3313)
65+	1881 (1869-1890)	2277 (2265-2286)	2307 (2296-2316)	2336 (2324-2344)	2363 (2352-2370)
Total Deaths	3816 (3794-3832)	5723 (5706-5735)	5760 (5744-5772)	5792 (5774-5802)	5821 (5805-5830)
Total Years Lost	73240.5 (72833-73513.5)	122916 (122682-123092.5)	123446.5 (123196-123599.5)	123783 (123495.5-123899)	124075.5 (123848.5-124184.5)

2.2.1.2 Cumulative Number of Infections

2.2.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205667 (201166-210219)	407312 (395477-419322)	449084 (434496-463889)	482972 (465905-500255)	514654 (495240-534338)
18-39	355689 (349709-361712)	656967 (642361-671754)	675264 (659023-691741)	678440 (661510-695684)	681536 (663921-699524)
40-64	354376 (348391-360414)	668844 (653957-683886)	695893 (678970-713058)	699934 (682234-717930)	703224 (684814-721976)
65+	42184 (40302-44067)	57728 (54204-61325)	59243 (55245-63369)	60548 (56118-65170)	61831 (56973-66957)

2.2.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205534 (200970-210198)	403452 (391590-415609)	444906 (430313-459863)	479132 (462101-496585)	511060 (491686-530944)
18-39	355236 (349160-361321)	642805 (628219-657546)	660470 (644265-676904)	664782 (647758-682083)	667937 (650220-685987)
40-64	353901 (347877-360076)	654980 (640253-669965)	680704 (663975-697761)	685876 (668259-703882)	689338 (670999-708132)
65+	42147 (40283-44074)	58745 (55183-62442)	60293 (56246-64522)	61647 (57166-66377)	62988 (58070-68216)

2.2.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	205479 (200965-210063)	396283 (384605-408222)	437216 (422824-451926)	471993 (455114-489232)	504377 (485126-524038)
18-39	354692 (348692-360781)	616322 (602245-630502)	632686 (617022-648531)	637888 (621346-654684)	641083 (623847-658634)
40-64	353384 (347459-359419)	629134 (614889-643580)	652335 (636184-668755)	658848 (641684-676313)	662412 (644510-680670)
65+	42142 (40258-44062)	60749 (57070-64557)	62344 (58182-66702)	63798 (59174-68669)	65222 (60147-70608)

2.2.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
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0-17	205676 (201067-210301)	394688 (382950-406493)	434175 (419772-448701)	469111 (452268-486160)	501636 (482421-521104)
18-39	355642 (349615-361645)	610315 (596723-624050)	627330 (612089-642780)	631344 (615324-647629)	634546 (617824-651576)
40-64	354302 (348264-360351)	621872 (608050-635929)	640813 (625241-656684)	645994 (629551-662793)	649412 (632243-666985)
65+	42122 (40226-44027)	58606 (54931-62377)	60210 (56054-64515)	61388 (56828-66170)	62546 (57585-67807)

2.2.2 Optimistic Scenario-Limited Vaccine Availability (in March)

2.2.2.1 Cumulative Number of Deaths

2.2.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	154 (154-154)	159 (159-159)	159 (159-159)	159 (159-159)
40-64	1866 (1859-1875)	3897 (3896-3900)	4074 (4074-4076)	4088 (4087-4089)	4089 (4088-4090)
65+	2216 (2201-2229)	3260 (3248-3271)	3311 (3299-3322)	3351 (3339-3362)	3389 (3378-3400)
Total Deaths	4163 (4141-4186)	7325 (7312-7339)	7559 (7547-7572)	7614 (7601-7626)	7654 (7642-7666)
Total Years Lost	75945.5 (75630.5-76360)	148998 (148884-149165)	155006 (154922-155143)	155779.5 (155665.5-155886.5)	156149 (156042-156256)

2.2.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	151 (150-151)	155 (155-155)	155 (155-155)	155 (155-155)
40-64	1867 (1858-1874)	3825 (3822-3827)	3980 (3978-3981)	3989 (3988-3990)	3990 (3989-3991)
65+	2217 (2203-2227)	3339 (3325-3350)	3378 (3365-3389)	3409 (3396-3419)	3439 (3426-3448)
Total Deaths	4165 (4142-4183)	7329 (7311-7342)	7528 (7513-7540)	7569 (7555-7580)	7601 (7587-7611)
Total Years Lost	75982.5 (75614.5-76316)	147230.5 (146989-147367.5)	152441 (152290-152548)	153001.5 (152880.5-153101.5)	153315 (153194-153408)

2.2.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
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0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	145 (145-145)	148 (148-148)	148 (148-148)	148 (148-148)
40-64	1866 (1859-1877)	3694 (3693-3698)	3809 (3809-3812)	3814 (3813-3816)	3815 (3814-3818)
65+	2215 (2203-2229)	3518 (3505-3530)	3556 (3543-3567)	3587 (3575-3599)	3617 (3606-3628)
Total Deaths	4162 (4143-4188)	7371 (7357-7387)	7528 (7515-7542)	7565 (7552-7579)	7597 (7585-7611)
Total Years Lost	75938.5 (75644.5-76420)	144232.5 (144111.5-144436.5)	148182.5 (148091.5-148349.5)	148623 (148509-148767)	148936.5 (148829.5-149103.5)

2.2.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	144 (144-144)	144 (144-144)	144 (144-144)	144 (144-144)
40-64	1867 (1860-1874)	3669 (3666-3672)	3683 (3681-3687)	3686 (3683-3689)	3686 (3684-3690)
65+	2216 (2204-2227)	3174 (3163-3184)	3212 (3201-3222)	3245 (3234-3255)	3276 (3265-3286)
Total Deaths	4164 (4145-4183)	7001 (6987-7014)	7054 (7041-7068)	7091 (7077-7104)	7123 (7110-7137)
Total Years Lost	75975.5 (75681.5-76316)	141021 (140854-141181)	141780.5 (141643.5-141970.5)	142175 (142008-142335)	142465.5 (142328.5-142655.5)

2.2.2.2 Cumulative Number of Infections

2.2.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206212 (201679-210794)	417366 (405266-429726)	461620 (446672-476854)	495155 (477799-512851)	526114 (506433-546190)
18-39	358636 (352614-364716)	699516 (683980-715236)	732117 (714298-750162)	736143 (717541-755011)	739123 (719853-758723)
40-64	357538 (351486-363601)	711277 (695654-727052)	753207 (734974-771640)	761140 (741826-780698)	764312 (744309-784620)
65+	44780 (42828-46723)	70070 (66036-74193)	71808 (67260-76494)	73196 (68197-78385)	74542 (69106-80234)

2.2.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206274 (201698-210920)	414688 (402570-426971)	458350 (443427-473507)	492060 (474725-509694)	523254 (503583-543273)
18-39	358614 (352659-364788)	688590 (673443-704148)	719250 (701911-737064)	724444 (706215-743202)	727685 (708750-747205)
40-64	357503 (351359-363611)	700694 (685121-716303)	740576 (722463-758773)	748862 (729636-768222)	752600 (732612-772767)
65+	44766 (42830-46760)	70781 (66722-74992)	72286 (67755-77036)	73518 (68562-78748)	74726 (69354-80420)

2.2.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206249 (201609-210938)	409864 (397791-422146)	452387 (437539-467513)	486414 (469113-504031)	517937 (498299-537945)
18-39	358648 (352635-364754)	669204 (654265-684396)	696183 (679165-713522)	702814 (684783-721223)	706130 (687391-725310)
40-64	357540 (351478-363598)	681848 (666506-697140)	717728 (699974-735506)	726609 (707691-745598)	730746 (711044-750577)
65+	44758 (42822-46733)	72517 (68334-76832)	73974 (69326-78805)	75210 (70142-80518)	76428 (70937-82202)

2.2.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206236 (201679-210850)	409434 (397539-421489)	448634 (434100-463420)	482776 (465825-500064)	514444 (495151-534136)
18-39	358596 (352539-364593)	666256 (651618-680977)	685717 (669305-702276)	691784 (674429-709335)	694875 (676834-713157)
40-64	357472 (351472-363480)	678480 (663588-693482)	701418 (684622-718407)	709296 (691412-727437)	712587 (694000-731488)
65+	44772 (42820-46756)	70618 (66480-74847)	72756 (68056-77601)	74018 (68888-79342)	75242 (69701-81053)

2.3 Tables for $R_0=1.4$

2.3.1 Optimistic Scenario-Vaccine Availability

2.3.1.1 Cumulative Number of Deaths

2.3.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	131 (131-131)	182 (183-182)	182 (183-182)	182 (183-182)	182 (183-182)
40-64	3336 (3335-3335)	4754 (4763-4743)	4777 (4787-4766)	4778 (4787-4766)	4778 (4788-4767)
65+	3924 (3913-3935)	4382 (4374-4389)	4388 (4380-4395)	4394 (4386-4400)	4400 (4392-4405)
Total Deaths	7403 (7391-7413)	9336 (9338-9332)	9366 (9369-9362)	9374 (9376-9368)	9381 (9384-9375)
Total Years Lost	135438.5 (135331.5-135485.5)	184354 (184621.5-184073)	185159.5 (185457-184878.5)	185305 (185572.5-184987)	185420.5 (185718-185125.5)

2.3.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (21-20)
18-39	131 (131-131)	178 (179-178)	178 (179-178)	179 (179-178)	179 (179-178)
40-64	3332 (3331-3331)	4664 (4673-4654)	4680 (4690-4670)	4681 (4691-4671)	4682 (4691-4671)
65+	3949 (3935-3956)	4533 (4522-4537)	4542 (4531-4546)	4551 (4540-4554)	4559 (4549-4562)
Total Deaths	7424 (7409-7430)	9393 (9392-9387)	9419 (9419-9413)	9431 (9430-9423)	9440 (9440-9431)
Total Years Lost	135493.5 (135365.5-135512.5)	182497 (182743.5-182225)	183113.5 (183390-182841.5)	183333.5 (183556.5-183001)	183419.5 (183693-183057)

2.3.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (20-20)
18-39	130 (130-130)	172 (172-171)	172 (172-171)	172 (172-172)	172 (172-172)
40-64	3322 (3323-3323)	4502 (4512-4493)	4507 (4517-4498)	4508 (4518-4499)	4509 (4519-4500)
65+	3984 (3973-3996)	4806 (4802-4814)	4821 (4817-4828)	4834 (4832-4841)	4848 (4846-4854)
Total Deaths	7448 (7438-7461)	9498 (9504-9496)	9519 (9525-9516)	9534 (9542-9532)	9549 (9557-9546)
Total Years Lost	135385 (135338-135499)	179227 (179499-178959.5)	179555.5 (179827.5-179281)	179750 (180036-179529)	179878 (180164-179650)

2.3.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (20-20)
18-39	131 (131-131)	173 (174-173)	174 (174-173)	174 (174-173)	174 (174-173)
40-64	3336 (3336-3334)	4518 (4527-4506)	4522 (4531-4509)	4522 (4531-4510)	4523 (4532-4511)
65+	3896 (3880-3906)	4272 (4258-4282)	4276 (4261-4285)	4278 (4263-4287)	4280 (4265-4289)
Total Deaths	7375 (7359-7383)	8981 (8977-8979)	8991 (8985-8986)	8994 (8988-8990)	8997 (8991-8993)
Total Years Lost	135242.5 (135130.5-135252.5)	176022.5 (176248-175732.5)	176297.5 (176462.5-175917)	176385 (176550-176034.5)	176429 (176594-176078.5)

2.3.1.2 Cumulative Number of Infections

2.3.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345423 (339461-351451)	486231 (474272-498388)	515506 (501303-529968)	541782 (525482-558406)	566596 (548252-585335)
18-39	545079 (537408-552750)	742702 (728204-757310)	748108 (732733-763653)	750702 (734703-766930)	753266 (736646-770176)
40-64	561806 (554198-569493)	780662 (765781-795810)	791294 (775147-807776)	794163 (777352-811358)	796999 (779533-814904)
65+	79832 (77251-82444)	93768 (89772-97857)	94660 (90304-99170)	95514 (90797-100428)	96368 (91288-101679)

2.3.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345401 (339428-351522)	483749 (471826-495929)	513062 (498900-527553)	539512 (523243-556195)	564442 (546119-583243)
18-39	544647 (537093-552339)	731975 (717874-746380)	738456 (723358-753911)	741478 (725704-757666)	744087 (727686-760951)
40-64	561392 (553696-569135)	769924 (755184-784838)	780666 (764657-796888)	784318 (767561-801334)	787174 (769758-804903)
65+	79807 (77251-82412)	94758 (90714-98918)	95697 (91288-100278)	96609 (91834-101590)	97512 (92379-102889)

2.3.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345259 (339276-351361)	479178 (467416-491263)	508656 (494636-523060)	535413 (519252-552012)	560574 (542369-579311)
18-39	543756 (536204-551396)	712186 (698510-726061)	721000 (706154-736096)	724164 (708632-740004)	726812 (710652-743344)
40-64	560559 (552872-568345)	750136 (735806-764689)	761263 (745622-777189)	765350 (748921-782113)	768269 (751172-785749)
65+	79768 (77206-82367)	96577 (92409-100860)	97614 (93049-102335)	98596 (93659-103751)	99572 (94268-105158)

2.3.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	345540 (339505-351624)	480038 (468162-491995)	509518 (495380-523798)	536176 (519890-552655)	561308 (542949-579894)
18-39	545205 (537488-552968)	716857 (703069-730689)	729172 (713993-744432)	731866 (716048-747825)	734512 (718068-751164)
40-64	561937 (553987-569628)	751328 (736910-765541)	765856 (749914-781642)	769077 (752442-785626)	771990 (754676-789262)
65+	79736 (77165-82318)	94254 (90091-98505)	95393 (90833-100100)	96172 (91264-101248)	96938 (91692-102398)

2.3.2 Optimistic Scenario-Limited Vaccine Availability (in March)

2.3.2.1 Cumulative Number of Deaths

2.3.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	190 (191-190)	192 (192-191)	192 (192-191)	192 (192-191)
40-64	3360 (3360-3361)	4960 (4970-4950)	5030 (5040-5020)	5031 (5041-5020)	5031 (5042-5021)
65+	4552 (4541-4565)	5692 (5688-5699)	5699 (5696-5706)	5706 (5702-5712)	5712 (5709-5717)
Total Deaths	8056 (8045-8070)	10860 (10867-10857)	10940 (10947-10936)	10949 (10955-10943)	10956 (10964-10950)
Total Years Lost	140608 (140531-140729)	200132 (200457.5-199881)	202461.5 (202740.5-202157)	202614 (202886-202272.5)	202729.5 (203038.5-202411)

2.3.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	188 (188-188)	189 (189-188)	189 (189-188)	189 (189-188)
40-64	3360 (3360-3360)	4904 (4913-4892)	4958 (4967-4945)	4959 (4968-4946)	4960 (4968-4946)
65+	4554 (4541-4563)	5780 (5770-5782)	5782 (5772-5784)	5784 (5774-5786)	5786 (5776-5789)
Total Deaths	8058 (8045-8067)	10890 (10889-10880)	10948 (10947-10936)	10952 (10951-10940)	10956 (10954-10944)
Total Years Lost	140622 (140531-140685)	198961 (199161-198615)	200722 (200922-200292.5)	200839.5 (201039.5-200410)	200957 (201127-200504.5)

2.3.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	184 (184-183)	184 (185-184)	184 (185-184)	184 (185-184)
40-64	3360 (3358-3361)	4805 (4814-4795)	4832 (4842-4822)	4834 (4844-4824)	4834 (4844-4824)
65+	4551 (4539-4566)	5942 (5932-5951)	5945 (5934-5953)	5947 (5937-5955)	5949 (5939-5957)
Total Deaths	8055 (8041-8071)	10949 (10948-10947)	10980 (10980-10978)	10985 (10986-10983)	10988 (10989-10986)
Total Years Lost	140601 (140457-140736)	196911 (197111-196620.5)	197815.5 (198092-197571.5)	197963 (198246.5-197719)	198050.5 (198334-197806.5)

2.3.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	184 (184-183)	184 (185-184)	184 (185-184)	184 (185-184)
40-64	3360 (3361-3361)	4793 (4803-4784)	4798 (4808-4788)	4799 (4809-4790)	4800 (4810-4790)
65+	4553 (4541-4562)	5625 (5614-5628)	5630 (5618-5632)	5632 (5621-5634)	5634 (5623-5636)
Total Deaths	8057 (8046-8067)	10620 (10619-10613)	10631 (10630-10623)	10635 (10635-10628)	10639 (10639-10631)
Total Years Lost	140615 (140561-140708)	194332 (194555-194029.5)	194590.5 (194860-194304.5)	194708 (194984.5-194452)	194825.5 (195102-194539.5)

2.3.2.2 Cumulative Number of Infections

2.3.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346398 (340348-352456)	492897 (480701-505247)	523133 (508627-537840)	549018 (532417-565866)	573470 (554849-592406)
18-39	549770 (542134-557481)	775092 (759925-790364)	787788 (771288-804447)	790322 (773207-807658)	792822 (775091-810832)
40-64	566934 (559065-574814)	814174 (798272-830008)	835159 (817476-852846)	838278 (819912-856712)	841032 (822029-860172)
65+	84240 (81566-86912)	107660 (103115-112293)	108608 (103688-113668)	109462 (104184-114921)	110316 (104676-116170)

2.3.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346440 (340360-352417)	491288 (479020-503511)	521282 (506722-535842)	547307 (530659-564018)	571849 (553160-590639)
18-39	549796 (542019-557431)	767682 (752525-782741)	780023 (763512-796479)	783454 (766214-800684)	785978 (768124-803888)
40-64	566963 (559054-574638)	806759 (791041-822334)	826352 (808908-843715)	830494 (812250-848710)	833329 (814434-852263)
65+	84230 (81585-86906)	108270 (103692-112944)	109112 (104191-114192)	109899 (104622-115349)	110670 (105053-116505)

2.3.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346337 (340310-352390)	488497 (476412-500611)	518055 (503706-532491)	544320 (527866-560906)	569022 (550504-587693)
18-39	549653 (541928-557553)	754472 (739665-769543)	766550 (750367-783032)	770599 (753639-787917)	773152 (755567-791136)
40-64	566871 (559117-574758)	793640 (778424-809121)	811221 (794344-828399)	816569 (798791-834699)	819412 (800978-838260)
65+	84214 (81567-86917)	109782 (105070-114622)	110612 (105555-115849)	111400 (105995-117012)	112182 (106429-118171)

2.3.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346356 (340416-352437)	488426 (476467-500632)	517526 (503331-532043)	543822 (527537-560508)	568526 (550188-587332)
18-39	549709 (542023-557430)	753434 (738892-768099)	768035 (751969-784288)	771574 (754784-788613)	774140 (756724-791860)
40-64	566871 (559122-574685)	791484 (776416-806670)	807968 (791249-824881)	812673 (795119-830481)	815484 (797276-833997)
65+	84204 (81545-86900)	108032 (103387-112789)	109608 (104495-114887)	110366 (104926-116035)	111114 (105354-117177)

3 Results of vaccination strategies for different values of R_0 for worst case scenario

3.1 Model Graph and Parameters

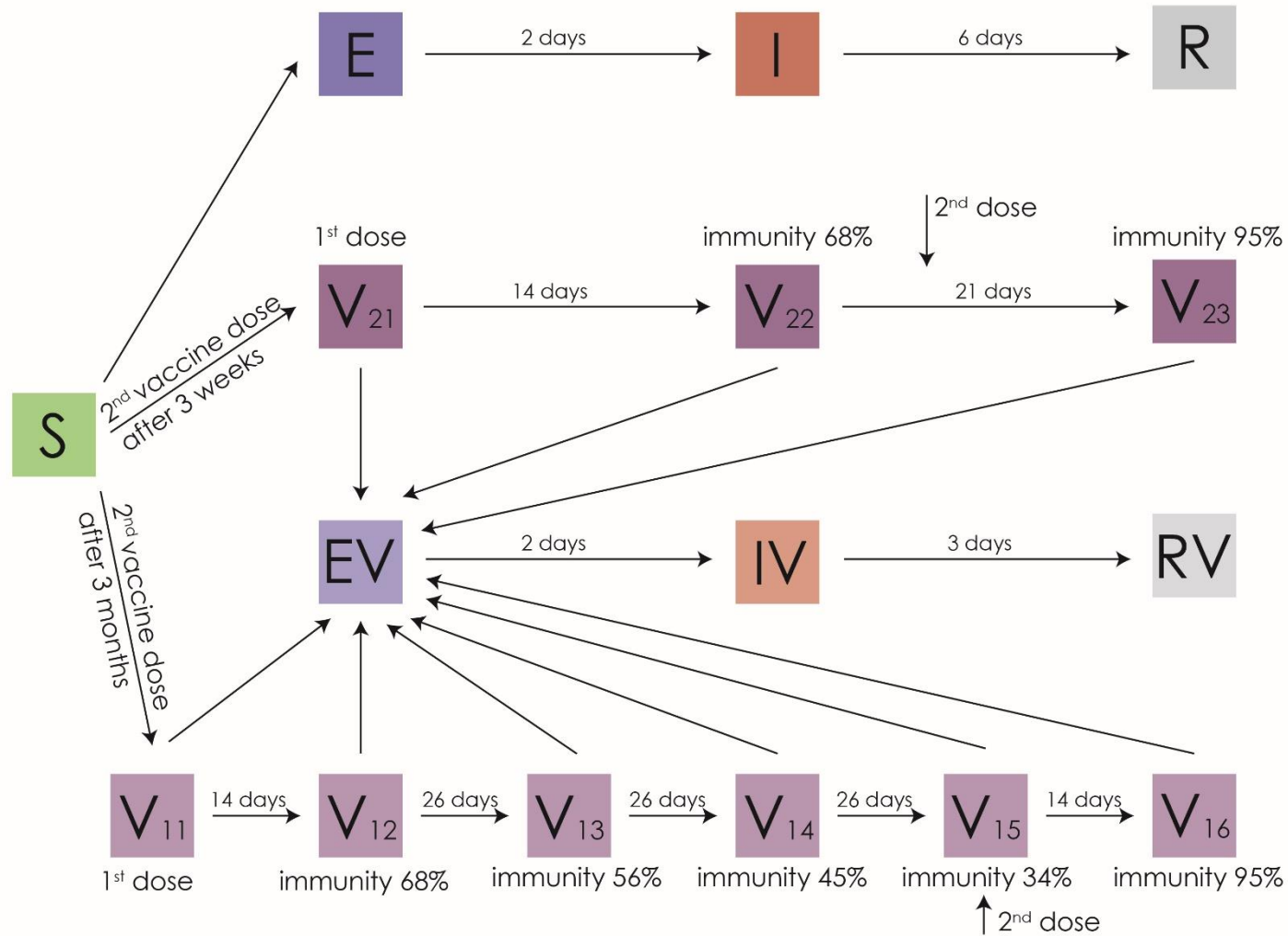


Figure 27: A schematic representation of the S(V)EIR epidemic model for the Worst-case scenario regarding immunity waning.

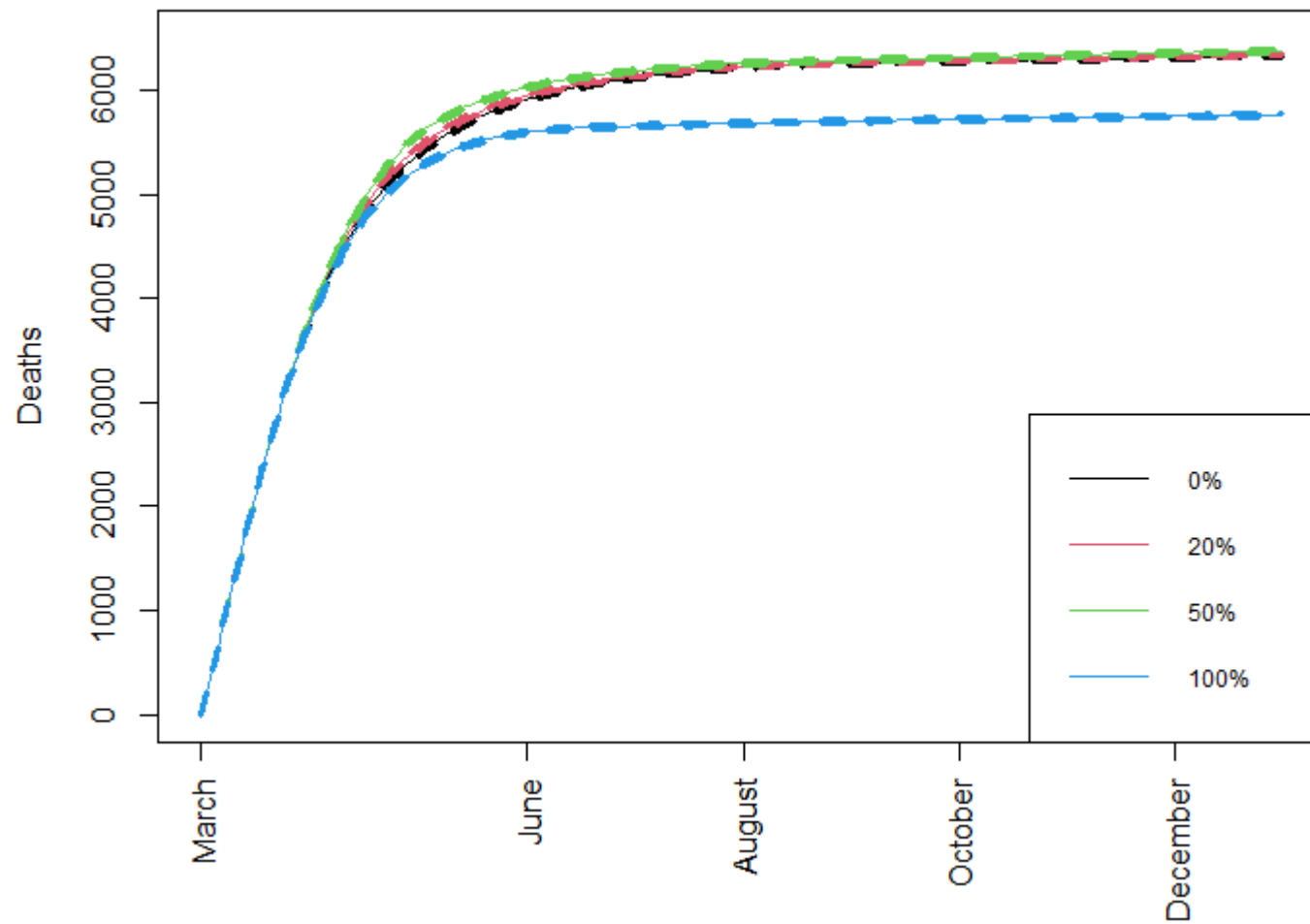


Figure 28: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with standard vaccine availability

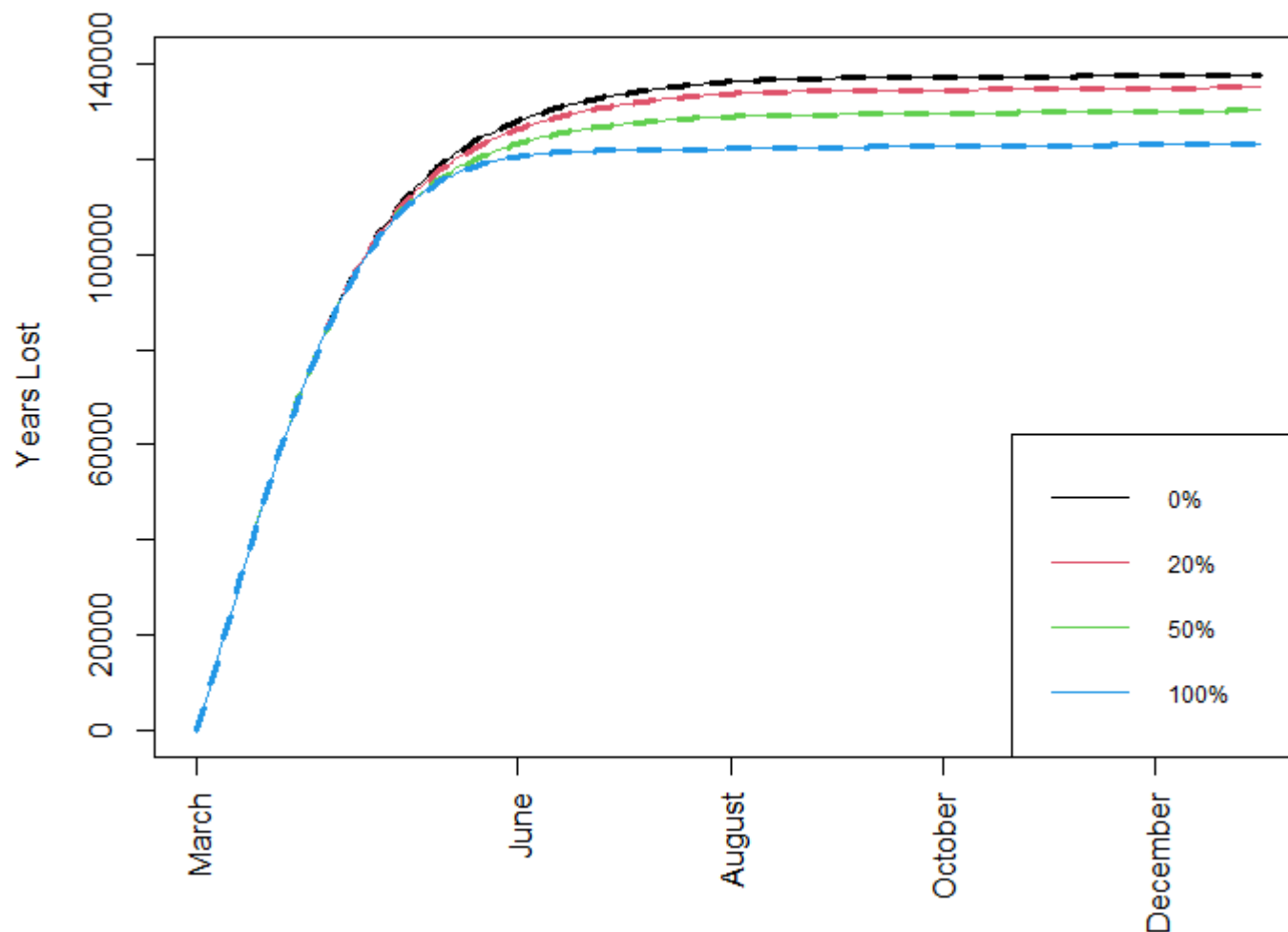


Figure 29: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with standard vaccine availability

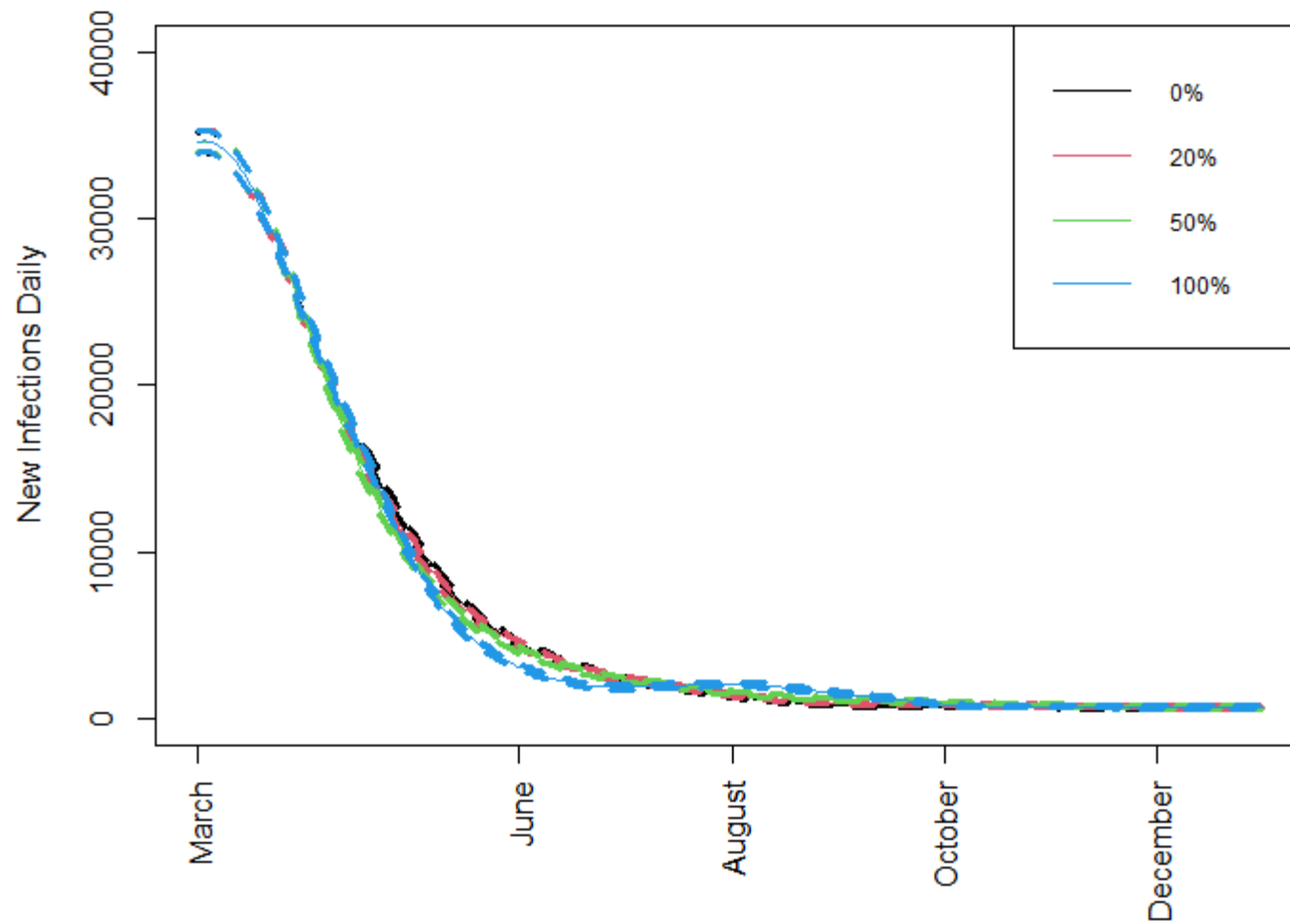


Figure 30: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with standard vaccine availability

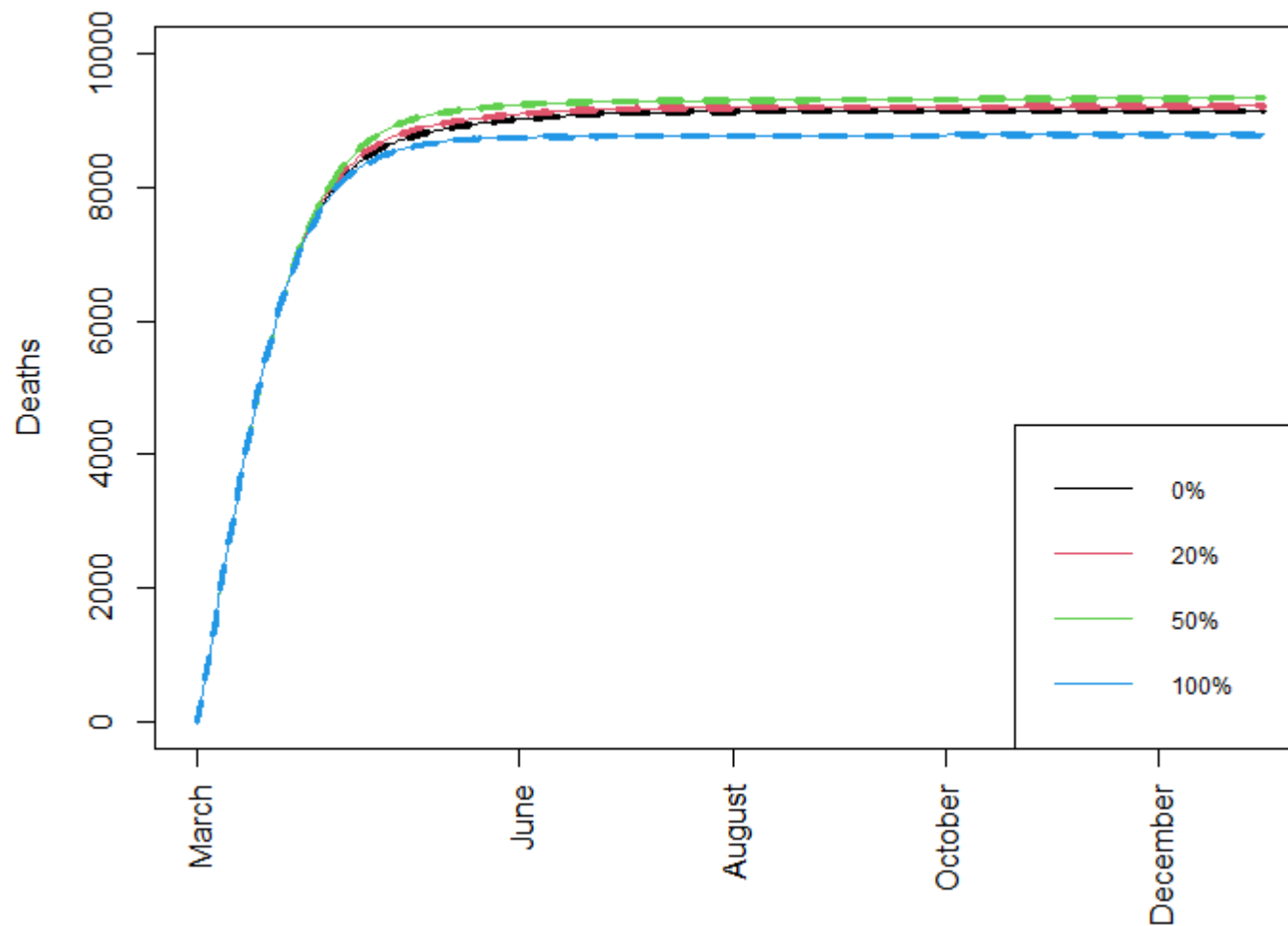


Figure 31: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Worst-case scenario and with standard vaccine availability

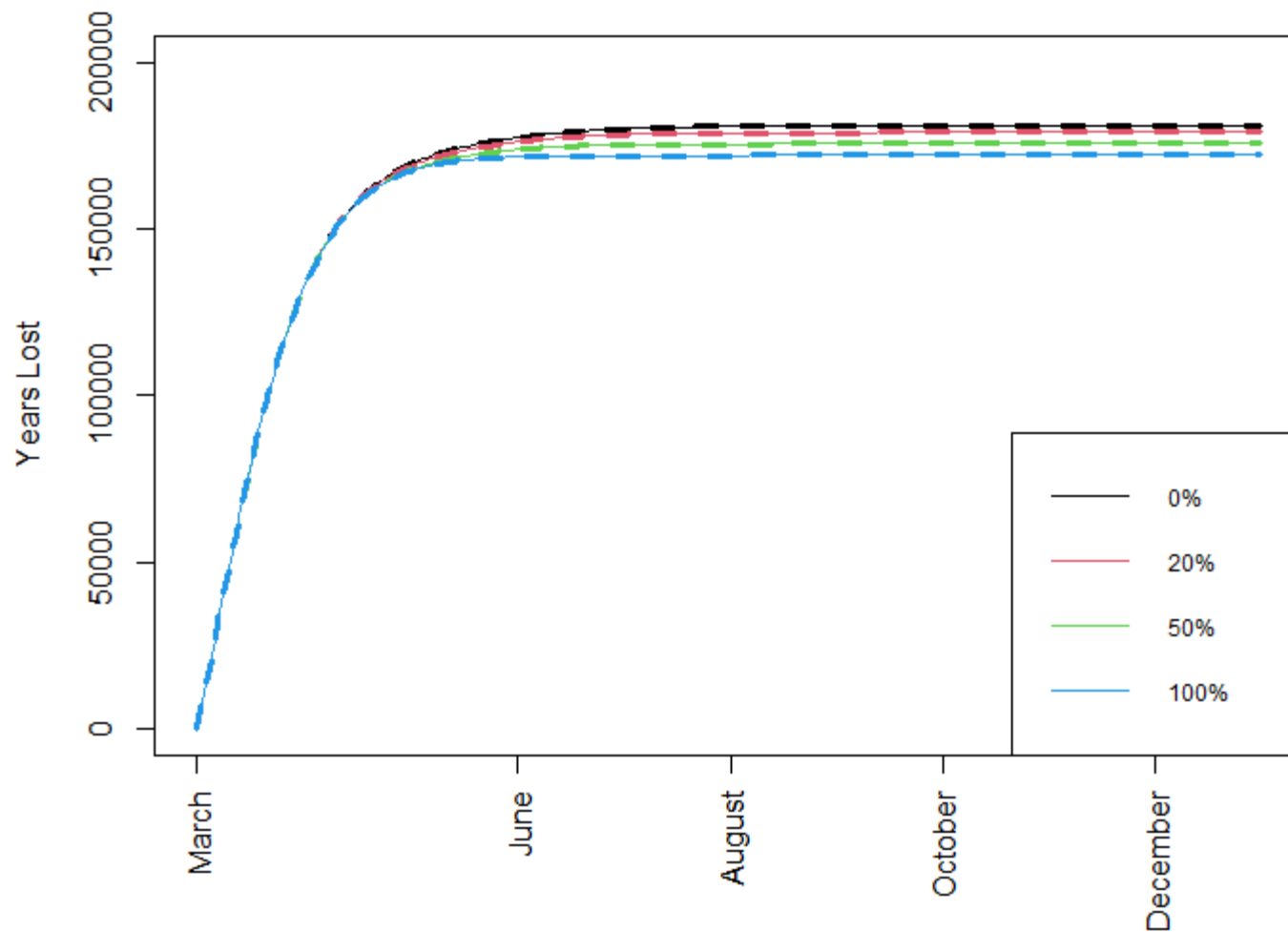


Figure 32: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Worst-case scenario and with standard vaccine availability

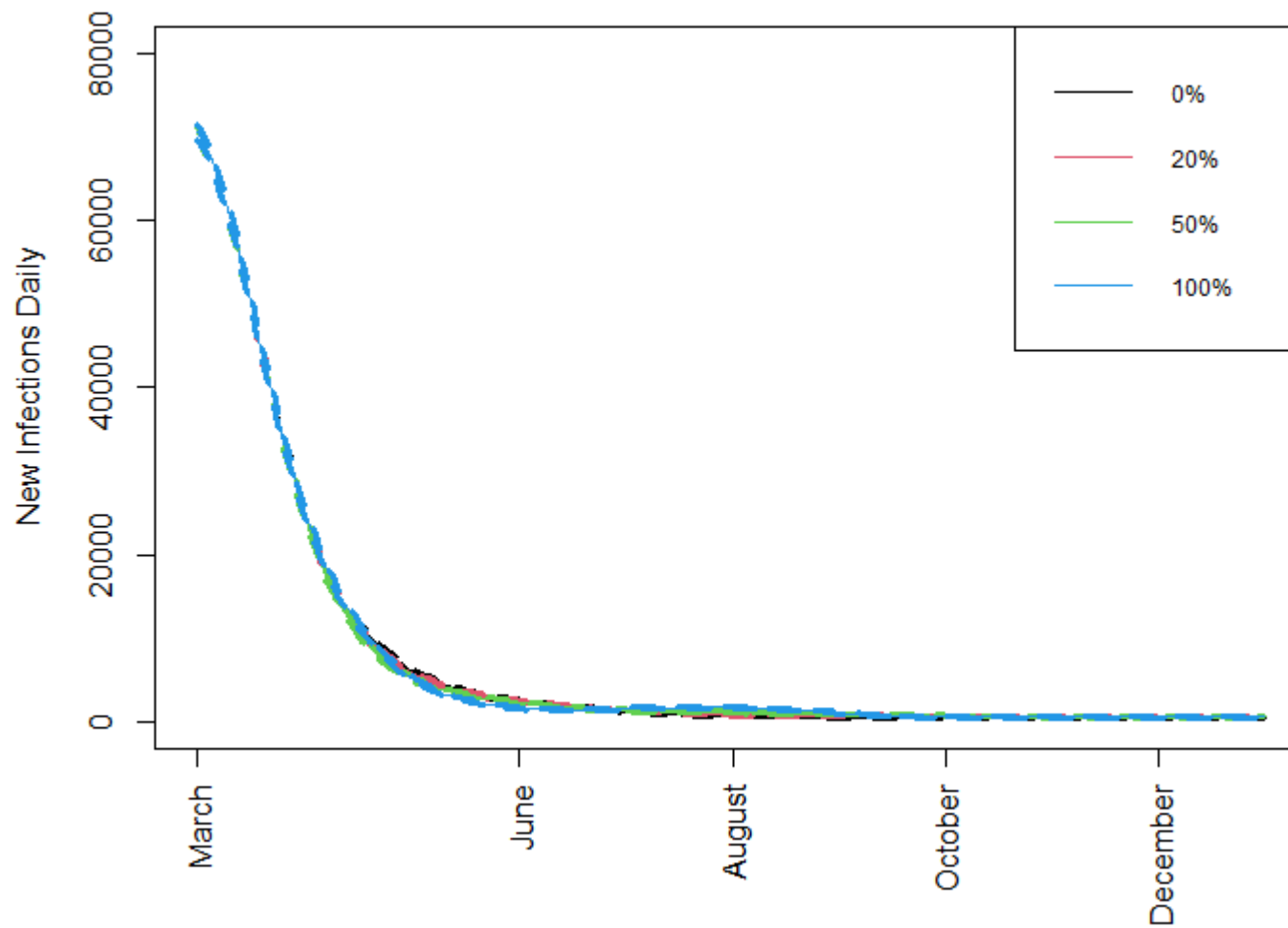


Figure 33: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with standard vaccine availability

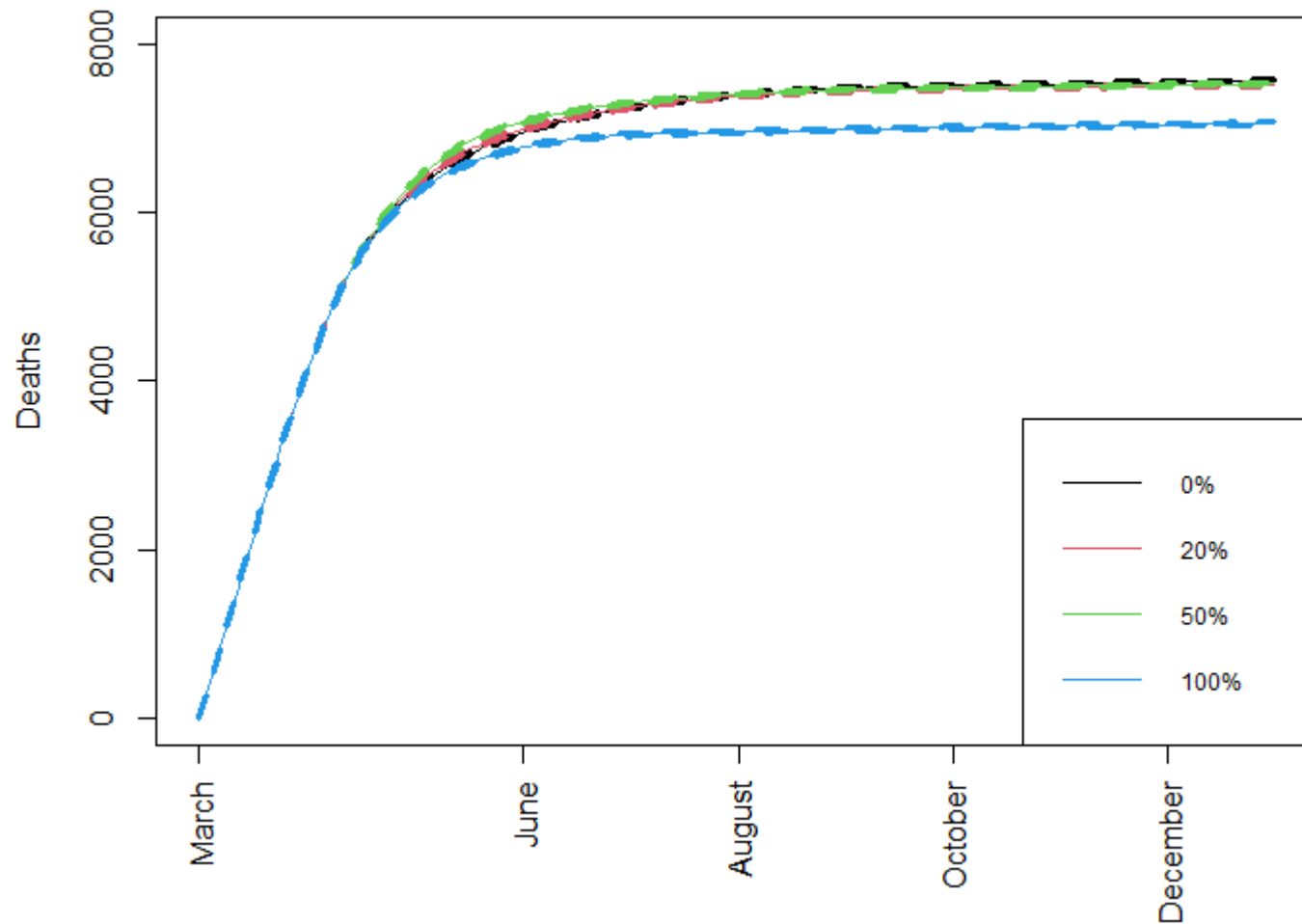


Figure 34: Deaths over time for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with limited vaccine availability

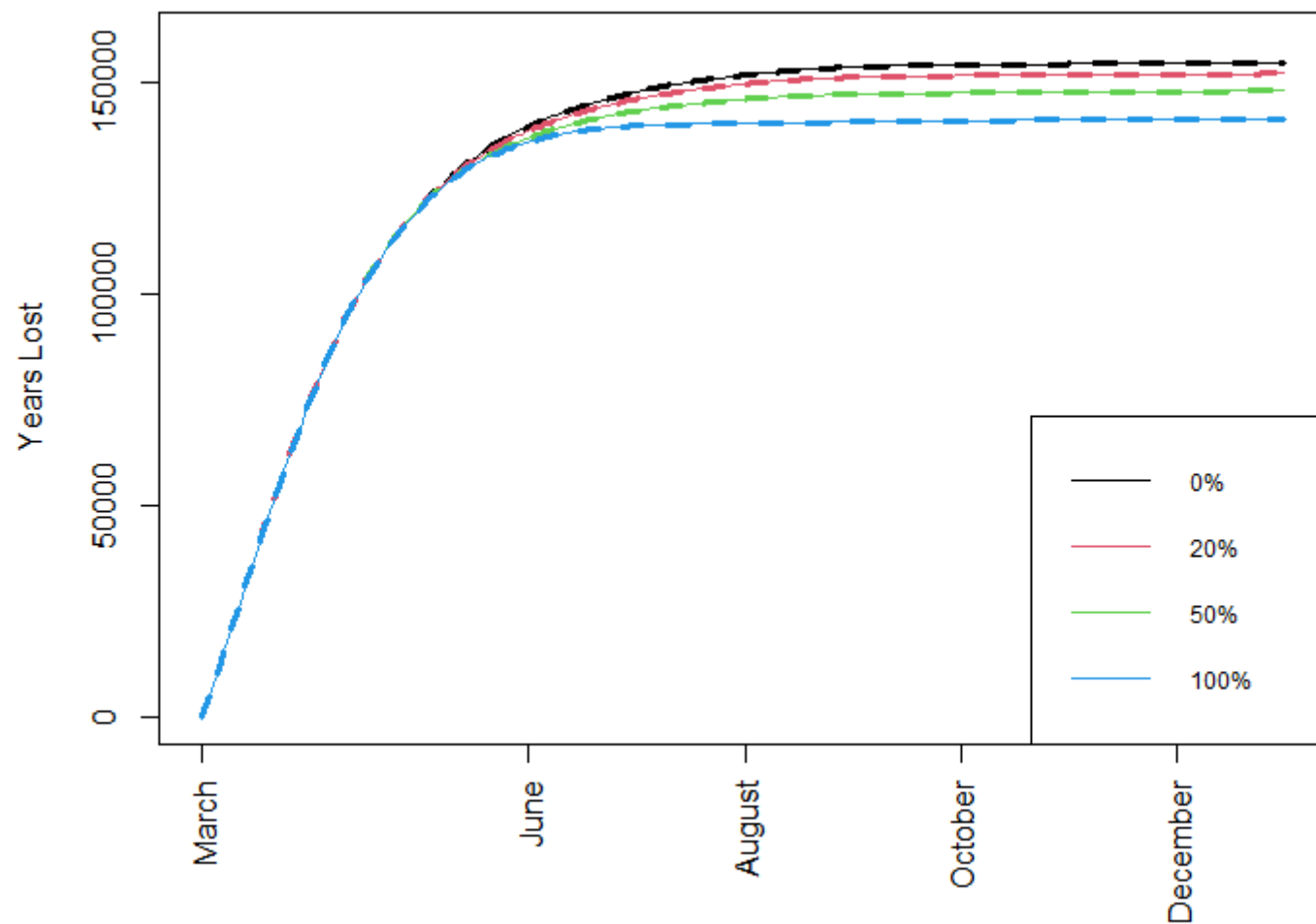


Figure 35: Years of life lost for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with limited vaccine availability

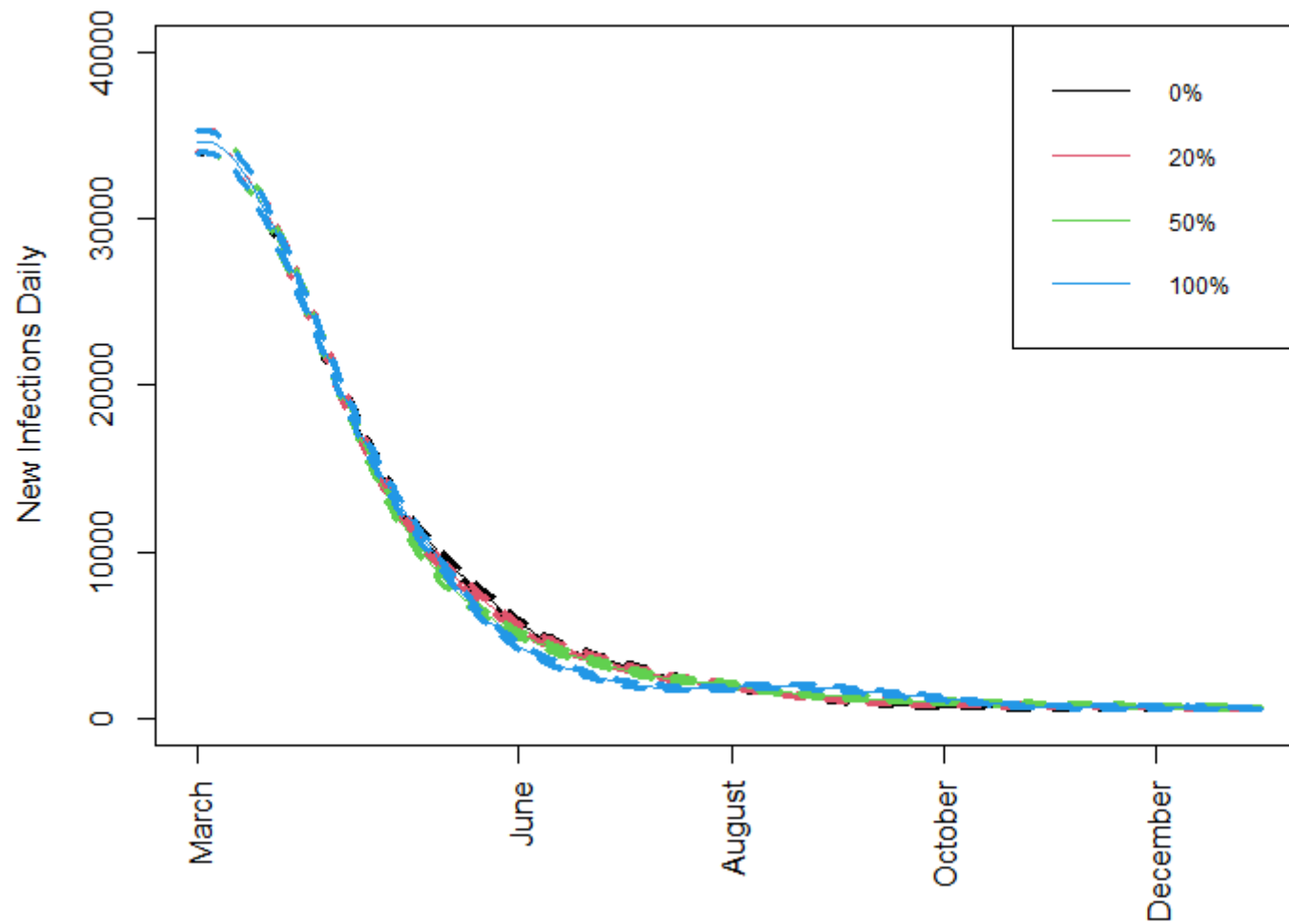


Figure 36: New Infections daily for different percentage of doses given using strategy II when $R_0=1.2$, immunity drop is at the Worst-case scenario and with limited vaccine availability

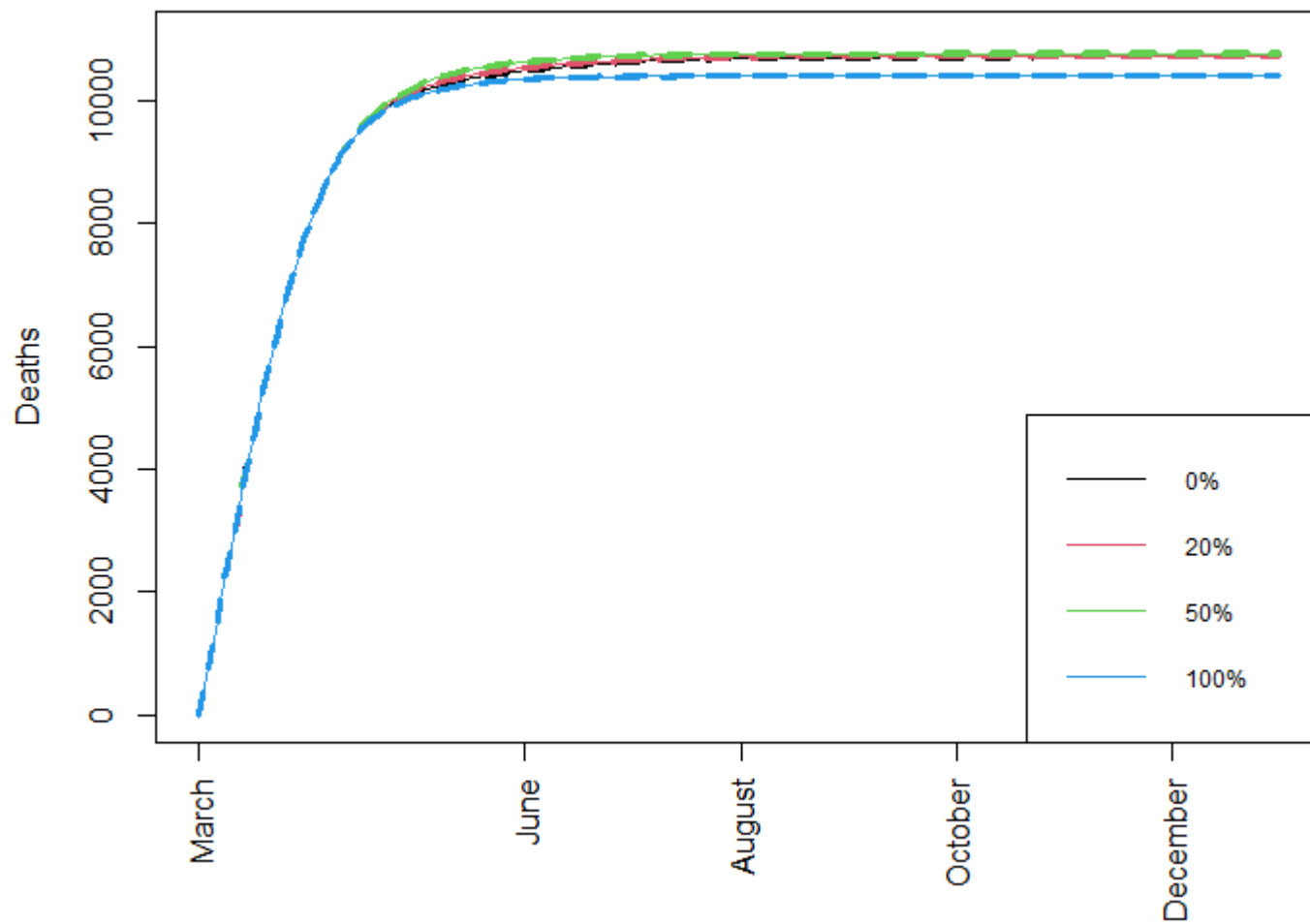


Figure 37: Deaths over time for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Worst-case scenario and with limited vaccine availability

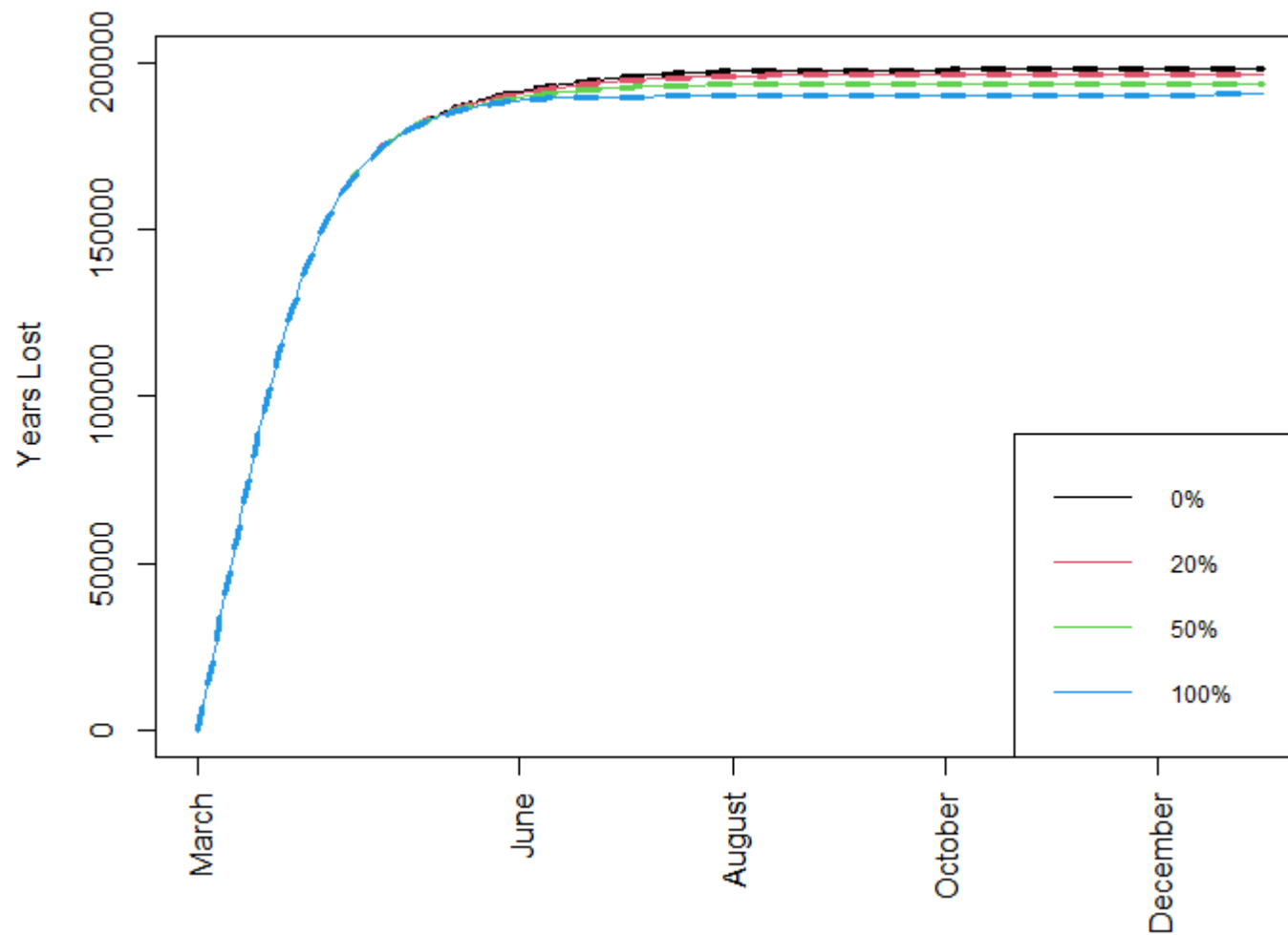


Figure 38: Years of life lost for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Worst-case scenario and with limited vaccine availability

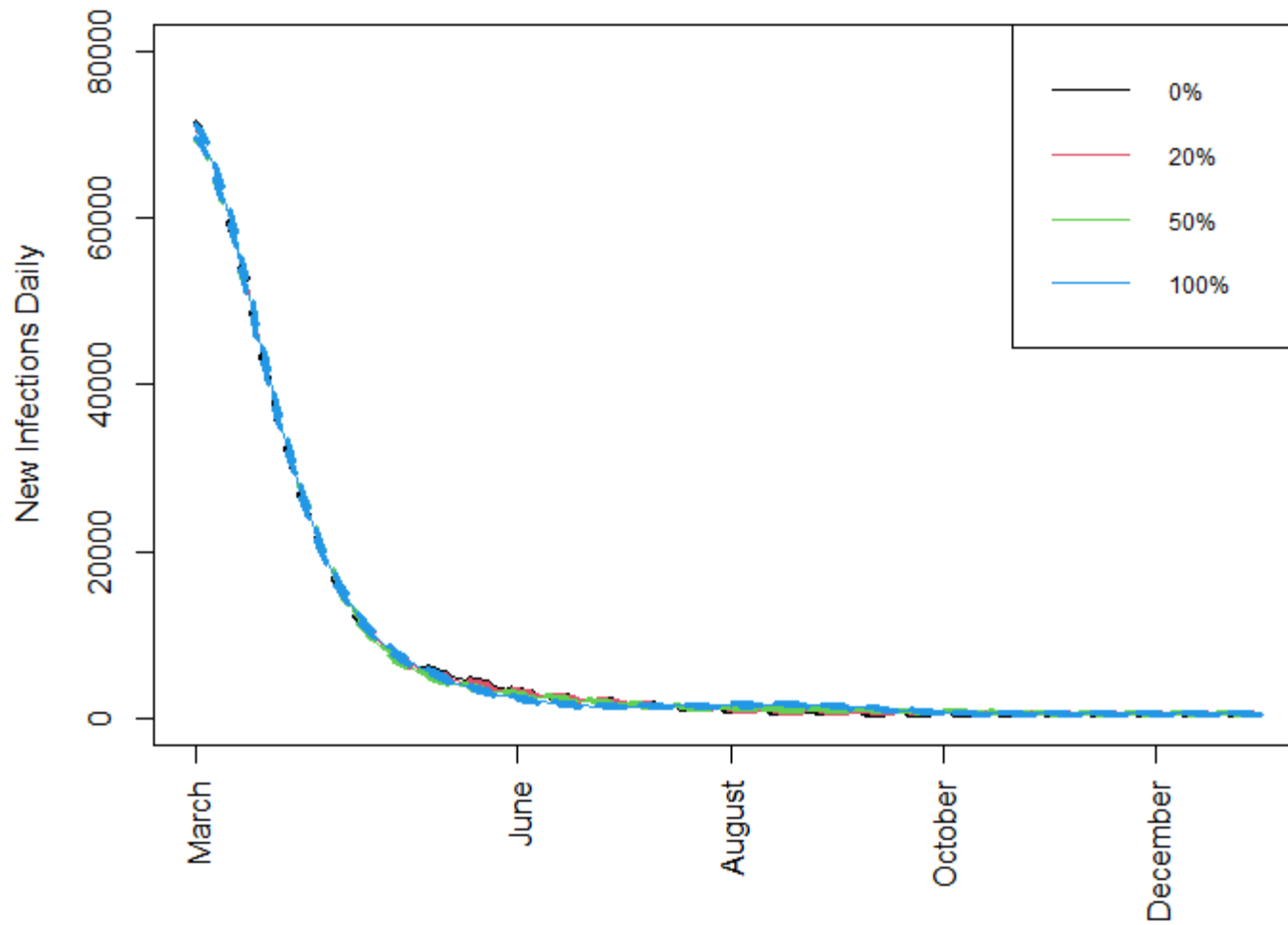


Figure 39: New Infections daily for different percentage of doses given using strategy II when $R_0=1.4$, immunity drop is at the Worst-case scenario and with limited vaccine availability

3.2 Tables for $R_0=1.2$

3.2.1 Worst Case Scenario-Vaccine Availability

3.2.1.1 Cumulative Number of Deaths

3.2.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	145 (144-145)	147 (147-147)	147 (147-147)	147 (147-147)
40-64	1870 (1861-1877)	3681 (3678-3683)	3780 (3777-3781)	3781 (3778-3782)	3782 (3779-3783)
65+	1919 (1907-1931)	2414 (2402-2424)	2456 (2445-2466)	2491 (2481-2501)	2526 (2515-2535)
Total Deaths	3870 (3849-3890)	6254 (6238-6266)	6398 (6384-6409)	6435 (6422-6446)	6472 (6458-6482)
Total Years Lost	73986.5 (73632.5-74334)	136114.5 (135887-136244.5)	139559 (139392-139659)	139907.5 (139747.5-140007.5)	140256 (140089-140349)

3.2.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	141 (141-141)	142 (142-142)	142 (142-142)	142 (142-142)
40-64	1867 (1859-1875)	3588 (3584-3590)	3671 (3668-3672)	3673 (3670-3674)	3674 (3671-3675)
65+	1933 (1924-1946)	2531 (2522-2543)	2577 (2569-2589)	2614 (2606-2626)	2651 (2643-2663)
Total Deaths	3881 (3864-3903)	6274 (6261-6288)	6405 (6394-6418)	6445 (6434-6458)	6484 (6473-6497)
Total Years Lost	73994.5 (73691.5-74379)	133929.5 (133746.5-134073.5)	136868.5 (136722.5-136982.5)	137261 (137115-137375)	137623.5 (137477.5-137737.5)

3.2.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-75)	133 (133-133)	134 (134-134)	134 (134-134)	134 (134-134)
40-64	1863 (1853-1871)	3410 (3406-3412)	3465 (3462-3467)	3468 (3465-3470)	3469 (3466-3471)
65+	1954 (1941-1965)	2765 (2753-2776)	2815 (2803-2827)	2859 (2848-2871)	2901 (2889-2913)
Total Deaths	3898 (3875-3917)	6321 (6305-6334)	6429 (6414-6443)	6477 (6463-6491)	6521 (6506-6535)
Total Years Lost	74021.5 (73630.5-74338.5)	129726 (129522-129863)	131926.5 (131752.5-132070.5)	132398 (132231-132542)	132795.5 (132621.5-132939.5)

3.2.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
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0-17	6 (6-6)	13 (13-13)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	75 (75-76)	131 (131-131)	131 (131-131)	131 (131-131)	131 (131-131)
40-64	1870 (1861-1877)	3340 (3335-3343)	3350 (3344-3352)	3353 (3348-3355)	3354 (3348-3356)
65+	1901 (1889-1915)	2309 (2298-2323)	2347 (2336-2360)	2375 (2365-2388)	2403 (2392-2415)
Total Deaths	3852 (3831-3874)	5793 (5777-5810)	5843 (5826-5858)	5875 (5860-5890)	5905 (5888-5919)
Total Years Lost	73860.5 (73506.5-74222)	124327 (124100-124515)	125040 (124783-125191)	125399.5 (125179.5-125550.5)	125699 (125442-125843)

3.2.1.2 Cumulative Number of Infections

3.2.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206878 (202296-211455)	409754 (397742-421843)	451784 (437040-466704)	485613 (468464-503029)	517200 (497746-537023)
18-39	358426 (352365-364527)	662661 (647876-677644)	681032 (664572-697736)	684207 (667048-701664)	687302 (669461-705498)
40-64	357274 (351257-363265)	675094 (660126-690130)	702306 (685261-719460)	706288 (688460-724273)	709568 (691028-728308)
65+	42715 (40845-44642)	58459 (54944-62129)	59990 (55995-64194)	61299 (56865-65998)	62583 (57720-67778)

3.2.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206948 (202306-211632)	406610 (394606-418836)	448628 (433871-463667)	482926 (465746-500452)	514730 (495200-534654)
18-39	358220 (352193-364298)	651080 (636455-665892)	671602 (655200-688238)	677747 (660373-695412)	681102 (663018-699536)
40-64	357063 (351066-363239)	663772 (648925-678870)	692412 (675427-709692)	699541 (681496-717931)	703608 (684774-722835)
65+	42752 (40850-44646)	59643 (56031-63309)	61218 (57124-65422)	62584 (58042-67288)	63924 (58942-69125)

3.2.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	206730 (202159-211428)	400450 (388631-412502)	442481 (427943-457364)	477600 (460583-495015)	509788 (490409-529607)
18-39	357625 (351557-363754)	628481 (614257-642986)	653077 (636850-669639)	662520 (645089-680346)	665827 (647682-684422)
40-64	356608 (350600-362605)	641828 (627337-656346)	672878 (656164-689670)	684002 (665981-702176)	688415 (669577-707462)
65+	42724 (40832-44641)	61813 (58093-65643)	63474 (59258-67865)	64959 (60269-69864)	66386 (61240-71804)

3.2.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
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0-17	206872 (202335-211460)	398823 (387186-410661)	440302 (425916-454937)	475774 (458905-492955)	507926 (488694-527547)
18-39	358342 (352321-364380)	621726 (607909-635591)	656916 (640692-673265)	665297 (648004-682758)	668434 (650451-686641)
40-64	357254 (351197-363267)	633778 (619695-647970)	670784 (654205-687491)	682354 (664510-700392)	685704 (667144-704516)
65+	42663 (40769-44577)	61218 (57385-65160)	64280 (59793-68932)	65490 (60590-70622)	66652 (61339-72261)

3.2.2 Worst Case Scenario-Limited Vaccine Availability (in March)

3.2.2.1 Cumulative Number of Deaths

3.2.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-7)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	76 (75-76)	154 (154-155)	160 (159-160)	160 (160-160)	160 (160-160)
40-64	1881 (1874-1889)	3921 (3919-3925)	4100 (4099-4103)	4114 (4113-4116)	4114 (4113-4117)
65+	2241 (2229-2252)	3292 (3279-3305)	3343 (3332-3356)	3383 (3371-3396)	3421 (3409-3434)
Total Deaths	4204 (4184-4224)	7381 (7366-7399)	7618 (7605-7634)	7673 (7660-7688)	7712 (7699-7728)
Total Years Lost	76624 (76276.5-77014.5)	149942 (149791-150206.5)	156063.5 (155903-156244.5)	156837 (156723-156988)	157176.5 (157062.5-157357.5)

3.2.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	76 (75-76)	152 (151-152)	156 (156-156)	156 (156-156)	156 (156-156)
40-64	1882 (1874-1890)	3852 (3849-3854)	4011 (4009-4013)	4021 (4018-4022)	4022 (4020-4023)
65+	2241 (2227-2255)	3373 (3358-3385)	3413 (3398-3425)	3443 (3429-3455)	3473 (3459-3484)
Total Deaths	4205 (4182-4227)	7391 (7372-7405)	7595 (7578-7609)	7636 (7619-7649)	7668 (7652-7680)
Total Years Lost	76654 (76262.5-76992)	148332 (148083.5-148476)	153669.5 (153504.5-153813.5)	154253 (154065-154367)	154566.5 (154408.5-154673.5)

3.2.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
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0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	76 (76-76)	146 (146-146)	149 (149-149)	149 (149-149)	149 (149-149)
40-64	1881 (1873-1889)	3727 (3724-3729)	3848 (3845-3849)	3853 (3851-3854)	3855 (3853-3856)
65+	2240 (2226-2251)	3556 (3541-3568)	3596 (3581-3607)	3627 (3613-3638)	3657 (3643-3668)
Total Deaths	4203 (4181-4222)	7443 (7425-7457)	7608 (7590-7620)	7645 (7629-7657)	7678 (7662-7690)
Total Years Lost	76617 (76279-76934)	145542 (145347-145686)	149686 (149491-149793)	150126.5 (149968.5-150233.5)	150470 (150312-150577)

3.2.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	6 (6-6)	14 (14-14)	15 (15-15)	16 (16-16)	17 (17-17)
18-39	76 (75-76)	145 (145-145)	145 (145-146)	146 (145-146)	146 (145-146)
40-64	1881 (1872-1889)	3697 (3694-3702)	3715 (3712-3720)	3721 (3717-3725)	3722 (3718-3726)
65+	2239 (2227-2250)	3208 (3197-3222)	3253 (3243-3267)	3288 (3277-3301)	3319 (3309-3332)
Total Deaths	4202 (4180-4221)	7064 (7050-7083)	7128 (7115-7148)	7171 (7155-7188)	7204 (7189-7221)
Total Years Lost	76610 (76202.5-76927)	142152.5 (141985.5-142400.5)	143081 (142921-143382.5)	143633 (143382.5-143844)	143953.5 (143710-144164.5)

3.2.2.2 Cumulative Number of Infections

3.2.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	207312 (202651-211973)	419068 (406816-431353)	463763 (448681-478937)	497342 (479823-514985)	528234 (508391-548235)
18-39	360772 (354789-366942)	703378 (687934-719105)	736374 (718624-754456)	740402 (721861-759330)	743393 (724173-763051)
40-64	359802 (353736-365887)	715540 (699820-731434)	758018 (739665-776613)	765800 (746332-785571)	768963 (748796-789480)
65+	45224 (43259-47187)	70718 (66668-74862)	72476 (67914-77192)	73860 (68854-79086)	75204 (69759-80934)

3.2.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	207303 (202757-211939)	416670 (404584-429010)	461041 (446136-476272)	494964 (477621-512665)	526118 (506457-546203)
18-39	360782 (354759-366894)	694053 (678705-709574)	727692 (710029-745595)	734874 (716156-753877)	738782 (719297-758604)
40-64	359824 (353746-365925)	706474 (690833-722204)	749426 (731140-767815)	759616 (740089-779311)	764480 (744083-785108)
65+	45236 (43279-47222)	71522 (67444-75734)	73064 (68500-77811)	74303 (69315-79530)	75517 (70105-81208)

3.2.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	207222 (202609-211862)	412332 (400349-424531)	456092 (441297-471168)	490670 (473426-508256)	522202 (502608-542187)
18-39	360754 (354637-366874)	676969 (661804-692247)	711706 (694176-729430)	723562 (704671-742705)	727942 (708242-747950)
40-64	359804 (353691-365893)	689921 (674592-705275)	733450 (715437-751525)	747404 (727905-767008)	753664 (733194-774318)
65+	45214 (43225-47210)	73372 (69104-77714)	74890 (70148-79762)	76156 (70990-81506)	77378 (71786-83199)

3.2.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	207254 (202621-211918)	412102 (400112-424297)	453050 (438335-468017)	488410 (471228-505931)	519882 (500358-539810)
18-39	360695 (354692-366773)	673256 (658491-688314)	707128 (689978-724600)	722411 (703796-741401)	725450 (706161-745174)
40-64	359704 (353674-365865)	685988 (670935-701257)	722720 (705182-740511)	741951 (722709-761483)	745285 (725326-765583)
65+	45214 (43248-47194)	72429 (68162-76793)	76446 (71410-81636)	77771 (72291-83451)	78994 (73094-85163)

3.3 Tables for $R_0=1.4$

3.3.1 Worst Case Scenario-Vaccine Availability

3.3.1.1 Cumulative Number of Deaths

3.3.1.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-131)	183 (183-182)	183 (184-183)	183 (184-183)	183 (184-183)
40-64	3358 (3359-3357)	4778 (4789-4769)	4802 (4812-4791)	4802 (4813-4792)	4803 (4814-4793)
65+	3972 (3960-3982)	4434 (4425-4441)	4440 (4432-4447)	4445 (4437-4451)	4451 (4444-4456)
Total Deaths	7474 (7463-7482)	9413 (9415-9410)	9444 (9447-9440)	9450 (9454-9446)	9458 (9463-9453)
Total Years Lost	136488 (136434-136474.5)	185491.5 (185758.5-185217)	186327 (186624.5-186046)	186435.5 (186763-186177.5)	186581 (186915.5-186316)

3.3.1.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-20)
18-39	131 (131-131)	179 (180-179)	179 (180-179)	179 (180-179)	179 (180-179)
40-64	3352 (3352-3354)	4692 (4703-4683)	4709 (4720-4699)	4710 (4721-4701)	4711 (4722-4702)
65+	3994 (3984-4005)	4586 (4581-4593)	4594 (4590-4601)	4602 (4598-4608)	4610 (4607-4616)
Total Deaths	7489 (7479-7502)	9475 (9482-9473)	9501 (9509-9498)	9511 (9519-9508)	9521 (9530-9517)
Total Years Lost	136408.5 (136338.5-136545.5)	183761.5 (184110-183540.5)	184401 (184756.5-184150)	184560.5 (184916-184332.5)	184720 (185082.5-184418.5)

3.3.1.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (20-20)
18-39	131 (131-131)	173 (173-172)	173 (173-173)	173 (174-173)	173 (174-173)
40-64	3344 (3344-3343)	4536 (4545-4528)	4543 (4552-4534)	4545 (4554-4536)	4545 (4555-4537)
65+	4034 (4020-4039)	4870 (4863-4870)	4884 (4878-4885)	4897 (4891-4898)	4910 (4904-4910)
Total Deaths	7521 (7507-7525)	9597 (9599-9588)	9619 (9622-9611)	9635 (9639-9627)	9648 (9653-9640)
Total Years Lost	136448.5 (136350.5-136453.5)	180748.5 (180969.5-180455)	181130 (181358-180867)	181354.5 (181636-181091.5)	181445.5 (181757-181205.5)

3.3.1.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	20 (21-20)
18-39	132 (132-132)	174 (175-174)	175 (175-174)	175 (175-174)	175 (175-174)
40-64	3358 (3358-3358)	4545 (4554-4535)	4553 (4562-4543)	4555 (4564-4545)	4556 (4564-4545)
65+	3945 (3933-3955)	4332 (4321-4339)	4340 (4329-4347)	4342 (4331-4349)	4344 (4333-4351)
Total Deaths	7447 (7435-7457)	9069 (9068-9066)	9087 (9085-9083)	9092 (9090-9088)	9095 (9093-9090)
Total Years Lost	136299 (136215-136369)	177306 (177552.5-177055)	177729 (177922-177424.5)	177876.5 (178069.5-177572)	177920.5 (178157-177586)

3.3.1.2 Cumulative Number of Infections

3.3.1.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346630 (340614-352696)	487488 (475471-499607)	516804 (502534-531246)	542983 (526599-559585)	567706 (549278-586422)
18-39	547585 (539920-555355)	745696 (731197-760373)	751146 (735776-766758)	753756 (737752-770042)	756322 (739704-773294)
40-64	564834 (557014-572699)	784534 (769358-799766)	795022 (778649-811530)	797868 (780835-815090)	800682 (782994-818625)
65+	80832 (78226-83469)	94882 (90848-99028)	95774 (91383-100329)	96626 (91874-101568)	97476 (92361-102805)

3.3.1.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346454 (340477-352469)	485228 (473330-497324)	514800 (500633-529217)	541278 (524991-557888)	566120 (547799-584822)
18-39	547050 (539355-554877)	736748 (722367-751303)	745919 (730354-761734)	750078 (733718-766738)	752678 (735688-770020)
40-64	564398 (556491-572258)	775596 (760569-790690)	788904 (772424-805490)	794128 (776742-811671)	797022 (778977-815274)
65+	80790 (78215-83407)	95924 (91842-100125)	96868 (92418-101495)	97768 (92958-102796)	98649 (93495-104087)

3.3.1.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346433 (340296-352367)	481464 (469528-493331)	511579 (497367-525814)	538426 (522089-554860)	563412 (545027-581926)
18-39	546548 (538860-554166)	720331 (706354-734341)	736920 (721296-752616)	742142 (725658-758749)	744765 (727649-762052)
40-64	563810 (556065-571663)	758991 (744506-773716)	777568 (761360-794080)	784770 (767529-802362)	787642 (769738-805950)
65+	80778 (78224-83412)	97939 (93762-102280)	98998 (94430-103789)	99990 (95047-105221)	100964 (95654-106617)

3.3.1.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	346589 (340638-352582)	481936 (470107-493832)	512766 (498619-527061)	539518 (523249-555993)	564438 (546121-583022)
18-39	547566 (539910-555213)	724186 (710211-738180)	752040 (735917-768232)	755934 (739044-772929)	758532 (741015-776213)
40-64	564800 (556914-572478)	759380 (744871-773786)	790378 (773603-807132)	796276 (778578-813995)	799138 (780778-817564)
65+	80774 (78208-83393)	97041 (92726-101493)	99607 (94708-104696)	100390 (95156-105863)	101160 (95588-107014)

3.3.2 Worst Case Scenario-Limited Vaccine Availability (in March)

3.3.2.1 Cumulative Number of Deaths

3.3.2.1.1 0% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	191 (191-190)	192 (193-192)	192 (193-192)	192 (193-192)
40-64	3379 (3378-3379)	4976 (4985-4967)	5046 (5056-5037)	5047 (5057-5038)	5048 (5057-5038)
65+	4600 (4588-4613)	5744 (5737-5752)	5751 (5744-5758)	5757 (5750-5764)	5762 (5755-5769)
Total Deaths	8123 (8110-8136)	10929 (10931-10927)	11008 (11012-11006)	11016 (11020-11014)	11023 (11026-11020)
Total Years Lost	141514 (141400-141605)	201029.5 (201250.5-200762)	203305.5 (203610-203084.5)	203451 (203755.5-203230)	203589.5 (203864-203338.5)

3.3.2.1.2 20% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	189 (189-188)	190 (190-189)	190 (190-189)	190 (190-189)
40-64	3380 (3380-3380)	4924 (4936-4913)	4979 (4992-4967)	4980 (4993-4969)	4981 (4994-4970)
65+	4600 (4584-4613)	5831 (5824-5840)	5833 (5826-5842)	5835 (5828-5844)	5837 (5830-5846)
Total Deaths	8124 (8108-8137)	10962 (10967-10959)	11021 (11027-11017)	11025 (11031-11022)	11029 (11035-11026)
Total Years Lost	141544 (141432-141635)	199971.5 (200282.5-199651)	201762.5 (202103.5-201412)	201880 (202221-201559.5)	201997.5 (202338.5-201677)

3.3.2.1.3 50% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (132-132)	185 (185-184)	185 (185-184)	185 (185-185)	185 (185-185)
40-64	3379 (3378-3379)	4828 (4836-4817)	4857 (4866-4847)	4860 (4869-4849)	4861 (4870-4850)
65+	4599 (4592-4612)	5999 (5996-6003)	6001 (5998-6006)	6004 (6000-6008)	6006 (6003-6010)
Total Deaths	8122 (8114-8135)	11030 (11035-11022)	11062 (11068-11056)	11069 (11074-11062)	11073 (11079-11066)
Total Years Lost	141507 (141428-141598)	198053.5 (198272.5-197698)	199011 (199260-198692.5)	199195.5 (199437.5-198893.5)	199313 (199562-199011)

3.3.2.1.4 100% Vaccines allocated to ages 18-64

Cumulative Deaths	End of March	End of June	End of August	End of October	End of December
0-17	12 (12-12)	18 (18-18)	19 (19-19)	20 (20-20)	21 (21-21)
18-39	132 (133-132)	184 (185-184)	185 (185-184)	185 (185-184)	185 (185-184)
40-64	3379 (3379-3379)	4812 (4822-4802)	4820 (4829-4809)	4823 (4833-4813)	4824 (4833-4813)
65+	4600 (4587-4615)	5677 (5670-5689)	5687 (5680-5699)	5689 (5682-5701)	5691 (5684-5703)
Total Deaths	8123 (8111-8138)	10691 (10695-10693)	10711 (10713-10711)	10717 (10720-10718)	10721 (10723-10721)
Total Years Lost	141514 (141476.5-141619)	195266 (195570.5-195050)	195703 (195924-195403.5)	195880.5 (196131.5-195611)	195998 (196219-195698.5)

3.3.2.2 Cumulative Number of Infections

3.3.2.2.1 0% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	347156 (341131-353181)	493272 (481070-505542)	523718 (509199-538344)	549528 (532915-566308)	573881 (555260-592752)
18-39	551238 (543526-558949)	776234 (761047-791499)	788948 (772432-805616)	791472 (774345-808819)	793970 (776235-811987)
40-64	568842 (561070-576650)	815958 (800264-831741)	836997 (819523-854618)	840065 (821909-858422)	842804 (824007-861862)
65+	84952 (82304-87652)	108474 (103928-113134)	109417 (104505-114507)	110270 (104997-115751)	111123 (105486-116983)

3.3.2.2.2 20% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	347216 (341300-353270)	492022 (480020-504306)	522376 (508083-537029)	548490 (532084-565315)	572955 (554534-591868)
18-39	551414 (543777-559120)	770322 (755272-785439)	785006 (768467-801692)	790120 (772697-807743)	792696 (774651-810994)
40-64	569052 (561254-576956)	810064 (794456-825854)	832107 (814652-849804)	838140 (819719-856846)	841369 (822240-860829)
65+	84962 (82274-87649)	109172 (104556-113868)	110035 (105072-115142)	110825 (105522-116308)	111607 (105957-117462)

3.3.2.2.3 50% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	347190 (341110-353095)	489533 (477389-501530)	519831 (505373-534155)	546392 (529815-562920)	570944 (552337-589567)
18-39	551340 (543560-558961)	758708 (743828-773538)	777862 (761226-794509)	785790 (768079-803574)	788312 (769987-806765)
40-64	568935 (561057-576756)	798500 (783094-813931)	822660 (805263-840128)	832589 (813951-851360)	835746 (816422-855271)
65+	84960 (82273-87641)	110778 (106020-115615)	111643 (106532-116881)	112436 (106998-118070)	113224 (107434-119229)

3.3.2.2.4 100% Vaccines allocated to ages 18-64

Cumulative Infections	End of March	End of June	End of August	End of October	End of December
0-17	347288 (341294-353310)	489600 (477553-501769)	519837 (505478-534357)	546631 (530141-563365)	571155 (552650-589971)
18-39	551366 (543628-559018)	756832 (742139-771538)	784348 (767471-801288)	792691 (774712-810778)	795198 (776609-813965)
40-64	568995 (561184-576809)	795666 (780487-810854)	825305 (807926-842760)	836706 (818089-855453)	839452 (820196-858900)
65+	84956 (82275-87654)	109892 (105132-114770)	113318 (107858-118943)	114112 (108313-120119)	114867 (108742-121260)