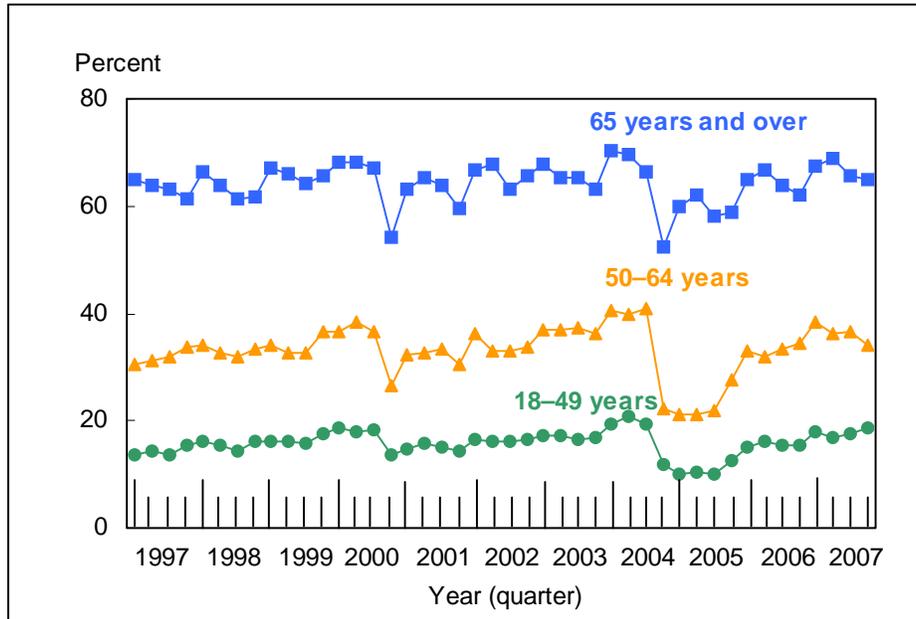


Figure 4.1. Percentage of adults aged 18 years and over who had received an influenza vaccination during the past 12 months, by age group and quarter: United States, 1997–2007



NOTES: From 1997 to August 2003, respondents were asked if they had received a flu shot during the past 12 months. Beginning in September 2003, respondents were asked about influenza vaccination by nasal spray (sometimes called by the brand name FluMist™) during the past 12 months in addition to the question regarding the flu shot. Beginning in 2005, receipt of nasal spray influenza vaccinations was included in the calculation of influenza vaccination estimates. An error in calculating influenza vaccination rates occurred for the first quarter of 2005 to the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage points. The error has been corrected for all estimates in this Early Release and the correction of estimates had no perceptible impact on the graphs. Responses to these influenza vaccination questions cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. According to the recommendations of the Advisory Committee on Immunization Practices, all adults aged 50 years and over should receive an influenza vaccination (10). The expansion of the recommendations to include adults aged 50–64 years, a group for which influenza vaccination was formerly recommended only if they had existing high-risk conditions, occurred in the 2000–2001 influenza season but was not issued until the 2001–2002 influenza season (11). Adults aged 18–49 years are recommended to receive influenza vaccination if they have existing high-risk conditions, are healthcare workers, or are in close contact with persons at increased risk of influenza. An influenza vaccination shortage occurred during the 2004–2005 influenza season (12). Previous delays in availability of the influenza shots also occurred in the fall of 2000 and, to a lesser extent, in the fall of 2001 (11,13). The analyses excluded those with unknown influenza vaccination status (about 3% of respondents each year). Beginning with the 2003 data, the National Health Interview Survey (NHIS) transitioned to weights derived from the 2000 census. In this Early Release, estimates for 2000–2002 were recalculated using weights derived from the 2000 census. See “About This Early Release” for more details.

DATA SOURCE: Sample Adult Core component of the 1997–2007 NHIS. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



- In the fourth quarter of 2007, the percentage of adults who had received an influenza vaccination during the past 12 months was 65.1% for persons aged 65 years and over, 34.0% for persons aged 50–64 years, and 18.7% for persons aged 18–49 years.
- For the age group 18–49 years, the fourth quarter estimate in 2007 was higher than the fourth quarter estimate in 2006. For the age groups 50–64 years and 65 years and over, the differences between fourth quarter estimates in 2007 and 2006 were not significant. For all three age groups, fourth quarter estimates increased from 2004 to 2007. An influenza vaccination shortage occurred during the 2004–2005 influenza season (12). Previous delays in availability of the influenza shots also occurred in the fall of 2000 and, to a lesser extent, in the fall of 2001 (11,13).

Table 4.1a. Annual percentage of adults aged 50–64 years who had received an influenza vaccination during the past 12 months, by age group and sex: United States, 1997–2007

Year	Percent (95% confidence interval): total	Percent (95% confidence interval): men	Percent (95% confidence interval): women
1997	31.9 (30.5-33.3)	28.0 (26.1-29.9)	35.5 (33.6-37.4)
1998	33.1 (31.7-34.5)	29.0 (27.0-31.0)	37.0 (35.1-38.9)
1999	34.1 (32.8-35.4)	30.5 (28.6-32.4)	37.4 (35.5-39.3)
2000	34.6 (33.1-36.1)	31.9 (29.9-33.9)	37.2 (35.2-39.1)
2001	32.2 (30.9-33.5)	30.3 (28.3-32.2)	34.0 (32.2-35.8)
2002	34.0 (32.7-35.3)	30.7 (28.8-32.5)	37.2 (35.4-38.9)
2003	36.8 (35.4-38.2)	34.5 (32.6-36.3)	38.9 (37.0-40.9)
2004	35.9 (34.6-37.3)	33.3 (31.3-35.3)	38.5 (36.7-40.3)
2005	23.0 (21.93-24.10)	19.7 (18.11-21.36)	26.1 (24.61-27.52)
2006	33.2 (31.59-34.82)	29.9 (27.58-32.18)	36.3 (34.23-38.36)
2007	36.2 (34.56-37.93)	33.0 (30.94-35.05)	39.3 (36.93-41.64)

NOTES: From 1997 to August 2003, respondents were asked if they had received a flu shot during the past 12 months. Beginning in September 2003, respondents were asked about influenza vaccination by nasal spray (sometimes called by the brand name FluMist™) during the past 12 months in addition to the question regarding the flu shot. Beginning in 2005, receipt of nasal spray influenza vaccinations was included in the calculation of influenza vaccination estimates. An error in calculating influenza vaccination rates occurred for the first quarter of 2005 to the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage points. The error has been corrected for all estimates in this Early Release and the correction of estimates had no perceptible impact on the graphs. Responses to these influenza vaccination questions cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. According to the recommendations of the Advisory Committee on Immunization Practices, all adults aged 50 years and over should receive an influenza vaccination (10). The expansion of the recommendations to include adults aged 50–64 years, a group for which influenza vaccination was formerly recommended only if they had existing high-risk conditions, occurred in the 2000–2001 influenza season but was not issued until the 2001–2002 influenza season (11). Adults aged 18–49 years are recommended to receive influenza vaccination if they have existing high-risk conditions, are healthcare workers, or are in close contact with persons at increased risk of influenza. An influenza vaccination shortage occurred during the 2004–2005 influenza season (12). Previous delays in availability of the influenza shots also occurred in the fall of 2000 and, to a lesser extent, in the fall of 2001 (11,13). The analyses excluded those with unknown influenza vaccination status (about 3% of respondents each year). Beginning with the 2003 data, the National Health Interview Survey (NHIS) transitioned to weights derived from the 2000 census. In this Early Release, estimates for 2000–2002 were recalculated using weights derived from the 2000 census. See “About This Early Release” for more details.

DATA SOURCE: Sample Adult Core component of the 1997–2006 NHIS. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



Table 4.1b. Annual percentage of adults aged 65 years and over who had received an influenza vaccination during the past 12 months, by age group and sex: United States, 1997–2007

Year	Crude percent (95% confidence interval): total	Age-adjusted percent (95% confidence interval): total	Percent (95% confidence interval): men	Percent (95% confidence interval): women
1997	63.2(61.9-64.6)	63.1 (61.7-64.4)	64.8 (62.5-67.1)	62.1 (60.5-63.7)
1998	63.3(61.9-64.7)	63.3 (61.9-64.6)	63.7 (61.5-65.9)	63.0 (61.2-64.8)
1999	65.7(64.3-67.2)	65.1 (63.6-66.5)	67.2 (65.0-69.4)	64.6 (62.7-66.5)
2000	64.4 (63.0-65.9)	64.6 (63.2-66.0)	66.0 (63.8-68.3)	63.3 (61.6-65.0)
2001	63.1 (61.7-64.5)	63.2 (61.8-64.6)	64.8 (62.5-67.1)	61.8 (60.1-63.5)
2002	65.7 (64.3-67.2)	65.9 (64.5-67.3)	67.1 (64.7-69.5)	64.7 (62.8-66.6)
2003	65.5 (64.1-66.9)	65.6 (64.2-66.9)	66.0 (63.9-68.1)	65.1 (63.2-67.0)
2004	64.6 (63.2-66.1)	64.7 (63.2-66.1)	64.1 (61.9-66.3)	65.0 (63.3-66.7)
2005	59.7 (58.16-61.15)	59.7 (58.24-61.23)	58.9 (56.64-61.17)	60.2 (58.22-62.20)
2006	64.3 (62.39-66.19)	64.4 (62.51-66.32)	64.7 (62.04-67.43)	63.9 (61.65-66.24)
2007	66.7 (64.90-68.59)	66.8 (65.00-68.68)	66.7 (64.06-69.31)	66.8 (64.62-68.96)

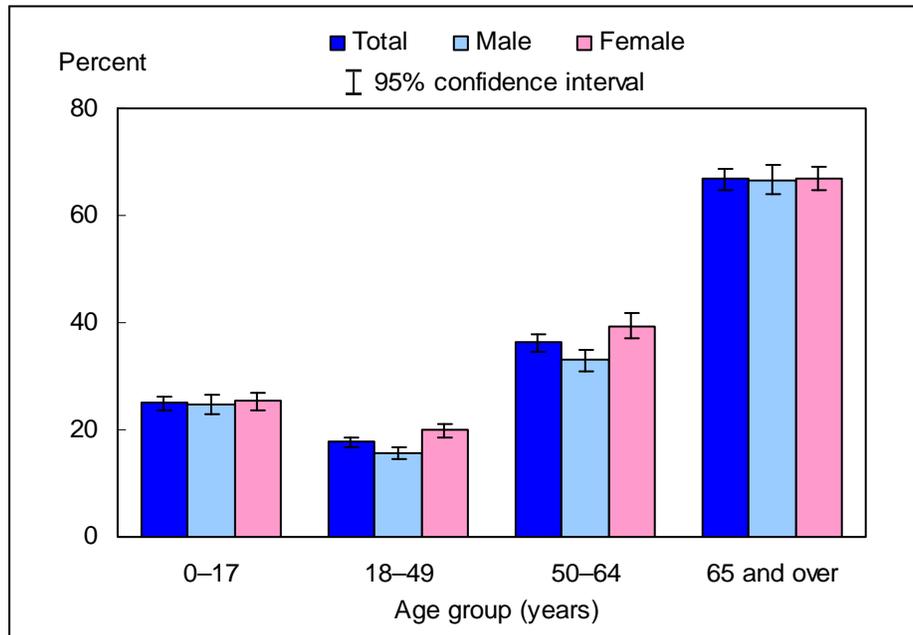
NOTES: From 1997 to August 2003, respondents were asked if they had received a flu shot during the past 12 months. Beginning in September 2003, respondents were asked about influenza vaccination by nasal spray (sometimes called by the brand name FluMist™) during the past 12 months in addition to the question regarding the flu shot. Beginning in 2005, receipt of nasal spray influenza vaccinations was included in the calculation of influenza vaccination estimates. An error in calculating influenza vaccination rates occurred for the first quarter of 2005 to the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage points. The error has been corrected for all estimates in this Early Release and the correction of estimates had no perceptible impact on the graphs. Responses to these influenza vaccination questions cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. According to the recommendations of the Advisory Committee on Immunization Practices, all adults aged 50 years and over should receive an influenza vaccination (10). The expansion of the recommendations to include adults aged 50–64 years, a group for which influenza vaccination was formerly recommended only if they had existing high-risk conditions, occurred in the 2000–2001 influenza season but was not issued until the 2001–2002 influenza season (11). Adults aged 18–49 years are recommended to receive influenza vaccination if they have existing high-risk conditions, are healthcare workers, or are in close contact with persons at increased risk of influenza. An influenza vaccination shortage occurred during the 2004–2005 influenza season (12). Previous delays in availability of the influenza shots also occurred in the fall of 2000 and, to a lesser extent, in the fall of 2001 (11,13). The analyses excluded those with unknown influenza vaccination status (about 3% of respondents each year). Age-adjusted estimates for persons aged 65 years and over for this Healthy People 2010 Leading Health Indicator are based on the 2000 projected U.S. standard population using two age groups: 65–74 years and 75 years and over. Beginning with the 2003 data, the National Health Interview Survey (NHIS) transitioned to weights derived from the 2000 census. In this Early Release, estimates for 2000–2002 were recalculated using weights derived from the 2000 census. See “About This Early Release” for more details.

DATA SOURCE: Sample Adult Core component of the 1997–2006 NHIS. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



- For adults aged 50–64 years, the annual percentage of persons who received an influenza vaccination during the past 12 months was 36.2% in 2007. This estimate was higher than the estimate in 2006 (33.2%). This pattern was also seen in men, but the observed increase in women was not significant. Following the influenza vaccination shortage during the 2004–2005 influenza season, estimates for this age group increased from 2005 to 2007 with the 2007 estimates being similar to the estimates in 2004 (12).
- For adults aged 65 years and over, the annual percentage of persons who received an influenza vaccination during the past 12 months was 66.7% in 2007. This estimate was not significantly different than the 2006 estimate (64.3%). This pattern was seen in men and women. Following the influenza vaccination shortage during the 2004–2005 influenza season, estimates for this age group increased from 2005 to 2007 with the 2006 estimates being similar to the estimates in 2004 (12).

Figure 4.2. Percentage of persons who had received an influenza vaccination during the past 12 months, by age group and sex: United States, 2007

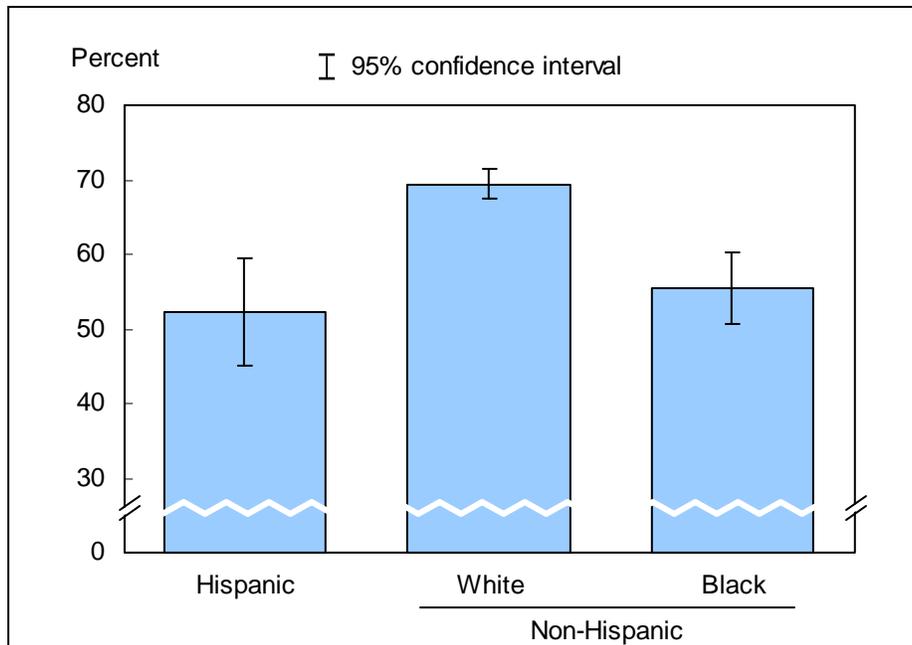


NOTES: Respondents were asked about receipt of influenza vaccination by nasal spray (sometimes called by the brand name FluMist™) during the past 12 months in addition to a question regarding receipt of a flu shot during the past 12 months. These questions do not indicate whether the vaccination was a first or second dose. An error in calculating influenza vaccination rates occurred for the first quarter of 2005 to the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage points. The error has been corrected for all estimates in this Early Release and the correction of estimates had no perceptible impact on the graphs. Responses to these influenza vaccination questions cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. According to the recommendations of the Advisory Committee on Immunization Practices, all children 6–59 months and all adults aged 50 years and over should receive an influenza vaccination (10). Adults aged 18–49 years are recommended to receive influenza vaccination if they have existing high-risk conditions, are healthcare workers, or are in close contact with persons at increased risk of influenza (10). The recommendations were recently expanded in February 2008 to include children 5–18 years; however, this change is not yet reflected in the data presented in the chart above (14). The analyses excluded 864 persons (2.6%) with unknown influenza vaccination status.

DATA SOURCE: Based on data collected in the Sample Adult and Sample Child Core components of the 2007 National Health Interview Survey. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

- For both sexes combined, the percentage of persons who had an influenza vaccination during the past 12 months was highest among persons aged 65 years and over (66.7%), followed by persons aged 50–64 years (36.2%), 0–17 years (25.0%), and 18–49 years (17.8%).
- For adults aged 18–49 years and 50–64 years, women were more likely than men to have received an influenza vaccination during the past 12 months.

Figure 4.3. Percentage of adults aged 65 years and over who had received an influenza vaccination during the past 12 months, by race/ethnicity: United States, 2007



NOTES: Respondents were asked about receipt of influenza vaccination by nasal spray (sometimes called by the brand name FluMist™) during the past 12 months in addition to a question regarding receipt of a flu shot during the past 12 months. An error in calculating influenza vaccination rates occurred for the first quarter of 2005 to the first quarter of 2007. The effect of this error on estimates was small. Compared with the original estimates, corrected estimates are slightly higher, usually by no more than 0.3 percentage points. The error has been corrected for all estimates in this Early Release and the correction of estimates had no perceptible impact on the graphs. Responses to these influenza vaccination questions cannot be used to determine when during the preceding 12 months the subject received the influenza vaccination. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of an influenza vaccination is seasonal. According to the recommendations of the Advisory Committee on Immunization Practices, all adults aged 50 years and over should receive an influenza vaccination (10). The analyses excluded 132 adults (2.9%) aged 65 years and over with unknown influenza vaccination status.

DATA SOURCE: Based on data collected in the Sample Adult Core component of the 2007 National Health Interview Survey. Data are based on household interviews of a sample of the civilian noninstitutionalized population.

- For adults aged 65 years and over, the percentage of persons receiving an influenza vaccination during the past 12 months was 52.2% for Hispanic persons, 69.4% for non-Hispanic white persons, and 55.4% for non-Hispanic black persons.
- Hispanic persons and non-Hispanic black persons were less likely than non-Hispanic white persons to have received an influenza vaccination during the past 12 months.



Data tables for Figures 4.1–4.3:

Data table for Figure 4.1. Percentage of adults aged 18 years and over who had received an influenza vaccination during the past 12 months, by age group and quarter: United States, 1997–2007

Year and quarter	Percent (95% confidence interval): 18–49 years	Percent (95% confidence interval): 50–64 years	Percent (95% confidence interval): 65 years and over
1997			
Quarter 1	13.6 (12.5-14.6)	30.5 (27.8-33.2)	65.0 (62.3-67.6)
Quarter 2	14.5 (13.4-15.5)	31.3 (28.7-34.0)	63.7 (61.1-66.2)
Quarter 3	13.6 (12.6-14.6)	32.0 (29.3-34.6)	63.1 (60.3-65.9)
Quarter 4	15.6 (14.5-16.7)	33.6 (31.1-36.2)	61.2 (58.7-63.8)
1998			
Quarter 1	16.1 (14.8-17.3)	34.2 (31.3-37.1)	66.3 (63.2-69.4)
Quarter 2	15.3 (14.1-16.5)	32.8 (30.1-35.5)	64.0 (61.3-66.8)
Quarter 3	14.5 (13.3-15.6)	32.0 (29.3-34.6)	61.3 (58.5-64.0)
Quarter 4	16.0 (14.8-17.2)	33.5 (30.8-36.1)	61.6 (58.7-64.5)
1999			
Quarter 1	16.3 (14.8-17.7)	34.2 (31.1-37.3)	67.0 (64.0-70.1)
Quarter 2	16.0 (14.7-17.3)	32.6 (29.8-35.4)	66.1 (63.4-68.8)
Quarter 3	15.8 (14.5-17.1)	32.8 (30.1-35.5)	64.1 (61.2-67.0)
Quarter 4	17.6 (16.2-18.9)	36.7 (34.2-39.2)	65.7 (62.7-68.6)
2000			
Quarter 1	18.6 (17.2-19.9)	36.6 (33.7-39.4)	68.2 (65.3-71.0)
Quarter 2	18.0 (16.7-19.4)	38.5 (35.7-41.4)	68.1 (65.6-70.7)
Quarter 3	18.2 (16.9-19.4)	36.6 (33.7-39.5)	67.1 (64.4-69.8)
Quarter 4	13.6 (12.4-14.8)	26.6 (24.2-29.0)	54.3 (51.6-57.1)
2001			
Quarter 1	14.7 (13.4-16.0)	32.3 (29.6-35.0)	63.3 (60.2-66.3)
Quarter 2	15.9 (14.7-17.1)	32.6 (30.1-35.1)	65.4 (62.8-68.0)
Quarter 3	14.9 (13.9-15.9)	33.3 (30.7-35.8)	64.0 (61.1-66.8)
Quarter 4	14.5 (13.6-15.9)	30.6 (28.0-33.1)	59.6 (56.7-62.4)
2002			
Quarter 1	16.4 (15.2-17.7)	36.3 (33.6-38.9)	66.6 (63.8-69.4)
Quarter 2	16.0 (14.8-17.2)	33.0 (30.5-35.5)	67.8 (65.3-70.3)
Quarter 3	16.2 (14.9-17.5)	33.1 (30.6-35.6)	63.1 (60.5-65.8)
Quarter 4	16.4 (15.1-17.8)	33.8 (31.0-36.6)	65.5 (62.4-68.6)
2003			
Quarter 1	17.1 (15.7-18.4)	36.8 (34.2-39.4)	67.8 (65.0-70.6)
Quarter 2	17.2 (15.8-18.6)	36.8 (33.9-39.7)	65.4 (62.6-68.3)
Quarter 3	16.4 (15.2-17.6)	37.4 (34.9-39.9)	65.4 (62.8-67.9)
Quarter 4	16.7 (15.2-18.1)	36.1 (33.3-39.0)	63.3 (60.1-66.5)
2004			
Quarter 1	19.3 (17.9-20.8)	40.6 (38.0-43.3)	70.3 (67.5-73.0)
Quarter 2	20.9 (19.1-22.6)	40.0 (37.1-43.0)	69.5 (66.7-72.3)
Quarter 3	19.4 (18.2-20.7)	41.0 (38.4-43.6)	66.4 (63.6-69.2)
Quarter 4	12.0 (10.9-13.1)	22.3 (20.2-24.5)	52.4 (49.5-55.4)

See footnotes at end of table.



Year and quarter	Percent (95% confidence interval): 18–49 years	Percent (95% confidence interval): 50–64 years	Percent (95% confidence interval): 65 years and over
2005			
Quarter 1	10.2 (9.03-11.41)	21.2 (19.05-23.42)	59.8 (56.66-62.90)
Quarter 2	10.3 (9.25-11.37)	21.1 (19.05-23.19)	62.0 (59.02-64.91)
Quarter 3	10.0 (9.03-11.03)	21.8 (19.64-24.01)	58.2 (55.42-60.97)
Quarter 4	12.4 (11.28-13.51)	27.8 (25.47-30.19)	58.7 (55.68-61.71)
2006			
Quarter 1	15.0 (13.69-16.36)	33.1 (29.95-36.20)	64.9 (61.65-68.15)
Quarter 2	16.2 (14.78-17.68)	31.8 (29.05-34.50)	66.6 (63.60-69.51)
Quarter 3	15.5 (13.56-17.47)	33.5 (29.45-37.51)	63.9 (58.90-68.84)
Quarter 4	15.4 (14.07-16.82)	34.5 (31.81-37.11)	61.9 (58.72-65.00)
2007			
Quarter 1	18.0 (16.36-19.63)	38.3 (35.28-41.39)	67.5 (64.47-70.62)
Quarter 2	16.7 (15.07-18.31)	36.2 (33.37-39.03)	68.8 (65.62-71.91)
Quarter 3	17.6 (15.47-19.74)	36.5 (32.10-40.95)	65.6 (60.90-70.39)
Quarter 4	18.7 (17.11-20.38)	34.0 (31.14-36.79)	65.1 (62.17-68.02)

NOTES: Beginning with the 2003 data, the National Health Interview Survey (NHIS) transitioned to weights derived from the 2000 census. In this Early Release, estimates for 2000–2002 were recalculated using weights derived from the 2000 census. See “About This Early Release” for more details.

DATA SOURCE: NHIS, 1997–2007. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



Data table for Figure 4.2. Percentage of persons who had received an influenza vaccination during the past 12 months, by age group and sex: United States, 2007

Age and sex	Percent	95% confidence interval
0–2 years		
Total	33.5	30.57-36.35
Male	31.3	27.43-35.26
Female	35.6	31.26-39.89
3–4 years		
Total	37.5	33.75-41.31
Male	37.4	31.97-42.83
Female	37.7	32.24-43.12
5–11 years		
Total	24.6	22.54-26.59
Male	25.7	22.90-28.46
Female	23.4	20.59-26.24
12–17 years		
Total	17.3	15.59-19.06
Male	16.4	14.02-18.71
Female	18.3	15.88-20.81
18–49 years		
Total	17.8	16.84-18.68
Male	15.7	14.44-16.86
Female	19.8	18.59-21.09
50–64 years		
Total	36.2	34.56-37.93
Male	33.0	30.94-35.05
Female	39.3	36.93-41.64
65 years and over		
Total	66.7	64.90-68.59
Male	66.7	64.06-69.31
Female	66.8	64.62-68.96
0–17 years		
Total	25.0	23.76-26.29
Male	24.7	23.06-26.41
Female	25.3	23.61-27.04
18 years and over: crude¹		
Total	30.1	29.08-31.10
Male	27.1	25.94-28.32
Female	32.9	31.64-34.07
65 years and over: age-adjusted²		
Total	66.8	65.00-68.68
Male	67.5	64.93-70.08
Female	66.7	64.49-68.85

¹Crude estimates are presented in the figure.

²Estimates for this Healthy People 2010 Leading Health Indicator are age adjusted using the projected 2000 U.S. population as the standard population and using two age groups: 65–74 years and 75 years and over.

DATA SOURCE: National Health Interview Survey, 2007. Data are based on household interviews of a sample of the civilian noninstitutionalized population.



Data table for Figure 4.3. Percentage of adults aged 65 years and over who had received an influenza vaccination during the past 12 months, by race/ethnicity: United States, 2007

Race/ethnicity	Crude¹ percent (95% confidence interval)	Age-adjusted² percent (95% confidence interval)
Hispanic or Latino	52.2 (45.00-59.34)	53.1 (46.04-60.18)
Not Hispanic or Latino:		
White, single race	69.4 (67.37-71.42)	69.3 (67.28-71.34)
Black, single race	55.4 (50.62-60.21)	56.4 (51.61-61.20)

¹Crude estimates are presented in the figure.

²Estimates for this Healthy People 2010 Leading Health Indicator are age adjusted using the projected 2000 U.S. population as the standard population and using two age groups: 65–74 years and 75 years and over.

DATA SOURCE: National Health Interview Survey, 2007. Data are based on household interviews of a sample of the civilian noninstitutionalized population.