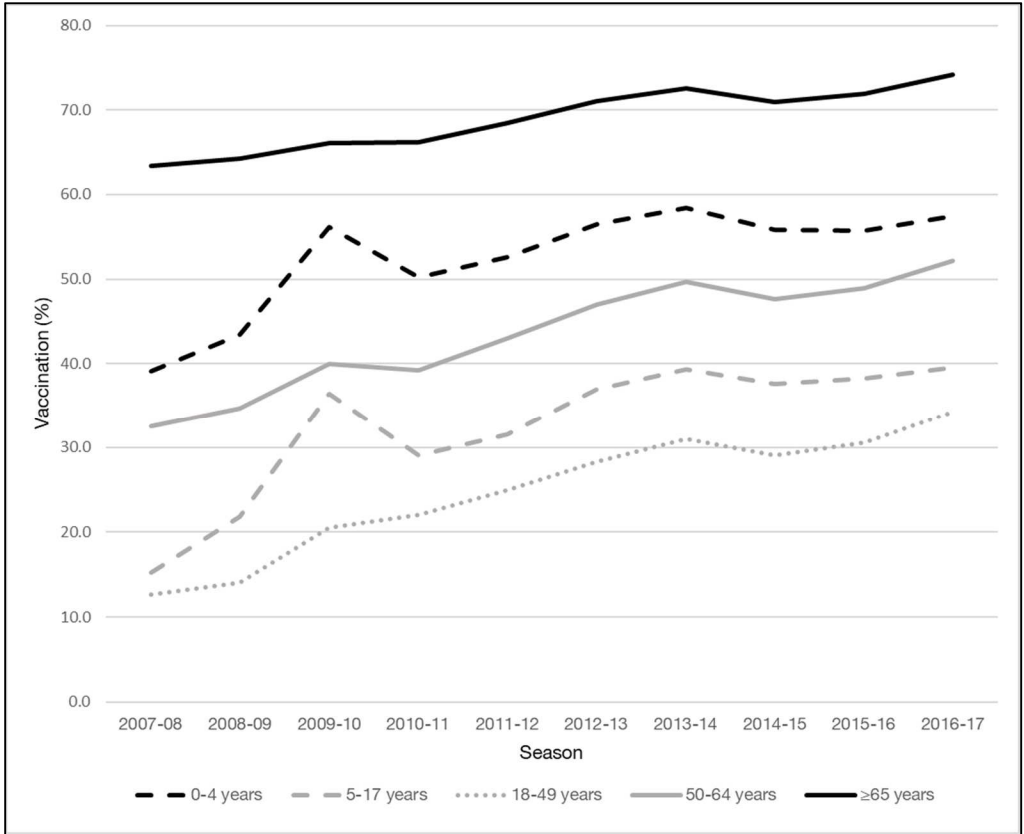
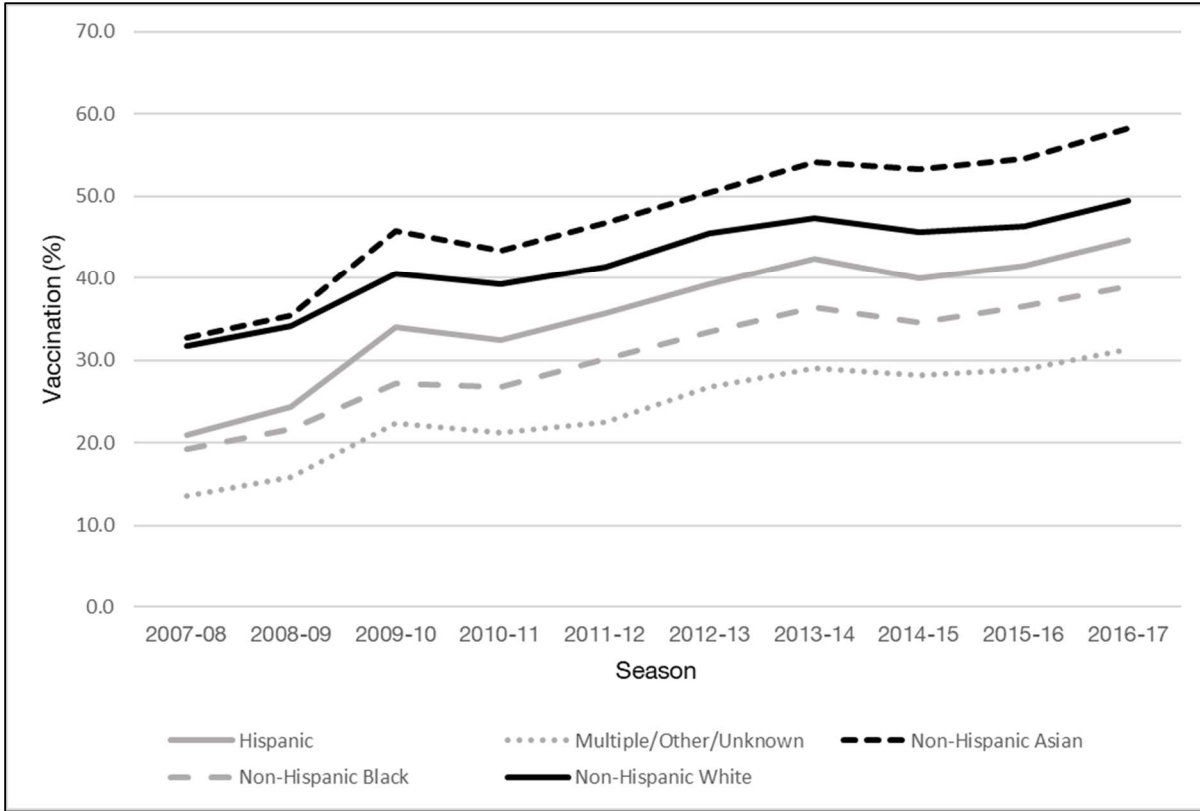


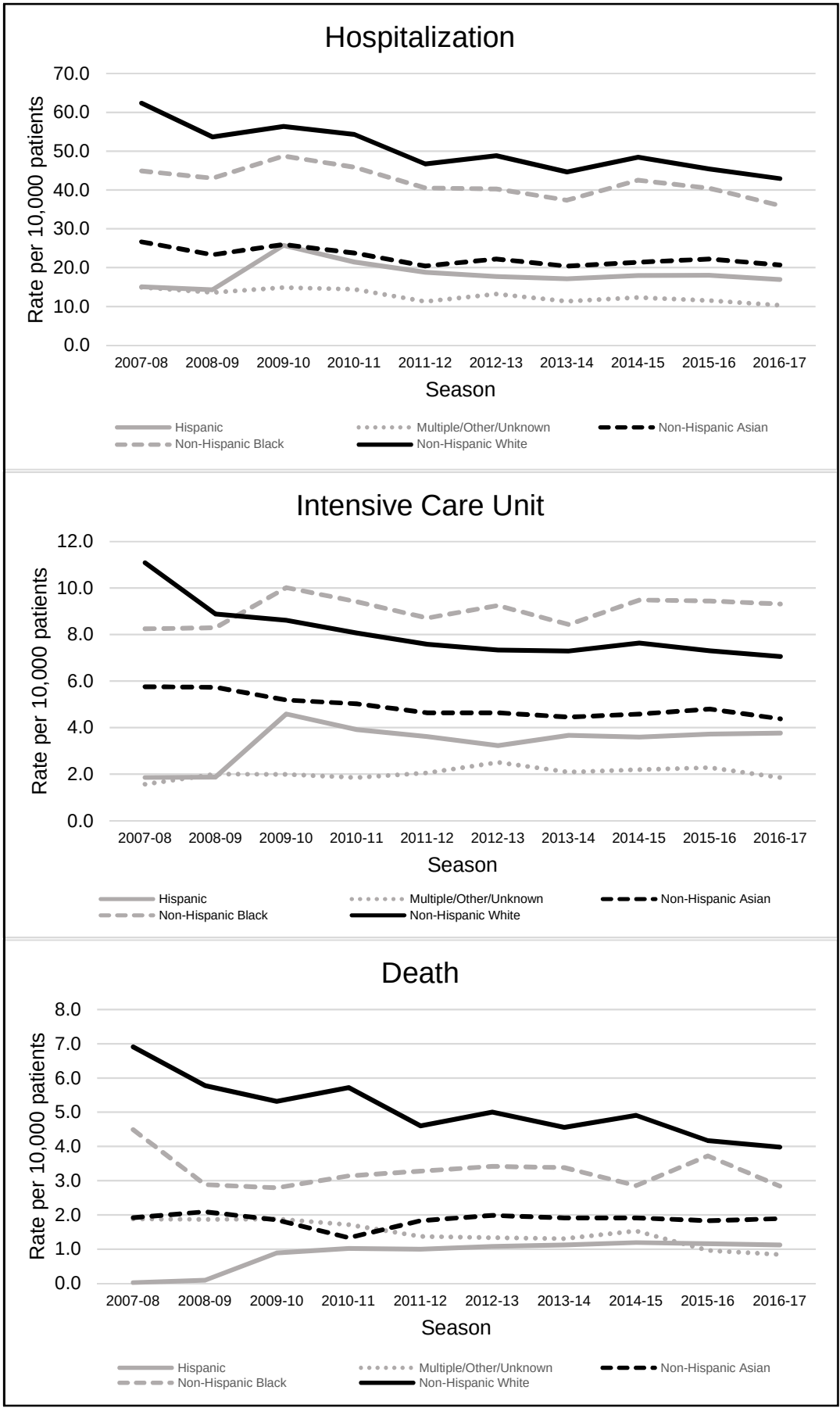
**Appendix Figure 1. Influenza vaccine uptake by age group, 2007-2017, Kaiser Permanente Southern California**



**Appendix Figure 2. Influenza vaccine uptake by race/ethnicity, 2007-2017, Kaiser Permanente Southern California**



**Appendix Figure 3: Influenza season outcomes by race/ethnicity, 2007-2017, Kaiser Permanente Southern California**



**Appendix Table 1: Influenza vaccine uptake by age group, sex, and race/ethnicity, 2007-2017, Kaiser Permanente Southern California**

	Season										Total Rate	95% CI*	P-value**
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17			
<b>Total</b>	23.9	26.8	34.8	33.7	36.6	40.6	43.3	41.4	42.5	45.5	37.4	(37.4, 37.4)	
<b>Age group</b>													
0-4 years	39.1	43.4	56.2	50.2	52.6	56.5	58.4	55.8	55.7	57.5	52.7	(52.7, 52.8)	<0.001
5-17 years	15.2	21.8	36.4	29.1	31.5	36.9	39.3	37.6	38.2	39.5	32.7	(32.7, 32.7)	
18-49 years	12.7	14.1	20.5	22.0	25.0	28.3	31.0	29.1	30.6	34.3	25.3	(25.3, 25.3)	
50-64 years	32.5	34.7	40.0	39.2	43.0	47.0	49.7	47.6	48.9	52.2	44.0	(44.0, 44.0)	
≥65 years	63.4	64.3	66.1	66.2	68.5	71.0	72.6	70.9	71.9	74.2	69.5	(69.5, 69.6)	
<b>Sex</b>													
Female	26.1	29.0	37.4	36.4	39.5	43.6	46.5	44.8	46.0	49.2	40.4	(40.4, 40.4)	<0.001
Male	21.5	24.4	32.0	30.8	33.5	37.4	39.8	37.9	38.9	41.6	34.2	(34.2, 34.2)	
<b>Race/ethnicity</b>													
Hispanic	21.0	24.3	34.0	32.4	35.7	39.2	42.4	40.0	41.5	44.6	36.7	(36.7, 36.8)	<0.001
Multiple/Other/Unknown	13.5	15.8	22.4	21.2	22.5	26.8	29.1	28.2	28.9	31.3	23.1	(23.1, 23.1)	
Non-Hispanic Asian	32.7	35.4	45.8	43.3	46.8	50.5	54.2	53.3	54.6	58.3	48.8	(48.8, 48.9)	
Non-Hispanic Black	19.3	21.6	27.2	26.8	30.1	33.5	36.4	34.5	36.6	39.0	30.8	(30.7, 30.8)	
Non-Hispanic White	31.7	34.2	40.6	39.3	41.4	45.5	47.4	45.6	46.3	49.5	42.5	(42.5, 42.5)	

\* Exact 95% CIs for the binomial proportions

\*\* P-value was calculated using Chi-square test

**Appendix Table 2: Influenza-related hospitalization rate by age group, sex and race/ethnicity per 10,000 patients, 2007-2017, Kaiser Permanente Southern California**

	Season										Total Rate	95% CI*	P-value**
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17			
<b>Influenza season</b>													
<b>Total</b>	35.4	31.5	37.0	34.8	30.1	30.9	28.4	30.5	29.0	26.8	31.2	(31.0, 31.4)	
<b>Age group</b>													
0-4 years	34.9	28.5	45.4	35.4	23.0	21.8	15.4	16.3	18.1	16.9	25.3	(24.5, 26.1)	<0.001
5-17 years	5.0	5.8	9.2	6.7	5.3	4.1	2.9	4.2	4.4	3.7	5.1	(4.9, 5.3)	
18-49 years	9.3	8.1	11.3	9.0	7.7	6.9	7.3	6.9	7.1	5.6	7.8	(7.7, 7.9)	
50-64 years	35.7	32.0	37.2	32.5	28.7	29.0	28.6	26.6	27.5	23.3	29.8	(29.4, 30.2)	
≥65 years	197.7	170.5	177.1	174.0	152.6	155.2	133.4	146.1	132.4	127.2	153.0	(151.9, 154.1)	
<b>Sex</b>													
Female	34.2	29.8	35.6	32.8	28.1	29.0	26.7	29.2	27.2	25.2	29.6	(29.3, 29.8)	<0.001
Male	36.6	33.3	38.5	36.8	32.4	33.0	30.3	31.9	30.9	28.5	33.0	(32.7, 33.3)	
<b>Race/ethnicity</b>													
Hispanic	15.0	14.3	25.7	21.5	18.8	17.7	17.1	18.0	18.1	16.9	18.3	(18.0, 18.5)	<0.001
Multiple/Other/Unknown	14.9	13.6	14.9	14.4	11.3	13.2	11.3	12.3	11.5	10.3	12.9	(12.6, 13.3)	
Non-Hispanic Asian	26.7	23.3	26.0	23.8	20.4	22.2	20.4	21.4	22.2	20.7	22.4	(21.9, 23.0)	
Non-Hispanic Black	44.9	43.0	48.8	45.8	40.5	40.3	37.3	42.5	40.5	36.0	41.8	(41.1, 42.6)	
Non-Hispanic White	62.4	53.7	56.4	54.3	46.7	48.9	44.7	48.5	45.4	42.9	50.0	(49.6, 50.4)	
<b>Non-influenza season</b>													
<b>Total</b>	12.5	14.4	13.0	12.2	10.9	11.0	10.7	11.5	10.1	10.4	11.6	(11.5, 11.7)	

\* Exact 95% CIs for the binomial proportions

\*\* P-value was calculated using Chi-square test

**Appendix Table 3: Influenza-related intensive care unit admission rate by age group, sex and race/ethnicity per 10,000 patients, 2007-2017, Kaiser Permanente Southern California**

	Season										Total Rate	95% CI*	P-value**
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17			
<b>Influenza season</b>													
<b>Total</b>	5.9	5.3	6.2	5.7	5.4	5.3	5.3	5.5	5.4	5.2	5.5	(5.4, 5.6)	
<b>Age group</b>													
0-4 years	2.2	1.5	6.2	3.5	2.8	2.8	2.8	2.4	3.6	3.6	3.1	(2.9, 3.4)	<0.001
5-17 years	0.6	0.4	1.4	1.0	0.9	0.9	0.7	0.9	1.1	0.7	0.9	(0.8, 0.9)	
18-49 years	1.5	1.3	2.0	1.7	1.5	1.2	1.5	1.3	1.3	1.1	1.4	(1.4, 1.5)	
50-64 years	7.1	6.7	7.0	6.2	5.8	6.1	6.3	5.9	6.0	5.3	6.2	(6.0, 6.4)	
≥65 years	33.5	28.8	28.4	27.5	26.8	25.0	22.8	24.3	22.9	23.2	25.8	(25.3, 26.3)	
<b>Sex</b>													
Female	5.3	4.9	5.5	4.9	4.6	4.7	4.7	5.1	4.5	4.4	4.8	(4.7, 4.9)	<0.001
Male	6.6	5.7	6.9	6.6	6.3	6.0	6.0	5.9	6.3	5.9	6.2	(6.1, 6.3)	
<b>Race/ethnicity</b>													
Hispanic	1.9	1.9	4.6	3.9	3.6	3.2	3.7	3.6	3.7	3.8	3.5	(3.4, 3.6)	<0.001
Multiple/Other/Unknown	1.6	2.0	2.0	1.9	2.1	2.5	2.1	2.2	2.3	1.9	2.0	(1.9, 2.1)	
Non-Hispanic Asian	5.8	5.7	5.2	5.0	4.6	4.6	4.5	4.6	4.8	4.4	4.9	(4.6, 5.1)	
Non-Hispanic Black	8.3	8.3	10.0	9.4	8.7	9.3	8.4	9.5	9.4	9.3	9.1	(8.7, 9.4)	
Non-Hispanic White	11.1	8.9	8.6	8.1	7.6	7.3	7.3	7.6	7.3	7.1	8.0	(7.9, 8.2)	
<b>Non-influenza season</b>													
<b>Total</b>	2.3	2.6	2.4	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	(2.1, 2.2)	

\* Exact 95% CIs for the binomial proportions

\*\* P-value was calculated using Chi-square test

**Appendix Table 4: Influenza-related death rate by age group, sex and race/ethnicity per 10,000 patients, 2007-2017, Kaiser Permanente Southern California**

	Season										Total Rate	95% CI*	P-value**
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17			
<b>Influenza season</b>													
<b>Total</b>	3.4	2.9	2.9	3.0	2.6	2.8	2.6	2.8	2.5	2.3	2.8	(2.7, 2.8)	
<b>Age group</b>													
0-4 years	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.1	0.1	0.1	(0.1, 0.2)	<0.001
5-17 years	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	(0.0, 0.1)	
18-49 years	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	(0.2, 0.3)	
50-64 years	2.0	1.6	1.6	1.7	1.5	1.6	1.6	1.4	1.3	1.3	1.5	(1.4, 1.5)	
≥65 years	26.1	21.7	20.8	20.7	17.8	18.4	16.0	16.5	14.7	13.3	16.9	(16.5, 17.2)	
<b>Sex</b>													
Female	3.3	2.7	2.8	2.7	2.3	2.6	2.5	2.6	2.1	1.9	2.4	(2.3, 2.4)	<0.001
Male	3.6	3.0	3.0	3.4	3.0	3.1	2.9	3.0	2.8	2.6	2.8	(2.7, 2.9)	
<b>Race/ethnicity</b>													
Hispanic	0.0	0.1	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.1	0.8	(0.8, 0.9)	<0.001
Multiple/Other/Unknown	1.9	1.9	1.9	1.7	1.4	1.3	1.3	1.5	1.0	0.8	1.5	(1.3, 1.6)	
Non-Hispanic Asian	1.9	2.1	1.9	1.3	1.8	2.0	1.9	1.9	1.8	1.9	1.7	(1.5, 1.8)	
Non-Hispanic Black	4.5	2.9	2.8	3.1	3.3	3.4	3.4	2.9	3.7	2.8	3.1	(2.9, 3.3)	
Non-Hispanic White	6.9	5.8	5.3	5.7	4.6	5.0	4.6	4.9	4.2	4.0	4.8	(4.6, 4.9)	
<b>Non-influenza season</b>													
<b>Total</b>	1.1	1.2	1.2	1.1	1.0	1.0	1.0	1.0	0.9	0.8	1.0	(1.0, 1.0)	

\* Exact 95% CIs for the binomial proportions

\*\* P-value was calculated using Chi-square test