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Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks

Parents of young children support measles, mumps and rubella vaccine requirements but rate the risks higher, the benefits lower. There are not major partisan divisions on these issues, though.

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Vast majority of Americans say benefits of childhood vaccines outweigh risks

Parents of young children support measles, mumps and rubella vaccine requirements but rate the risks higher, the benefits lower. There are not major partisan divisions on these issues, though.

Most Americans support requiring the measles, mumps and rubella vaccine for public school children in order to protect public health. They see high preventive health benefits of such vaccines, and low risk of side effects, and they consider the benefits of the vaccine to outweigh the risks.

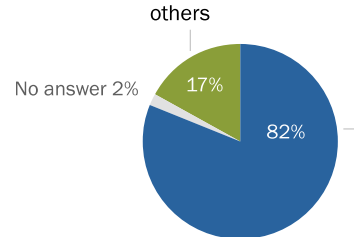
Yet, public concerns about childhood vaccines linger in the public discourse, often linked to a now discredited and retracted research study published nearly two decades ago that raised questions about a possible link between the measles, mumps and rubella vaccine and autism. Despite assurances of vaccine safety from the [Centers for Disease Control and Prevention](#), the [American Academy of Pediatrics](#) and a host of other scientific bodies that the measles, mumps and rubella (MMR) vaccine does not cause autism, a number of prominent figures have expressed concerns about the safety of childhood vaccines. President Donald Trump raised questions about the safety of childhood vaccines on the campaign trail and during the transition period [met with Robert Kennedy Jr.](#) [reportedly about the possibility of leading a commission on vaccine safety](#) and scientific integrity. Kennedy edited a book that argues that a preservative used in some vaccines

Most Americans support a school-based vaccine requirement

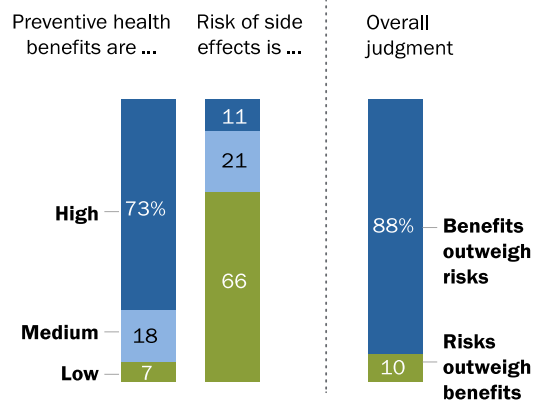
% of U.S. adults who say about childhood vaccines for measles, mumps and rubella ...

Parents should be able to decide not to vaccinate their children even if that may create health risks for others

Healthy children should be required to be vaccinated to attend school because of potential risk to others



Most rate the benefits high, the risk low



Note: Respondents who did not give an answer to questions in bottom chart are not shown.

Source: Survey conducted May 10-June 6, 2016.

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causes neurological disorders, including autism.¹

A new Pew Research Center survey conducted prior to the election finds the “vaccine hesitant” views expressed by Trump and other public figures to be at odds with most Americans’ views. An overwhelming majority of Americans (82%) support requiring all healthy schoolchildren to be vaccinated for measles, mumps and rubella. Some 73% of Americans see high preventive health benefits from use of the MMR vaccine, and 66% believe there is a low risk of side effects from the vaccine. Overall, 88% believe that the benefits of these inoculations outweigh the risks.

But there are several groups with comparatively more concern about the safety of the measles, mumps and rubella vaccine. Foremost among them are parents of children ages 0 to 4 who have recently faced or will soon face a decision about whether to follow the recommended immunization schedule for measles, mumps and rubella starting when their children are between 12 and 15 months old. Six-in-ten (60%) parents with children ages 0 to 4 see the preventive health benefits of the MMR vaccine as high, compared with 75% of parents with school-age children (ages 5-17) and 76% of people with no children under age 18. About half (52%) of

parents with children ages 0 to 4 say the risk of side effects from the MMR vaccine is low, 43% of this group says the risk is medium or high. By comparison, 70% of those with no minor age children say the risk of side effects is low, and 29% say the risk is medium or worse.

Parents of young children rate the risk of childhood vaccines higher and the benefits lower

% of U.S. adults in each group who say the following about the measles, mumps and rubella vaccine

The risk of side effects is ...

	High	Medium	Low
Parents of children ages 0-4	17%	26%	52%
Parents of children ages 5-17	13	18	69
No children under 18	9	20	70

The preventive health benefits are ...

	High	Medium	Low
Parents of children ages 0-4	60%	31%	5%
Parents of children ages 5-17	75	15	9
No children under 18	76	16	7

Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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¹ Kennedy, Robert Jr., ed., 2014. Thimerosal: Let the Science Speak: The Evidence Supporting the Immediate Removal of Mercury—a Known Neurotoxin—from Vaccines. New York: Skyhorse Publishing.

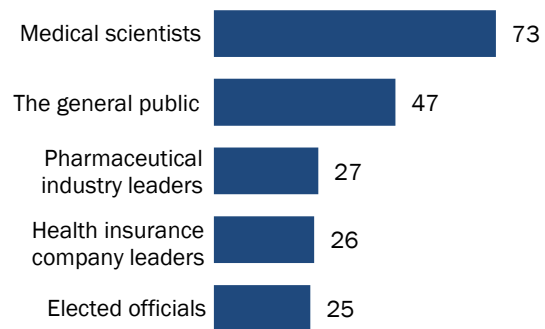
In addition, blacks consider the risk of side effects from the MMR vaccine to be higher and the benefits lower than other Americans. There are also generational differences with adults under age 30 less convinced that the MMR vaccine brings high preventive health benefits. People's use of alternative and conventional medicine is linked with their beliefs about the MMR vaccine; those who report never taking over-the-counter cold or flu medication and those who have used alternative medicine instead of conventional medicine see higher risk from the MMR vaccine.

People with low knowledge about science are also less likely to see high preventive health benefits from vaccines (55% compared with 91% of those high in science knowledge).² In addition, they are more likely to consider the risk of side effects to be at least “medium” or worse (47% vs. 19% of those with high science knowledge.) Similarly, the 68% majority of Americans who do not correctly recognize the definition for “herd immunity” are less likely to rate the benefits of the MMR vaccine as high and comparatively more likely to see the risk of side effects as at least medium. ([Herd immunity](#) refers to the health benefits that occur when most people in a population have been vaccinated.) This group is equally likely as those who correctly recognize the term “herd immunity” to support a requirement for all children in public schools to be vaccinated.

Nonetheless, public views of medical scientists and their research related to childhood vaccines are broadly positive regardless of parent status, race, ethnicity and experience using alternative medicine. Fully 73% of U.S. adults believe that medical scientists should have a major role in policy decisions related to childhood vaccines. In addition, a 55% majority say they trust information from medical scientists a lot to give a full and accurate picture of the health effects of vaccines. At the same time people are less trusting of other groups about this issue. For

Most Americans say medical scientists should have a major policy role on vaccine issues

% of U.S. adults who say ___ should have a major role in making decisions about policy issues related to childhood vaccines



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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² We asked nine questions of respondents to assess their level of broad knowledge about science. The questions in the nine-item index of science knowledge are shown in the [survey questionnaire and topline](#). Some 22% of respondents are classified as high in science knowledge, 48% are medium and 30% are classified as low in science knowledge. More details are available in [Chapter 4](#) and the [Methodology section](#) of the related report, “[The Politics of Climate](#).”

example, just 13% trust information from pharmaceutical industry leaders about the health effects of the MMR vaccine a lot. People with high science knowledge are especially positive in their views of medical scientists and research on childhood vaccines. Younger adults, ages 18 to 29, are a bit more skeptical than older age groups about medical scientists and their work on childhood vaccines.

The new Pew Research Center survey finds Republicans (including independents who lean Republican) hold roughly the same views as Democrats (including leaning Democrats) about the benefits and risks of the MMR vaccine, consistent with a [2015 Pew Research Center survey](#) on this topic. Republicans and Democrats (including those who lean to either party) are about equally likely to support a school-based vaccine requirement. However, political conservatives are slightly more likely than either moderates or liberals to say that parents should be able to decide not to have their children vaccinated, though majorities of all ideology groups support requiring the measles, mumps and rubella vaccine for all children in public schools because of the potential health risk to others.

These are some of the findings from a Pew Research Center survey conducted among a nationally representative sample of 1,549 adults, ages 18 or older from May 10-June 6, 2016. This is the third in a series of reports on public views about science-related issues and public trust in scientists working on these issues. The margin of sampling error based on the full sample is plus or minus 4.0 percentage points. For details, see the [Methodology](#).

82% of Americans say the measles, mumps and rubella vaccine should be required for healthy schoolchildren in order to reduce public health risk

An overwhelming majority of Americans (82%) support having a school-based requirement that healthy children be vaccinated for measles, mumps and rubella. Older adults, ages 65 and older, are especially strong in their support for requiring the MMR vaccine.

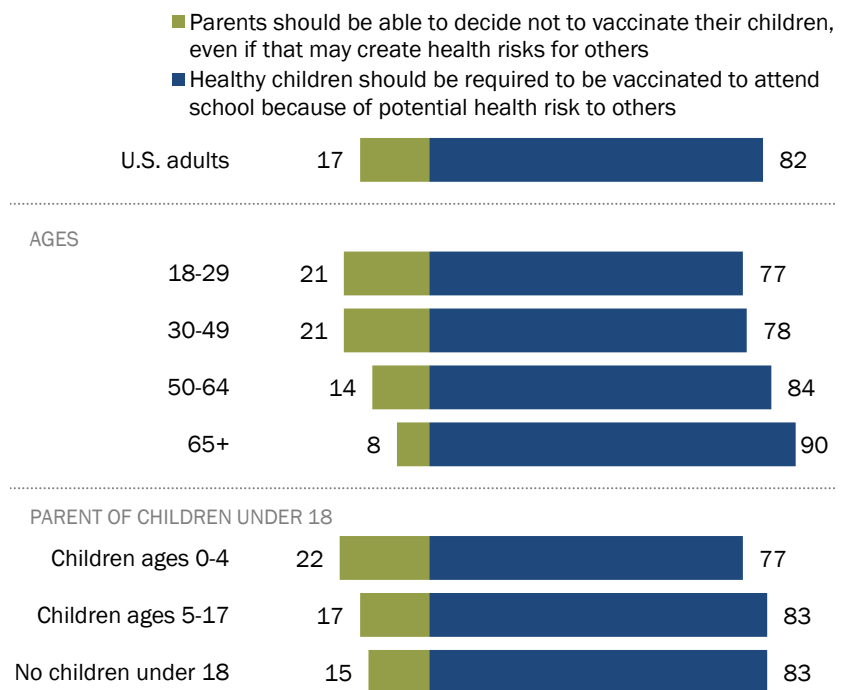
Seniors, ages 65 and older, support a school-based requirement for the MMR vaccine by a margin of 90% to 8% who say that parents should be able to decide this. Smaller majorities of younger age groups support a school requirement for the MMR vaccine.

Parents of young children, parents of school-age children and those with no minor age children hold roughly similar views on this

issue, with a majority of all three groups saying that healthy schoolchildren should be required to be vaccinated because of the health risk to others when children are not vaccinated. Some 77% of parents with children ages 0 to 4 say that healthy children should be required to be vaccinated for the MMR because of the potential health risk to others when children are not vaccinated, while 22% of this group says parents should be able to decide not to have their children vaccinated even if that creates health risks for others.

Most Americans support requirement for vaccines; those under 50 are more likely to say parents should be able to decide

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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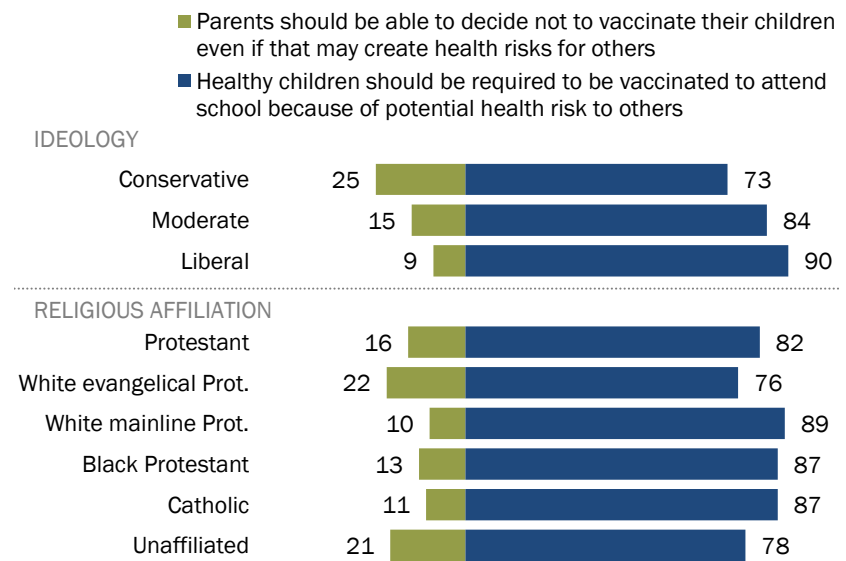
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Conservatives (25%) are a bit more likely than either moderates (15%) or liberals (9%) to say that parents should be able to decide not to have their children vaccinated even if that creates health risks for others. At least seven-in-ten of all three ideology groups say that the MMR vaccine should be required for healthy schoolchildren, however. There are no significant differences in views about this issue by political party in this survey.

White evangelical Protestants and the religiously unaffiliated tend to express a bit less support for requiring the MMR vaccine and comparatively more support for allowing parents to decide not to have their children vaccinated. Majorities of all major religious groups, though, say that the MMR vaccine should be required for healthy school children.

Most Americans say vaccines should be required for schoolchildren; a larger share of conservatives say parents should be able to decide

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella



Note: Respondents who did not give an answer are not shown. Whites and blacks are non-Hispanics only; Hispanics are of any race.

Source: Survey conducted May 10-June 6, 2016.

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Health practices related to conventional and alternative medicine linked to people's views about childhood vaccines

Two additional groups have notably different views about childhood vaccines than others. One is the 20% of adults who report they have used alternative medicine instead of traditional medicine. The other is 8% of Americans who report that they never take over-the-counter medications.

Alternative medicine is a broad category including herbal dietary supplements, acupuncture, chiropractic, energy therapies and other therapies that are not part of standard conventional (here also called traditional)

Western-based medical care. Many of these alternative therapies have uncertain healing effects although some techniques have been shown to help relieve pain and nausea and are used as complementary treatments in addition to conventional, standard medical care.

The new Pew Research Center survey finds half of U.S. adults (50%) report never having used alternative medicine; one-fifth (20%) say they have used alternative medicine instead of conventional treatment, and 29% have used it in addition to conventional treatment.³

Another indicator of people's use of conventional medicine involves their use of over-the-counter cold and flu medications. Some 41% of Americans report that they take such medications as soon they experience cold or flu symptoms, 49% say they wait to take such medications until their cold or flu symptoms worsen, and 8% report that they never take over-the-counter medications for cold or flu symptoms.

Americans use of conventional and alternative medicine varies

% of U.S. adults who say the following

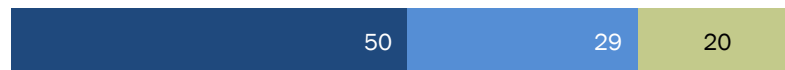
When they are experiencing cold or flu symptoms, they ...

- Take over-the-counter medications right away
- Wait to see if symptoms get worse before taking over-the-counter medications
- Never take over-the-counter medications



They have or have not ever used alternative medicine, such as herbal remedies, acupuncture, chiropractic, energy therapies or other therapies

- Never tried alternative medicine
- Used in addition to traditional medicine
- Used instead of traditional medicine



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

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³ Past public surveys have used a number of different definitions and approaches to measuring people's use of alternative medicine. See P.E. Harris, K.L. Cooper, C. Relton and K.J. Thomas, 2012. [Prevalence of complementary and alternative medicine \(CAM\) use by the general population: A systematic review and update](#). International Journal of Clinical Practice, vol. 66 (10): 924-939.

The minority of Americans who report never using over-the-counter medications for cold or flu symptoms and those who have used alternative medicine instead of conventional treatment are comparatively more likely to think that parents should be able to decide whether to have their children vaccinated even if that decision means increased health risk for others. Most in these groups, however, say that healthy children should be required to be vaccinated in order to attend public schools.

Overall, public perceptions of the benefits and risks of the

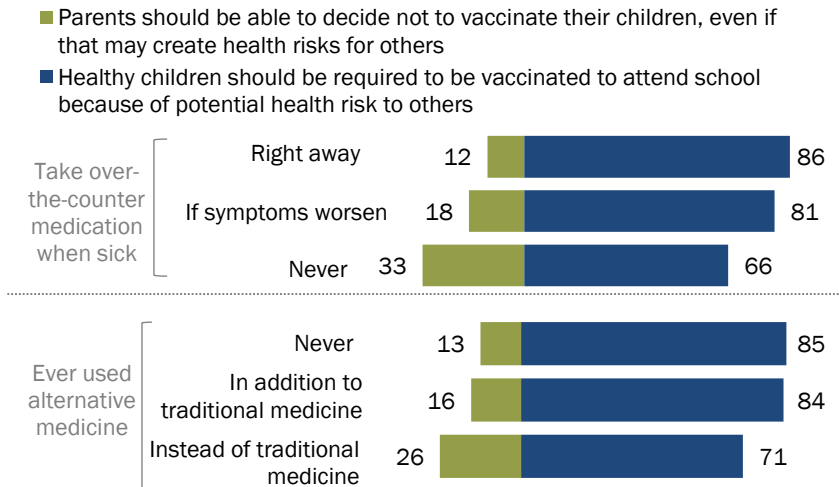
measles, mumps and rubella vaccine are strongly positive. Some 73% of U.S. adults rate the preventive health benefits of the MMR vaccine as high, and 66% of the public says the risk of side effects from the vaccine is low. About a third (32%) say the risks are medium or high. When considering the trade-offs, fully 88% of Americans say the benefits of the MMR vaccine outweigh any risks, while just one-in-ten say the risks outweigh the benefits.

Parents with children through age 4 are comparatively less convinced that the MMR vaccine has high preventive health benefits and are more concerned about the risk of side effects. Six-in-ten (60%) of those with a child ages 0 to 4 say the benefits are high, compared with 76% of those with no children under age 18. Some 43% of parents with young children (ages 0 to 4) say the risk of side effects from the MMR vaccine is at least medium, compared with 29% of those with no minor-age children.

Blacks (56%) and Hispanics (61%) are less inclined than are whites (79%) to see the preventive health benefits of the MMR vaccine as high. Blacks also tend to see the risk of side effects from the

Most Americans say vaccines should be required for schoolchildren; a larger share of those who have tried alternative medicine say parents should decide

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella



Note: Respondents who gave other responses or who did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016.

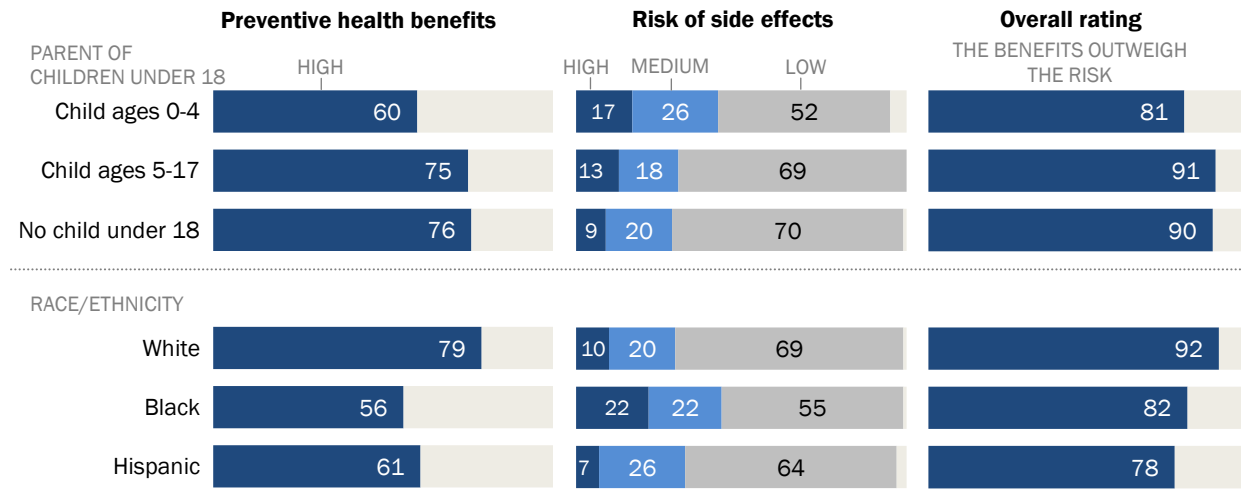
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MMR vaccine as at least medium compared with whites (44% of blacks vs. 30% of whites say this).⁴

Parents of younger children and blacks see lower health benefits and higher risk of side effects from childhood vaccines

% of U.S. adults who rate the health benefits or risk of side effects of the childhood vaccine for measles, mumps and rubella as ...



Note: Respondents who gave other responses or who did not give an answer are not shown. Whites and blacks are non-Hispanics only; Hispanics are of any race.

Source: Survey conducted May 10-June 6, 2016.

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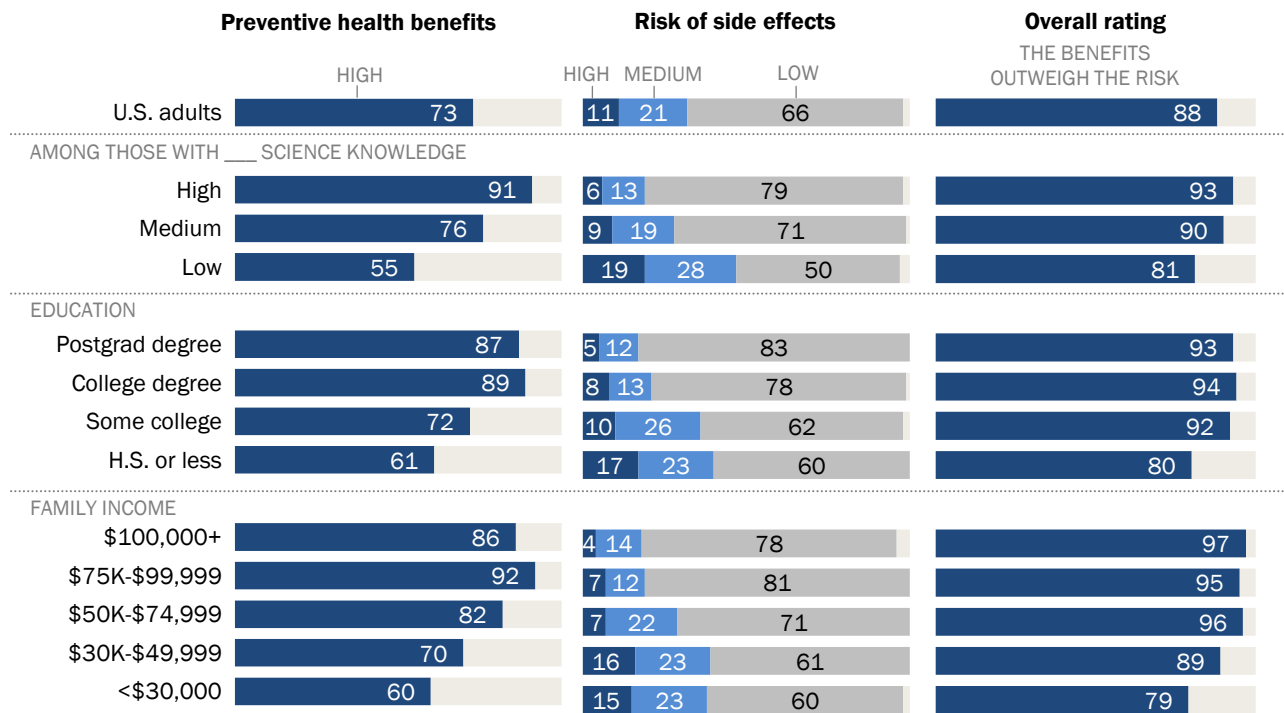
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⁴ The sample of Hispanics in this survey is predominantly U.S. born and English-dominant.

People with high science knowledge, higher levels of education and higher family income are especially likely to rate the preventive health benefits of the MMR vaccine as high and the risk of side effects as low. For example, 91% of those with high science knowledge say the health benefits of the MMR vaccine are high, compared with 55% of those with low science knowledge. Just 19% of those with high science knowledge consider the risk of side effects from the MMR vaccine to be at least medium, compared with 47% of those with low science knowledge.

Most Americans say benefits of childhood vaccines for measles, mumps and rubella outweigh risk, especially people with high science knowledge

% of U.S. adults who rate the health benefits or risk of side effects of the childhood vaccine for measles, mumps and rubella as ...



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Reports that affluent communities have lower vaccination rates lead some to speculate that people with higher incomes hold more concerns about the safety of the MMR vaccine. The Pew Research Center survey finds, however, that people with higher family incomes tend to rate the risk of side effects from the MMR vaccine as low. Those with higher family incomes are especially strong in their support for a requirement that all children be required to be vaccinated against MMR in order to attend public schools.

The 8% of Americans who report never using over-the-counter medications for cold or flu symptoms are comparatively less convinced of the preventive health benefits (59% say the benefits are high, compared with 75% among all who take such medications) and more concerned about the risk of side effects from the MMR vaccine (49% say the risk of side effects are at least medium, compared with 31% of all who take such medications). There is a similar, though less pronounced, pattern among those who have used alternative medicine in lieu of conventional medicine compared with other Americans.

There are not noteworthy differences in people's perceptions of the benefits and risks associated with the MMR vaccine by gender, religious affiliation or political groups.

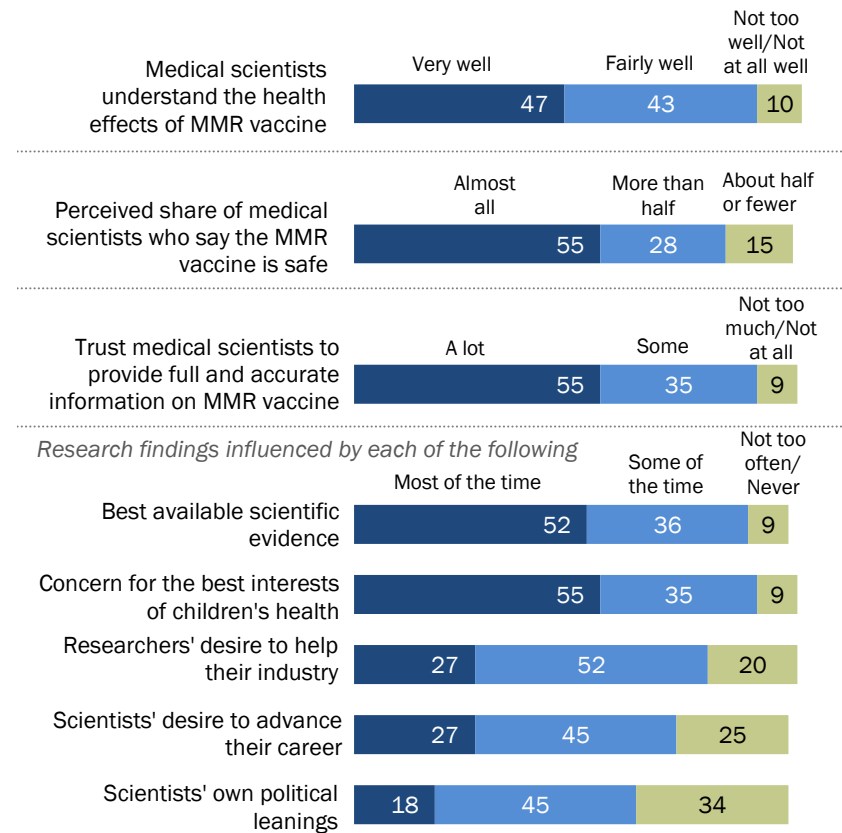
Trust in medical scientists and their research

Public perceptions of medical scientists and their research are broadly positive. Some 55% of Americans perceive strong consensus among medical scientists that the measles, mumps and rubella vaccine is safe for healthy children. Nearly half of Americans (47%) say that medical scientists understand very well the risks and benefits of the MMR vaccine, 43% say medical scientists understand this fairly well and just one-in-ten (10%) say medical scientists do not understand this at all or not too well.

A 55% majority of Americans trust information from medical scientists a lot to give a full and accurate picture of the health effects of vaccines. Public trust in information from other groups is much lower including: pharmaceutical industry leaders (13%), people from holistic or alternative health groups (9%), the news media (8%) and elected officials (6%).

Roughly half of Americans express strong trust in medical scientists and their research on childhood vaccines for measles, mumps and rubella

% of U.S. adults



Note: Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
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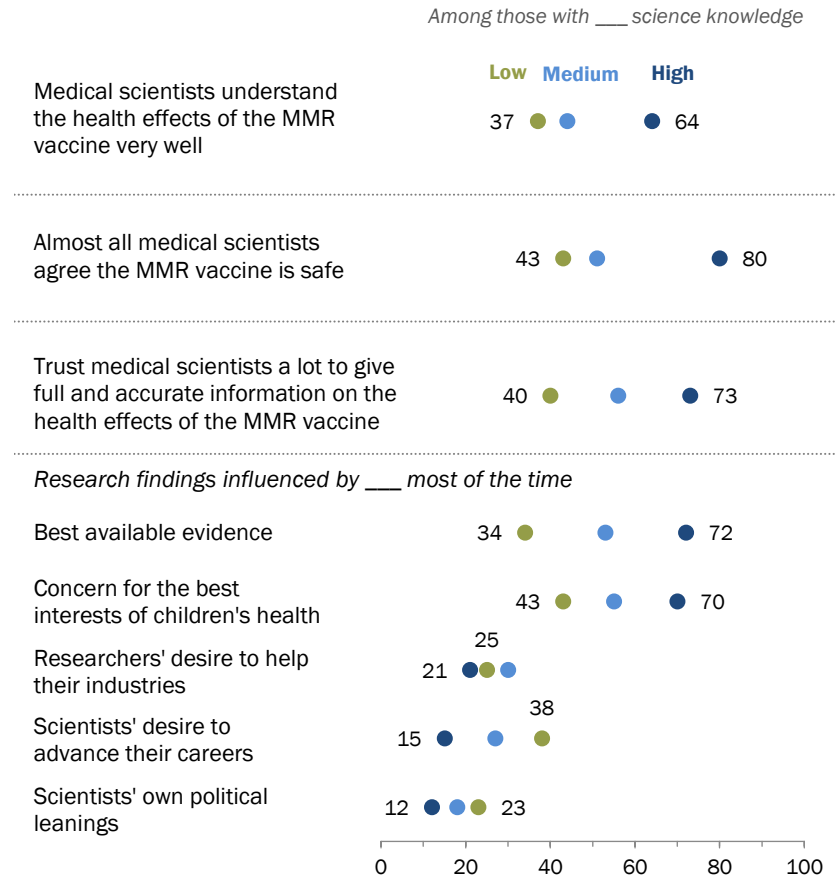
Some 52% say that scientists' research on childhood vaccines is influenced by the best available evidence most of the time, and 55% say such research is influenced by scientists' concern for the best interests of children's health most of the time. Smaller shares say that researchers' desire to

help their industries or to advance their own careers influences research on childhood vaccines most of the time.

Americans' views about medical scientists and their work, however, vary widely by people's level of knowledge about science. People with high science knowledge, based on a nine-item index, tend to be positive and trusting of medical scientists and their work on childhood vaccines. By contrast, a minority of those low in science knowledge perceive medical scientists as understanding the risks and benefits of the MMR vaccine very well, trust information from medical scientists a lot, or think that the best available evidence influences medical research on childhood vaccines most of the time.

People with high science knowledge are more trusting of medical scientists and their research

% of U.S. adults who say the following



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

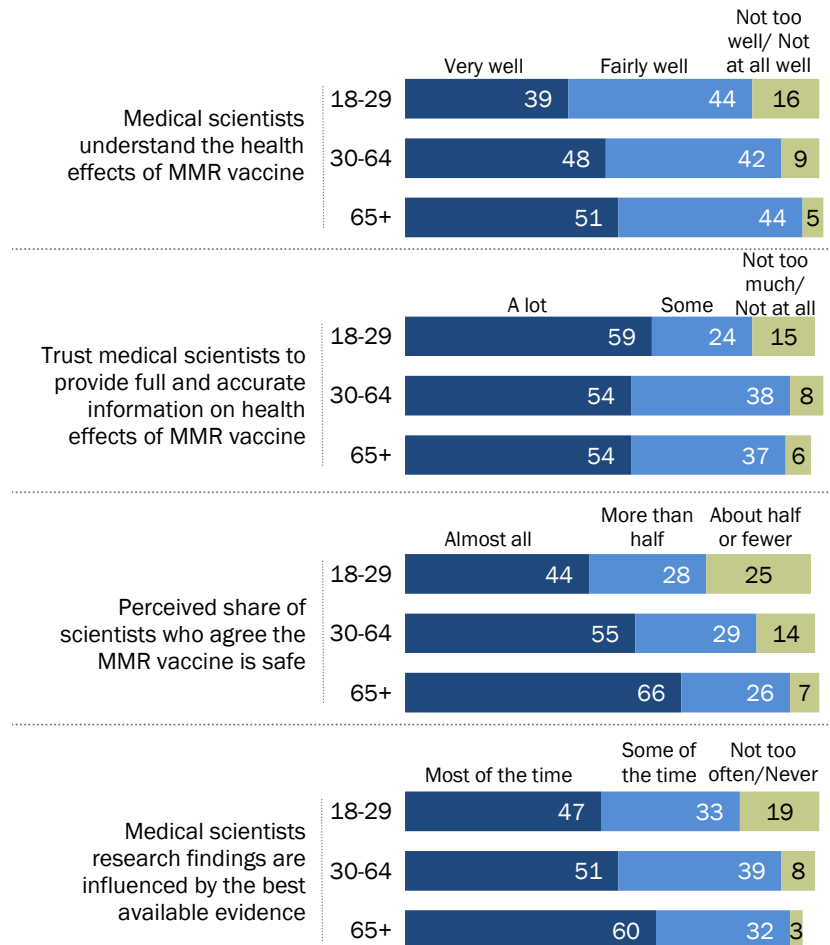
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In addition, there are modest generational differences in views about medical scientists. Younger adults, ages 18 to 29, are less inclined than older adults to see medical scientists and their research in a positive light.

Younger generations are more skeptical of medical scientists and their research on childhood vaccines

% of U.S. adults in each age group who say the following



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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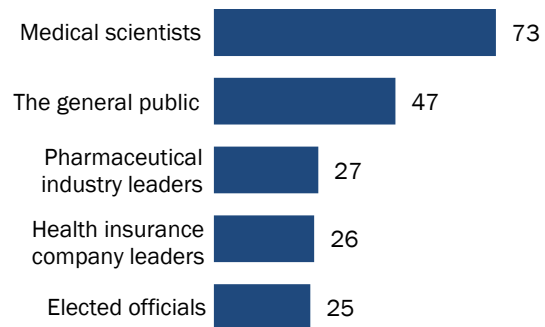
Most Americans support a policy role for medical scientists on vaccine issues

While there is considerable variation in Americans' views about medical scientists' understanding of childhood vaccines, most Americans think medical scientists should have a role in policy decisions related to childhood vaccines. Fully 73% of U.S. adults think that medical scientists should have a major role, 19% think they should have a minor role in such policy-making decisions, and 7% think medical scientists should have no role in vaccine policymaking.

Far fewer Americans say that other groups should have a major role in policy decisions on these issues, including the general public (47%), pharmaceutical industry leaders (27%), health insurance company leaders (26%) or elected officials (25%).

Most Americans say medical scientists should have a major policy role on vaccine issues

% of U.S. adults who say ___ should have a major role in making decisions about policy issues related to childhood vaccines



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Most Americans express confidence in medical scientists to act in the public interest

Asked about a wide range of leaders and institutions, the military, medical scientists, and scientists, in general, received the most votes of confidence when it comes to acting in the best interests of the public. On the flip side, majorities of the public have little confidence in the news media, business leaders and elected officials. Public confidence in K-12 school leaders and religious leaders to act in the public's best interest falls in the middle, as shown in a [2016 report](#) from the same Pew Research survey.

Fully 84% of Americans say they have a great deal (24%) or a fair amount (60%) of confidence in medical scientists to act in the public's best interests. About eight-in-ten or more report at least a fair amount of confidence in medical scientists to act in the public interest across a range of subgroups including gender, age, parents, race and ethnicity, education, political party and ideology and religion.

Other key findings in the report include:

- Nearly half of Americans (48%) say the health of children in the U.S. as a whole has declined over the past two decades, a smaller share (31%) say it has gotten better and a fifth (20%) say children's health has stayed about the same. People's perceptions of adult health over the past 20 years are slightly more negative than positive as well. People ages 65 and older are the only age group in which a plurality sees the public health of both children and adults as better today than it was two decades ago.
- Most Americans see reports of conflicting health studies as part of the march of research progress. Fully 74% of adults say conflicting news reports about disease prevention are understandable because "new research is constantly improving our understanding," while 23% of adults say such research "cannot really be trusted because so many studies conflict with each other."
- A 61% majority of Americans give the media positive marks, overall, for their coverage of issues related to the measles, mumps and rubella vaccine. Half of Americans say they follow news about childhood vaccines very (13%) or somewhat (37%) closely. Fully 73% of this media attentive group says the media do a good job covering issues about childhood vaccines, and 27% says the media do a bad job on this. Parents of children ages 0 to 4 do not differ from other adults in their judgments about media coverage of the MMR vaccine.
- Most people who have seen a health care provider for treatment needs in the past year say the provider listened to their concerns and cared about their well-being. Roughly six-in-ten Americans (63%) report that they have gone to a health care provider for an illness or medical condition in the past year, and 36% have not. Fully 87% of those who have been to a health care provider within the past year felt their description of their symptoms or concerns were carefully listened to, 84% felt the health care provider "really cared about [their] health and well-being" and 80% say they got all the information they needed for further treatment and at-home care. Only 23% of this group reports feeling rushed by the health care provider, and only 15% felt confused about the instructions they received for further treatment or at-home care.
- When it comes to making decisions about treatment for a serious health problem, three-in-ten adults (30%) say they "just ask a doctor for advice," while some 68% of Americans say they also do their own research, either to check for other treatment options (21% of U.S. adults), to understand potential side effects for a recommended treatment (9% of U.S. adults) or simply to learn more about the recommended treatment (36% of U.S. adults).

1. Americans' views about public health and health studies in the news

Overall, asked whether public health is better, worse or stable over the past few decades, Americans tilt toward viewing health outcomes in the U.S. as declining compared with 20 years ago. A plurality of U.S. adults say that children's and adults' health are both worse today than they were two decades ago. This view is shared among all age groups except seniors; about half of those ages 65 and older think that the health of both children and adults is better today than it was 20 years ago.

While the general public tends to see a mix of factors as important for health, more Americans say healthy eating and exercise are very important for preventing serious disease than say genetic factors or safe and healthy housing conditions are important determinants of health. The public's beliefs about the factors in disease prevention are similar across age, gender and income groups.

Many Americans pay attention to health information in the media about ways people can protect themselves from the risk of serious disease. Observers have sometimes worried that back-and-forth contradictory media reports about health confuse people, or worse, foster distrust in health and medical studies. The Pew Research Center survey finds that while most Americans report seeing news reports whose advice about disease prevention conflicts with earlier reports, they see the back and forth as a sign of continued research progress. A majority of Americans say it makes sense that news reports over time contain conflicting advice because new research is constantly improving our understanding of disease. A minority of Americans say that such research cannot be trusted because so many studies conflict.

More Americans today view public health as declining than improving

The American public is more pessimistic than optimistic in its assessments of public health today. Nearly half (48%) of Americans believe children's health, as a whole, is worse today than it was 20 years ago; by comparison, a smaller share, 31%, believe children's health is better today. One-in-five adults (20%) say children's health is about the same as it was.

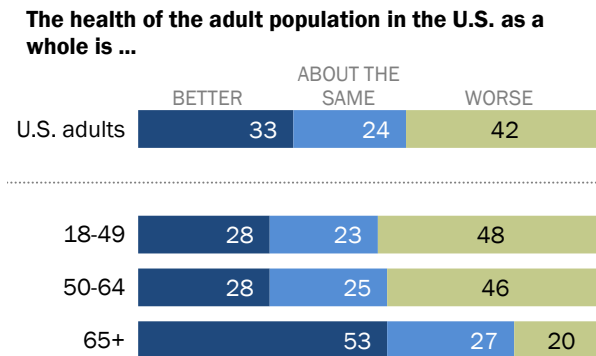
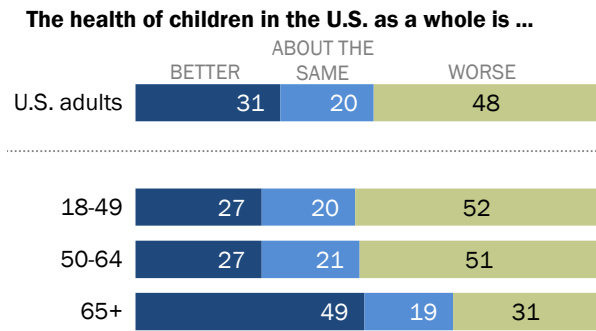
People's views of change in adult health over the past two decades are similarly more negative than positive. Some 42% of Americans say the health of the adult population in the country is generally worse today, 33% say it is better and 24% say it is about the same as it was 20 years ago.

There are large differences by age in people's views about public health, suggesting that generational experiences influence these perceptions. Seniors are the only age group in which more people see public health as better rather than the same or worse today. About half (49%) of adults ages 65 and older say that children's health is generally better today than it was 20 years ago. In comparison, 27% of adults ages 18 to 49 say that children's health is better today than it was 20 years ago.

And, fully half (53%) of people ages 65 and older say that adult health is better today than it was 20 years ago. In contrast, Americans in younger age groups are more likely to say the health of adults is worse today.

Older Americans see public health improvements; more in younger groups see decline over past two decades

% of U.S. adults who say that compared with 20 years ago ...



Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted May 10-June 6, 2016.
"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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The public sees healthy eating and exercise as key factors in preventing serious disease

Americans are most likely to highlight controllable factors, especially diet and exercise, as important for preventing serious disease. Seven-in-ten adults say that healthy eating habits are very important in preventing a person from getting serious diseases such as cancer or heart disease. Two-thirds (66%) of Americans say getting enough physical exercise is very important in disease prevention.

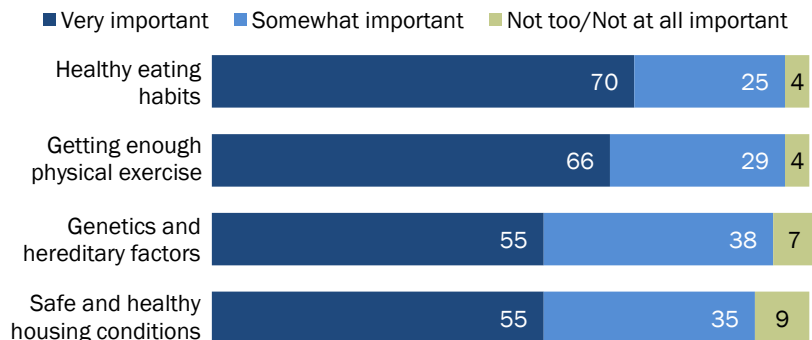
Smaller shares, though still a majority, say genetics and hereditary factors (55%) or

safe and healthy housing conditions (55%) are very important factors to prevent serious diseases, such as cancer and heart disease.

Beliefs about the factors in disease prevention are similar across gender, age and income. But, women are somewhat more likely than men to say that safe housing conditions (61% vs. 48%) as well as genetics and hereditary factors (59% vs. 50%) are very important for preventing serious diseases. And those with low family incomes are more likely to say that safe and healthy housing conditions are very important for preventing serious diseases (61% of those with incomes of less than \$30,000 annually compared with 48% of those with family incomes of \$100,000 or higher).

Majority say healthy eating habits, physical exercise are very important for improving lifelong health

% of U.S. adults who say each is ___ when it comes to preventing a person from getting serious diseases such as cancer or heart disease



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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Conflicting news reports on disease prevention abound, but most Americans see such stories as part of the research process

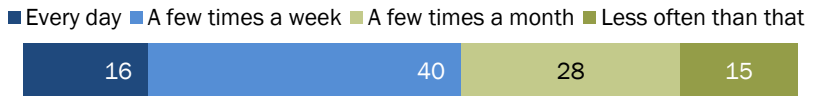
Most Americans pay attention to stories about how to prevent serious diseases such as cancer or heart disease. Most members of the public (55%) say they hear or read news stories about the ways people can protect themselves from the risk of serious diseases every day (16%) or a few times a week (40%). An additional 28% report they see such news stories a few times a month; 15% say they see such news stories less often than that.

Older Americans are especially likely to follow health news about disease prevention. About two-thirds (65%) of adults ages 50 and older say they hear or read media reports on disease prevention at least a few times a week. By comparison, some 47% of those ages 18 to 49 say they follow news on this topic at least a few times a week.⁵

People who follow health

More than half of Americans say they hear news about how to prevent serious diseases at least weekly

% of U.S. adults who say they hear or read news stories about the ways people can protect themselves from the risk of serious diseases ...

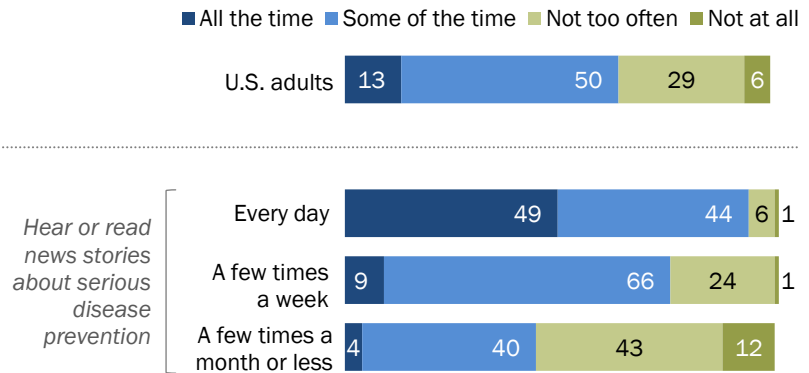


Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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People who follow health news daily see more conflicting news stories on ways to reduce health risk

% of U.S. adults who say they hear or read news stories about ways people can protect themselves from the risk of serious diseases that conflict with earlier news stories ...



Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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⁵ These findings are in keeping with a [2014 Pew Research Center survey](#) which found older adults more likely than younger adults to have an interest in health and medicine topics, generally.

news regularly are especially likely to say they hear or read news stories about disease prevention that conflict with prior stories. About half (49%) of those who see media reports about disease prevention every day also say they see conflicting news stories about this “all the time.” In comparison, just 13% of all U.S. adults say they hear or read media stories about disease prevention that conflict with prior stories “all the time.”

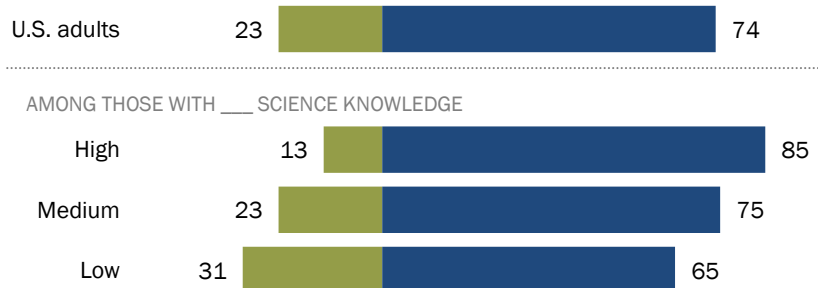
Some in the science community have worried that news reports of research with conflicting findings about disease prevention might undermine public trust in science.⁶ While most people are aware of conflicting health studies in the media, most see it as a sign of research progress. Some 74% of U.S. adults say it makes sense that findings conflict because “new research is constantly improving our understanding about ways to protect people from the risk of serious disease.” A smaller share (23%), however, says that “research about ways people can protect themselves from the risk of serious disease cannot really be trusted because so many studies conflict with each other.”

People’s views about contradictory health studies tend to vary depending on their level of science knowledge. An overwhelming majority of those with high science knowledge say studies with findings that conflict with prior research are a sign that understanding of disease prevention is improving (85%). A smaller majority of those with low science knowledge say the same (65%), while 31% say that the research cannot really be trusted because so many studies conflict with each other.

Most Americans say conflicting news reports about how to prevent disease reflect improved understanding

% of U.S. adults who say ...

- Research about ways people can protect themselves from the risk of serious disease cannot really be trusted because so many studies conflict with each other
- New research is constantly improving our understanding about ways to protect people from the risk of serious disease, so it makes sense that these findings conflict with prior studies



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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⁶ Schoenfeld, J.D. and Ioannidis, J.P. 2012. [Is everything we eat associated with cancer? A systematic cookbook review](#), The American Journal of Clinical Nutrition, 97(1): 127-134.

Pew Research Center's 2016 companion report on [public views about food science](#) found a similar pattern. A majority of Americans said they see conflicting media stories about the health effects of food. Some 61% of Americans said that, "new research is constantly improving our understanding about the health effects of what people eat and drink, so it makes sense that these findings conflict with prior studies," while fewer (37%) said, "research about the health effects of what people eat and drink cannot really be trusted because so many studies conflict with each other." Similarly, people with lower levels of science knowledge were particularly likely to say that such studies could not be trusted because so many studies conflict.

2. Americans' health care behaviors and use of conventional and alternative medicine

Americans who have seen a health care provider in the past year for treatment of an illness or medical condition hold largely positive views of their experience. Most of those receiving care felt that their description of their symptoms was carefully listened to, that their health care provider really cared about their health and well-being and that they received the information they needed for their treatment or home-based care. Only a minority of this group reports having felt rushed by their health care provider or confused about the instructions they received for at-home care or treatment needs.

At the same time, a majority of Americans say that when they make decisions about treatment for a serious health problem, they do their own research in addition to seeking advice from a doctor or other health care provider. Some of those who report doing their own research say they are aiming simply to learn more about the provider's recommendations, while other people say they do so to check for other treatment options or to learn about potential side effects of the recommended treatment.

About half of Americans report having tried some form of alternative medicine, such as herbal remedies, acupuncture, chiropractic treatment or energy therapies, at some point during their lifetime. About a fifth of Americans say they have tried alternative medicine instead of conventional medicine; and, roughly three-in-ten adults have tried alternative medicine in conjunction with conventional medical treatment. In addition, about one-in-twelve Americans report that they never use over-the-counter medications when experiencing cold or flu symptoms, while the remainder say they either take such medications right away or wait until their symptoms worsen. People who have used alternative medicine instead of conventional medicine and those who never take over-the-counter medications are less likely to have a primary care provider, to have had a flu shot and to have had a preventive care checkup in the past year.

Health care options can vary widely from community to community. A minority of the public says that access to quality health care is a big problem in their local area. People's views about access to quality health care are linked with community size and type as well as family income.

Most Americans berate themselves for not getting enough exercise. Nearly eight-in-ten Americans say they "should probably be getting more exercise." A majority of those who say they exercise "a few times a week" believe they should be getting more exercise than they do. By contrast, most of those who exercise daily say they get about as much exercise as they should. Regardless, fewer

than one-in-six adults describe their lifestyle as “very healthy”; most see themselves as having a “somewhat” healthy lifestyle.

Roughly half of Americans report that they exercise at least a few times each week, but three-quarters of Americans believe they should be getting more exercise

About half of Americans say they exercise every day (15%) or a few times a week (38%). Some 47% of U.S. adults say they exercise no more than a few times a month.

At the same time, 79% of Americans believe that they should probably be getting more physical exercise; only 20% say they get as much exercise as they should.

While most people who report exercising every day judge themselves to be getting as much exercise as they should (65%), some 35% of this group thinks they, too, should be getting more exercise.

Previous surveys conducted by telephone, including one by [Pew Research Center in 2006](#), also found a majority of Americans said they should be getting more exercise. One factor in these perceptions of self-failings may be the sense that

Most Americans say they exercise a few times a week or less; a minority exercise every day

% of U.S. adults who say they exercise or participate in vigorous physical activity ...



Note: Respondents who did not give an answer are not shown.

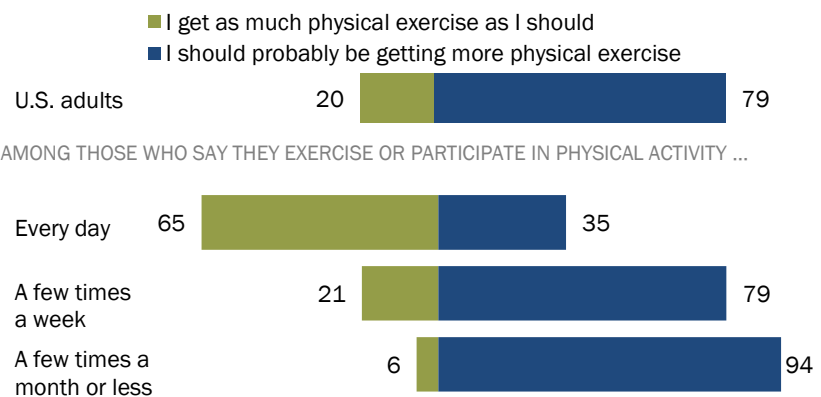
Source: Survey of U.S. adults conducted May 10-June 6, 2016.

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Majority of Americans believe they should be getting more physical exercise

% of U.S. adults who say when it comes to physical exercise ...



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

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exercise is important for lessening the risk of disease. Two-thirds (66%) of Americans in this new Pew Research Center survey say getting enough exercise is very important for preventing the risk of serious disease, and an additional 29% say it is somewhat important.

Most Americans see themselves as having a “somewhat healthy lifestyle”

Most Americans judge themselves to be living a somewhat (66%) or very (14%) healthy lifestyle. About two-in-ten Americans (19%) describe their lifestyle as not very or not at all healthy.

Non-smokers and those who exercise regularly are more likely to see themselves as following a very or somewhat healthy lifestyle, as do adults ages 50 and older.

Some 36% of Americans who exercise daily say that they live a very healthy lifestyle, compared with just 6% of those who exercise a few times a month or less often.

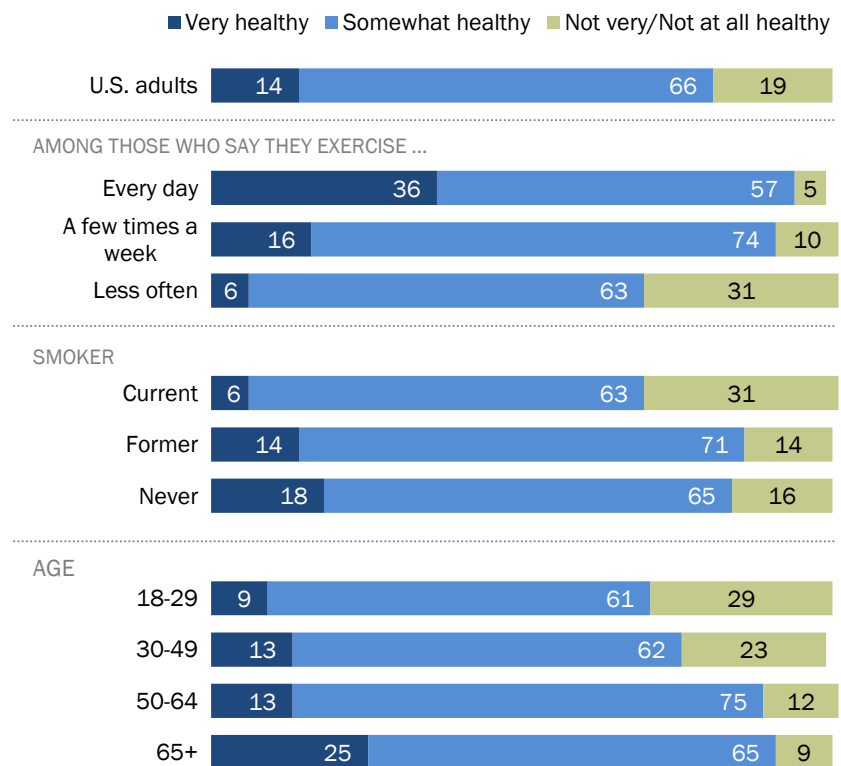
Similarly, 18% of people who have never been cigarette smokers describe themselves as having a very healthy lifestyle, compared with 6% of current smokers.

One-quarter (25%) of adults ages 65 and older consider themselves to have a very healthy lifestyle; just 9% of 18- to 29-year-olds say the same.

Men and women are about equally likely to see themselves as following a

Non-smokers, regular exercisers and older adults see themselves as following a healthy lifestyle

% of U.S. adults who say they, personally, have a ___ lifestyle



Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
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healthy lifestyle.

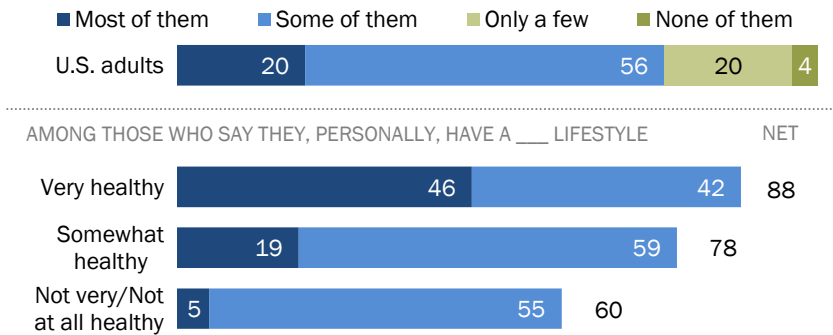
People following healthy lifestyles tend to have social networks contacts who do the same

One-in-five Americans say that most of their closest family and friends live a healthy lifestyle. An additional 56% say some of them do, while 20% say only a few do and just 4% say none of their friends or relatives live a healthy lifestyle.

Fully 46% of people who see themselves as following a very healthy lifestyle say that most of their close family and friends do the same. In contrast, just 5% of people who describe their own lifestyle as not very or not at all healthy say that most of their close family and friends follow a very healthy lifestyle.

Those who live a very healthy lifestyle are more likely to have similarly oriented family and friends

% of U.S. adults who say how many of their closest family and friends have a healthy lifestyle



Note: Respondents who gave other responses or who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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Public views about access to quality health care vary across community types

Health care options can vary widely from community to community. People's views about access to quality health care are linked with community size and type as well as family income. Overall, some 27% of Americans say that access to quality health care is a big problem in their community, 42% call it a small problem and three-in-ten (30%) say this is not a problem in their area.

Americans living in rural (33%) and urban (30%) communities are more inclined than those living in suburban communities (23%) to say access to quality health care is a big problem where they live.

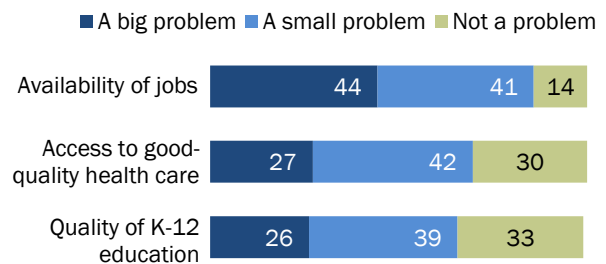
Just 14% of those with a family income of \$100,000 or more say access to quality health care is a big problem, while a much larger share (43%) say this is not a problem in their local community. In contrast, 35% of people with a household income of less than \$30,000 say access to quality health care is a big problem in their community. Just one-quarter (25%) of those with lower incomes say access to quality health care is not a problem.

Women are slightly more likely than men to see access to quality health care as a big problem where they live (33% compared with 21% among men).

By comparison, more Americans consider the availability of jobs to be a big problem in their local community (44%) than say the same about access to quality health care (27%). A similar share of Americans (26%) say the quality of K-12 education in public schools is a big problem where they live.

More Americans see access to jobs as a problem in their area than access to quality health care or K-12 education

% of U.S. adults who say each of the following is ___ in their local communities



Note: Respondents who did not give an answer not shown.

Source: Survey conducted May 10-June 6, 2016.

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Most people report positive experiences when receiving health care treatment

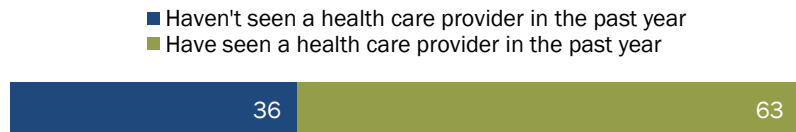
Roughly six-in-ten Americans (63%) report that they have gone to a health care provider for an illness or medical condition in the past year, while 36% have not.

The vast majority of people who have seen a health care provider for an illness or medical condition in the past year report positive experiences. Fully 87% of those who have been to a health care provider within the past year felt their concerns or descriptions of symptoms were carefully listened to, 84% say they felt their health care provider “really cared about (their) health and well-being” and 80% say they got all the information they needed for further treatment and at-home care. Only 23% of this group report feeling rushed by the health care provider and only 15% felt confused about the instructions they received for further treatment or at-home care.

Some 23% of those with a high school diploma or less schooling who saw a health care provider in the past year say they felt confused about follow-up instructions for care; that figure is only slightly higher than the 15% of those with a postgraduate degree who say the same. People across

Majority of the public has seen a health care provider in the past year for an illness or medical condition

% of U.S. adults who say they ____ for an illness or medical condition

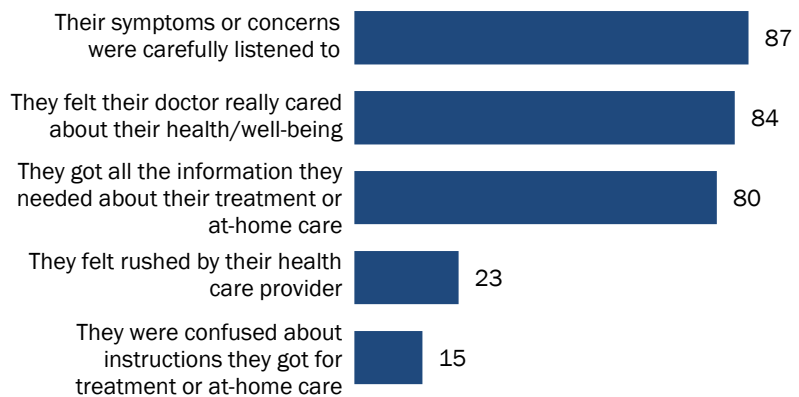


Note: Respondents who gave other response or who did not give an answer are not shown.
Source: Survey of U.S. adults conducted May 10-June 6, 2016.
“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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Most people who saw a health care provider about an illness in past year felt listened to, cared about

% who say they have experienced each of the following when seeing a health care provider for an illness or medical condition within the past year



Note: Based on those who have seen a health care provider for an illness or medical condition in the past year. Respondents who gave other response or who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

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demographic groups, including gender, age, race and ethnicity, as well as those with a regular health care provider and those without, give broadly positive assessments of their health care treatment visits.

People’s use of conventional and alternative medicine tie with their use of preventive health care

The Pew Research Center survey included a few questions about people’s habits and practices in using conventional and alternative medicine; these behaviors correlate with their use of preventive care and, as shown in the [next chapter](#), their views about the risks and benefits of childhood vaccines. One measure comes from people’s use of alternative medicine, particularly if used instead of “traditional,” Western-based conventional medicine. Another measure comes from people’s practices regarding their use of over-the-counter medications for cold or flu symptoms.

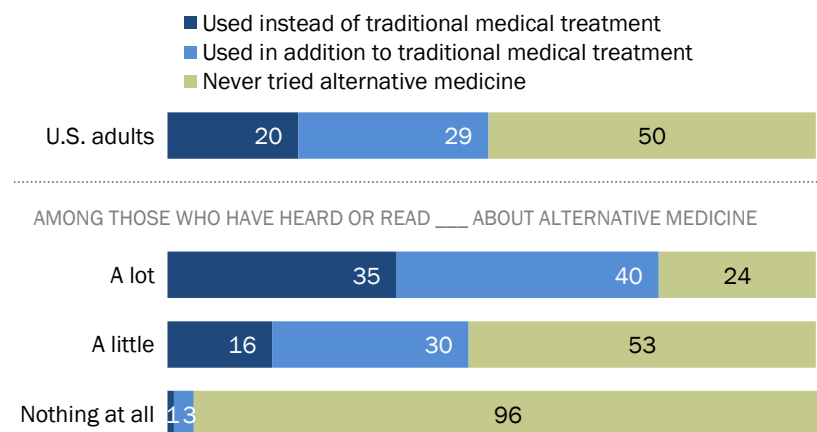
A fifth of Americans say they have tried alternative treatments in lieu of conventional medicine

Alternative medicine is a broad category including herbal dietary supplements, acupuncture, chiropractic, energy therapies and other therapies that are not part of standard conventional (here also called, traditional) Western-based medical care. Many of these alternative therapies have uncertain healing effects although some techniques have been shown to help relieve pain and nausea and are used as complementary treatments in addition to conventional, standard medical care.

About one-third (32%) of U.S. adults say they have heard a lot about alternative medicine, and 54% say they have heard a little, while 13% say they have heard nothing at all about alternative medicine.

Two-in-ten adults report using alternative medicine instead of conventional, traditional treatment

% of U.S. adults who say they have or have not ever used alternative medicine, such as herbal remedies, acupuncture, chiropractic, energy therapies or other therapies



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

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About half of the general public reports that they have tried alternative medicine either instead of (20%) or in conjunction with (29%) conventional medical treatments. Half of U.S. adults say they have never used alternative medicine.

Older adults, ages 65 and older, are a bit less likely than younger age groups to have used alternative medicine instead of conventional treatment (10% have done so compared with 22% each of those ages 18-49 and 50-64).

There are no significant differences by gender or education in having tried alternative medicine in lieu of conventional health care.⁷

The National Health Interview Survey conducted by the Centers for Disease Control and Prevention found that people with chronic conditions use more complementary and alternative medical treatments.⁸ The Pew Research Center survey also finds people who report having a chronic medical condition are more likely to have used alternative medicine in addition to traditional medicine (33% have done so compared with 24% of those who do not have a chronic condition or disease).

Education groups are about the same in their use of alternative medicine

% of U.S. adults who say they have or have not ever used alternative medicine

	Used instead of traditional medicine	Used in addition to traditional medicine	Never used alternative medicine
U.S. adults	20	29	50
18-29	23	28	47
30-49	21	32	47
50-64	22	27	50
65+	10	28	58
Men	17	28	54
Women	22	30	46
Postgraduate degree	19	38	43
College degree	18	37	45
Some college	20	28	52
H.S. or less	21	24	53
Have a chronic condition or disease	15	33	50
Do not have a chronic condition or disease	23	24	51

Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted May 10-June 6, 2016.
"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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⁷ Other research has found that women and more highly educated adults are more likely to use complementary and alternative medicine. There are wide differences in definitions and question wording in surveys about alternative medicine, however, that could account for such differences. See Harris, P.E., Cooper, K.L., Relton, C. and Thomas, K.J. 2012. [Prevalence of complementary and alternative medicine \(CAM\) use by the general population: A systematic review and update](#). International Journal of Clinical Practice, vol. 66 (10): 924-939.

⁸ Falci, L., Shi, Z., Greenlee, H. 2016. [Multiple chronic conditions and use of complementary and alternative medicine among US adults: Results from the 2012 National Health Interview Survey](#). Preventing Chronic Disease, vol. 13: 150501.

About one-in-twelve Americans report that they never use over-the-counter medications

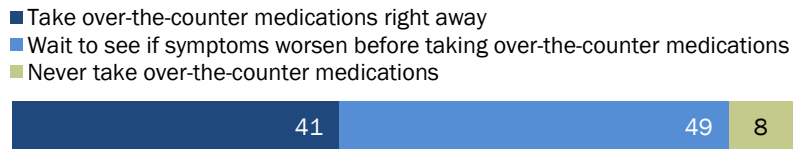
Overall, most Americans report that they use over-the-counter medications either right away (41%) when experiencing cold or flu symptoms or that they do so after symptoms worsen (49%). Some 8% of Americans say they never take over-the-counter medications.

No single demographic or educational group stands out as never taking over-the-counter medications for cold and flu symptoms. However, those who say this are more likely than other Americans to have tried alternative medicine instead of conventional treatment.

Roughly one-third (34%) of people who say they never take over-the-counter medications say they have tried alternative medicine instead of conventional medical care. By comparison, 18% of those who say they take over-the-counter medications right away have used alternative medicine instead of a conventional treatment.

One-in-twelve Americans never take over-the-counter medications; others vary in their approach

% of U.S. adults who say they ___ when they are experiencing cold or flu symptoms

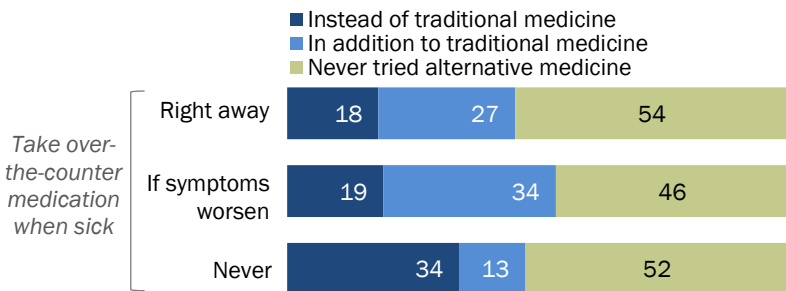


Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
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Those who never take over-the-counter medications are more likely to have tried alternative medicine as a replacement for conventional medicine

% of U.S. adults who say they have used alternative medicine...



Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
 “Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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Preventive health care behaviors correlate with people’s use of conventional and alternative medicine

Preventive health care aims to promote health and well-being through regular checkups, immunizations and screening tests. Roughly three-quarters of Americans (76%) say they have a primary care provider. Some 69% of Americans say that they have gone to a health care provider for a physical examination in the past year, and 40% say they have had a flu shot in the past year.

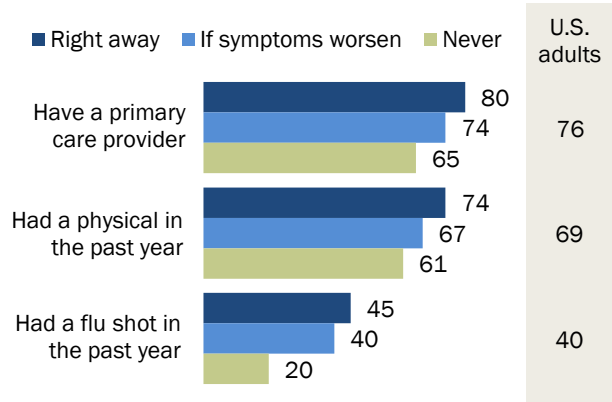
Americans’ habits toward using conventional medicine are associated with their preventive health care behaviors. For example, among the minority of Americans who say they never take over-the-counter medications for cold and flu symptoms, fewer have a primary care provider (65% compared with 80% of those who take over-the-counter medications right away), had a physical exam in the past year (61% vs. 74% of those who take over-the-counter medications right away) or had a flu shot in the past year (20% vs. 45% of those who take over-the-counter medications right away).

Those who have used alternative medicine instead of conventional treatment are also slightly less likely to have a primary care provider or to have had a preventive care checkup or flu shot in the past year.

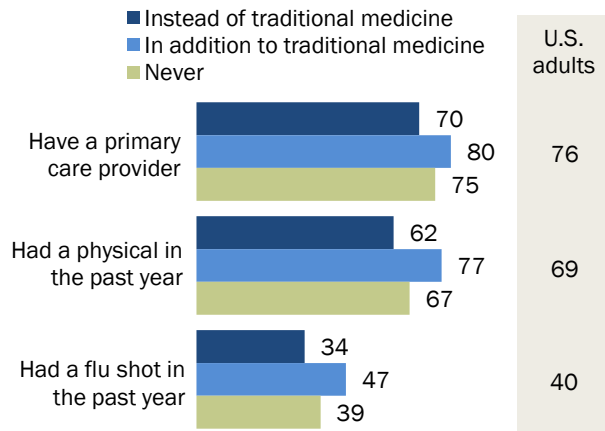
Health care behaviors linked with use of conventional and alternative medicine

% of U.S. adults

AMONG THOSE WHO TAKE OVER-THE-COUNTER MEDICATIONS WHEN SICK ...



AMONG THOSE WHO HAVE USED ALTERNATIVE MEDICINE ...



Note: Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

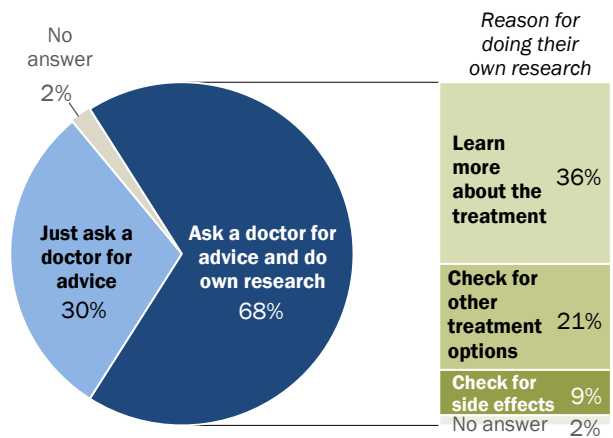
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About three-in-ten Americans say they supplement a health care provider's advice in order to check for other options or to learn about potential side effects of recommended treatments

When it comes to making decisions about treatment for a serious health problem, three-in-ten Americans (30%) say they just ask a doctor for advice. Roughly two-thirds of the public (68%) says they ask a health care provider for advice and also do their own research, either to check for other treatments (21% of U.S. adults), to understand potential side effects for a recommended treatment (9%) or simply to learn more about the recommended treatment (36%).

Most people say they do their own research in addition to asking for the doctor's advice

% of U.S. adults who say when they make decisions about treatment for a serious health problem, they ...



Note: Respondents who did not give an answer are not shown.
Source: Survey of U.S. adults conducted May 10-June 6, 2016.
"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

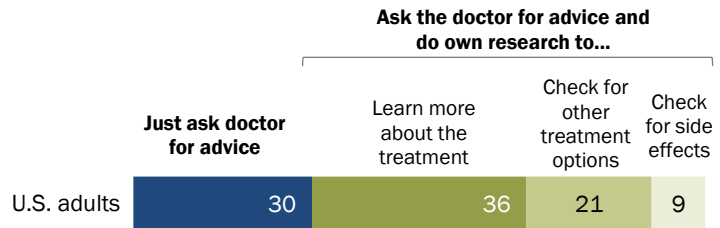
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Americans who report never taking over-the-counter medications for cold and flu symptoms are more likely to say that they do their own research to check for other treatment options than do people who take such medications at the first sign of symptoms. Some 36% of those who never take over-the-counter medications say they do their own research in order to check for other treatments, compared with 17% of those who take over-the-counter medications right away.

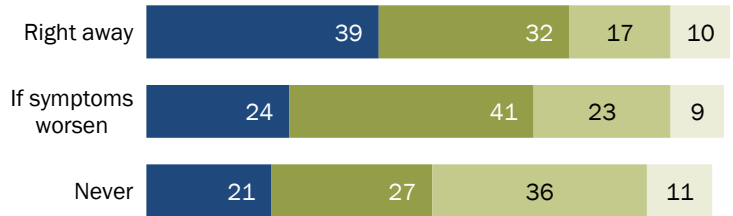
People who have tried alternative medicine are a bit more likely than other Americans to say they supplement a doctor's advice with their own research, especially to check for other treatment options.

Those who never take over-the-counter medications more likely to supplement health care provider advice

% of U.S. adults who say when they make decisions about treatment for a serious health problem, they do the following



AMONG THOSE WHO TAKE OVER-THE-COUNTER MEDICATIONS ___ WHEN SICK



Note: Respondents who did not give an answer are not shown.
 Source: Survey of U.S. adults conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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3. Public opinion about childhood vaccines for measles, mumps and rubella

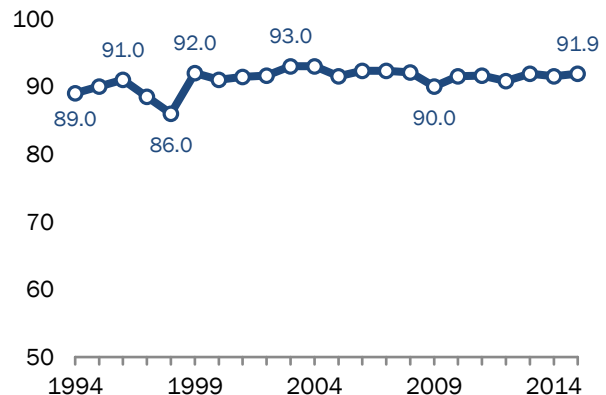
Public debate over the safety of childhood vaccines, particularly the vaccine for measles, mumps and rubella, is typically linked with a 1998 research study – later discredited – that suggested that the MMR vaccine was associated with autism.⁹ Seth Mnookin’s book, [The Panic Virus](#), suggests that media reporting of the study coupled with the 12 years it took until the study was retracted helped foster concerns about the safety of the MMR vaccine among, at least, some members of the public. And [Dina Fine Maron](#) suggests that the coincidental discovery of many neurological disorders around the age of 2 contributes to ongoing concerns about vaccines, especially among parents of young children.

A number of prominent public figures have expressed reservations about the safety of childhood vaccines, especially the MMR vaccine, which is recommended to be given to children between the ages of 12 and 15 months, followed by a second dose at the age of 4 to 6 years. For example, [actor Robert De Niro](#) selected a film for the Tribeca Film Festival that argued for a link between childhood vaccines and autism. The film was later dropped from the festival in response to protests, but De Niro, who has an autistic son, repeated his personal concerns about the safety of vaccines and urged people to see the film. A number of political figures have raised concerns about the safety of childhood vaccines. President Trump [questioned the recommended schedule](#) for childhood vaccines during a primary debate in 2015, [met with members of the anti-vaccine movement](#) during the 2016 campaign and as president-elect, [reportedly asked Robert Kennedy Jr.](#), the editor of a volume that argues the preservative used in some vaccines causes autism and other neurological disorders, to head a commission on vaccine safety.

Roughly nine-in-ten children receive the first dose of the measles, mumps and rubella

National vaccination rates have been roughly steady since 2000

% of U.S. children between the ages of 19 and 35 months who have been vaccinated for measles, mumps and rubella



Source: National Immunization Survey, Center for Disease Control
“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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⁹ See [Public Trust in Vaccines: Defining a Research Agenda](#), 2014. American Academy of Arts & Sciences.

vaccine by the age of 35 months. In [2014](#), 91.9 percent of children ages 19 to 35 months had received the MMR vaccine, according to data from the [Centers for Disease Control and Prevention](#).

However, local vaccination rates can vary widely. A preliminary analysis published in [JAMA Pediatrics](#) suggested that the “substandard” vaccination rates – that is, vaccine rates below the level needed to protect the population from the measles disease – were likely to blame for the outbreak of measles originating at Disneyland in December 2014 and continuing through the early months of 2015.

The new Pew Research Center survey finds that a large majority of Americans consider the preventive benefits of the MMR vaccine to be high and the risk of side effects from the MMR vaccine to be low. Overall, some 88% of Americans think the benefits of the MMR vaccine outweigh the risks; just one-in-ten dissent from this view.

Pockets of Americans appear more hesitant about the safety of vaccines, however. Parents of younger children (from birth to age 4) tend to rate the risk of side effects from the MMR vaccine as higher and the benefits lower than parents with older children and those with no minor-age children. Blacks are more likely than whites to think there is either a medium or high risk of side effects from the MMR vaccine. And people with less knowledge about science and those with lower levels of education and family income also express comparatively more concern about the risk of side effects from the MMR vaccine. On the flip side, people with high knowledge about science, higher education and higher family income levels are comparatively more inclined to see high health benefits from the MMR vaccine.

In addition, people’s conventional and alternative medicine practices tend to align with their perceptions of the risks and benefits of the vaccine. The minority of Americans who report never using over-the-counter medications for cold and flu symptoms, for example, are especially likely to see medium or high risk from the MMR vaccine. Similarly, those who have used alternative medicine instead of conventional treatment are more inclined to think the risk of side effects from the vaccine is medium or high.

When it comes to policy views, a large majority of Americans support school-based requirements for the MMR vaccine in order to protect public health; fewer than two-in-ten think parents should be able to choose whether or not to have their children vaccinated for measles, mumps and rubella.

Older adults, especially those ages 65 and older, and those with high science knowledge are particularly strong in their support for school-based policy requirements to vaccinate children for

measles, mumps and rubella. [Reports that affluent communities have lower vaccination rates](#) lead some to speculate that people with higher incomes are particularly concerned about the safety of the MMR vaccine. The survey finds, however, that people with higher family incomes see low risk of side effects from the MMR vaccine and are especially strong in their support for a requirement that all children be vaccinated against MMR in order to attend public schools.

White evangelical Protestants are slightly more likely than either white mainline Protestants or Catholics to think that parents should be able to decide not to have their children vaccinated, even if that may create health risks for other children and adults. And, political conservatives, regardless of party affiliation, are more likely than either moderates or liberals to support parents being able to choose whether to have their children vaccinated. Majorities of white evangelical Protestants and political conservatives, however, support a school-based requirement for the MMR vaccine.

Smaller majorities of people who say they never take over-the-counter medications for cold and flu symptoms and those who have used alternative medicine instead of conventional treatment support school-based requirements for the MMR vaccine; comparatively more in these groups say that parents should be able to decide whether their children should be vaccinated for MMR even if that decision creates health risks for others.

Personal concern about childhood vaccine issues

Some 42% of Americans say that they care “a great deal” about issues related to childhood vaccines. An additional 39% say they care “some,” while a small share, 17%, say they care not too much or not at all about these issues.

Women are more likely than men to be deeply concerned about childhood vaccine issues (48% of women vs. 36% of men care a great deal about these issues). A larger share of blacks (61%) than either Hispanics (43%) or whites (37%) report caring a great deal about childhood vaccine issues.

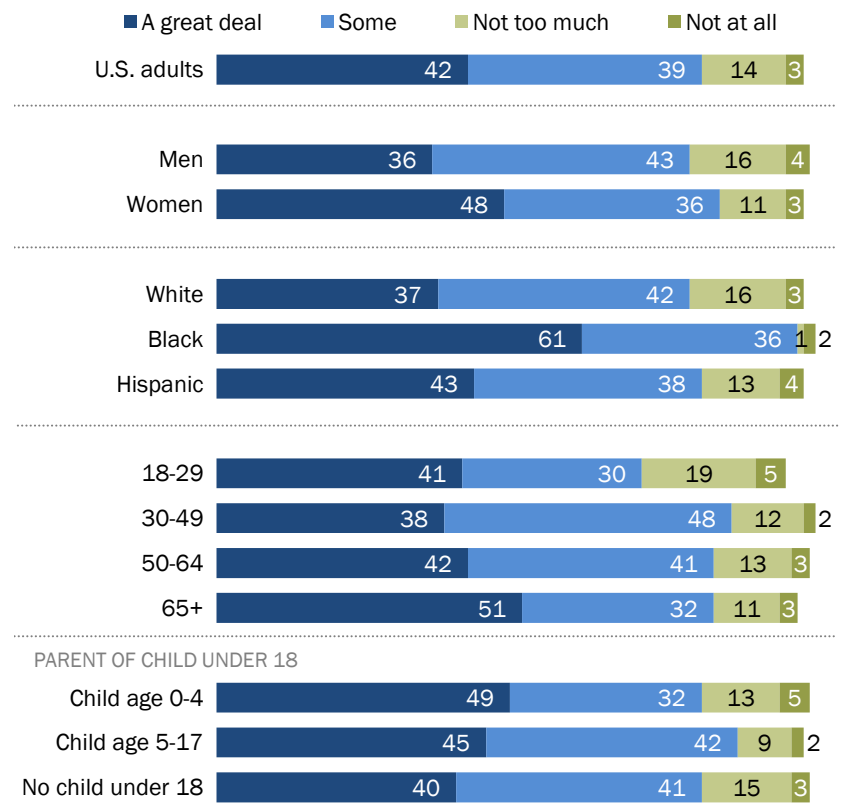
About half (49%) of parents with young children (up to age 4) care deeply about childhood vaccine issues, as do 40% of those who do not have minor-age children.

There are no differences in level of concern between mothers and fathers of minor-age children or across education or income levels.

There are no more than modest differences in beliefs about the benefits and risks of the MMR vaccine by levels of concern about childhood vaccine issues.

42% of Americans say they care a great deal about vaccine issues

% of U.S. adults who say they care ___ about issues related to childhood vaccines for measles, mumps and rubella



Note: Whites and blacks are non-Hispanics only; Hispanics are of any race. Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
 “Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

A large majority of Americans see benefits from childhood vaccines, but several subgroups show comparatively more concern about vaccine risks

Most Americans rate the preventive health benefits of childhood vaccines for measles, mumps and rubella as high and the risk of side effects as low. Fully 73% of U.S. adults say the health benefits of the MMR vaccine are high, while a quarter of adults say the benefits are medium (18%) or low (7%). On the flip side, most Americans consider the risk of side effects from the MMR vaccine to be low (66%), 21% say the risks are medium and 11% say the risks are high.¹⁰

When asked to weigh the risks and benefits of childhood

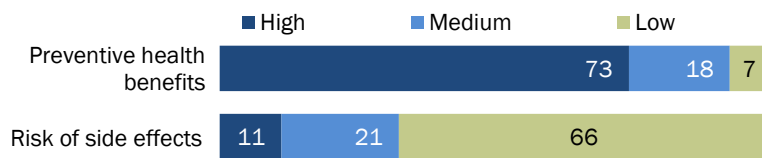
vaccines together, an overwhelming majority of Americans say the benefits of childhood vaccines outweigh the risks (88%), and only one-in-ten say the risks outweigh the benefits.

Those high in science knowledge are especially likely to see health benefits from the MMR vaccine; fewer parents of young children, young adults and blacks perceive high benefits

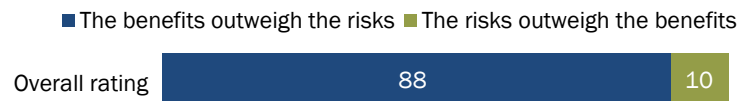
While most Americans are in agreement that childhood vaccines for measles, mumps and rubella have high preventive health benefits and a low risk of side effects, there are notable differences in views among subgroups. People with more science knowledge (as well as those with higher levels of education) are especially inclined to see benefits from the MMR vaccine.¹¹

A majority see high preventive health benefits, low risk of side effects for the childhood MMR vaccine

% of U.S. adults who rate the health benefits or risk of side effects of the childhood vaccine for measles, mumps and rubella as ...



% of U.S. adults who say ...



Note: Responses of very high/high and very low/low are combined. Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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¹⁰ Responses of very high/high and very low/low are combined. See [questionnaire wording and topline](#).

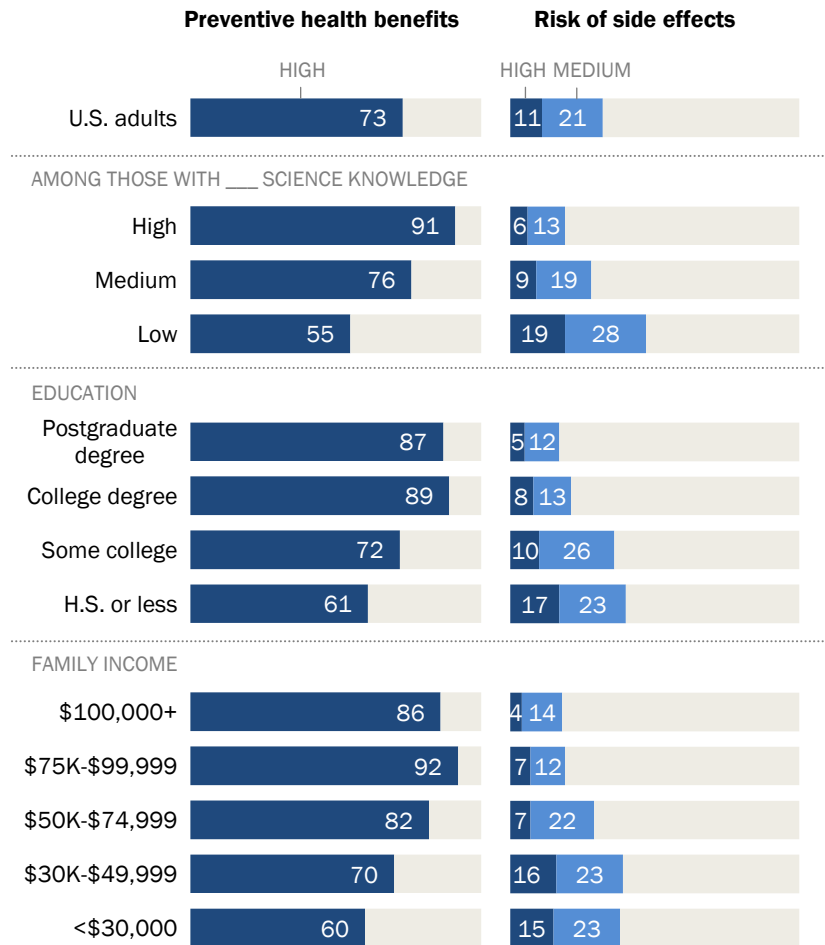
¹¹ The questions in the nine-item index of science knowledge are shown in the [survey questionnaire and topline](#). More details are available in [Chapter 4](#) and the [Methodology](#) section of the related report, "[The Politics of Climate](#)."

Parents of young children along with blacks are less inclined to see benefits and comparatively more inclined to say the risk of side effects of the MMR vaccine is medium or high.

For example, fully 91% of those with high science knowledge rate the preventive health benefits as high, compared with 55% of those with low science knowledge. By the same token, 19% of those with high science knowledge rate the risk of side effects from the MMR vaccine as medium or high, compared with 47% of those with low science knowledge. A similar pattern occurs by education; people with a postgraduate degree are more inclined than those with a high school diploma or less to see the health benefits of the MMR vaccine as high and the risks of side effects as at least medium.

More Americans with high science knowledge, education and income say MMR vaccine benefits are high, risk of side effects is low

% of U.S. adults who say the ___ from the childhood vaccine for measles, mumps and rubella are/is high or medium



Note: Responses of very high/high are combined. Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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People with lower family incomes are more inclined than people whose family income is at least \$50,000 per year to see risks from the MMR vaccine and less inclined to see preventive health benefits.

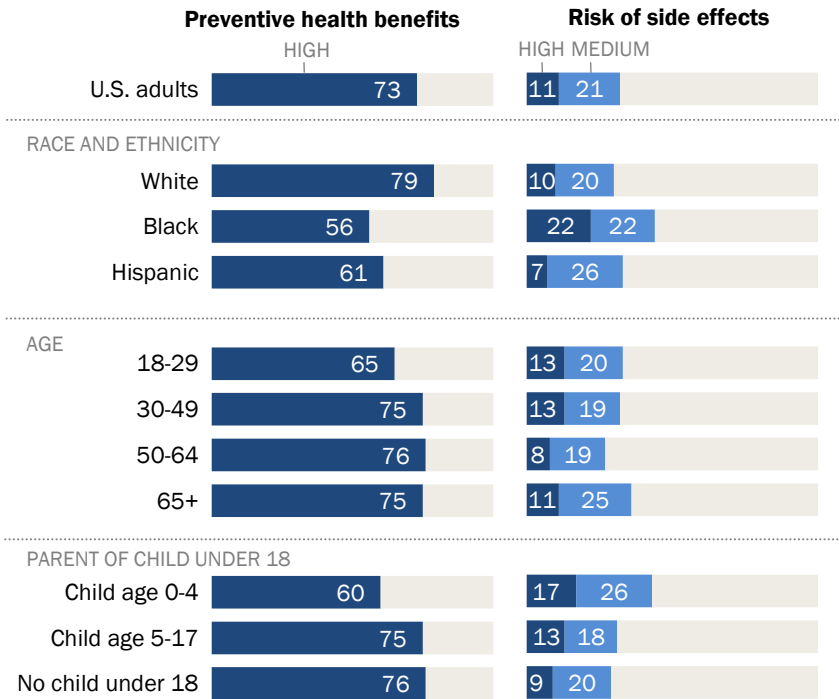
Some 79% of whites say that preventive health benefits of childhood vaccines for MMR are high, compared with 56% of blacks and 61% of Hispanics.¹² Blacks (44%) are also more likely than either whites (30%) or Hispanics (33%) to say the risk of side effects from the MMR vaccine is medium or high.

Parents of children ages 0 to 4, a group that tends to skew younger than the population as a whole, are less inclined than other adults to believe that the preventive health benefits of childhood

vaccines are high (60% vs. 75% of those with only older children and 76% of those without minor-age children). Parents with children under age 4 are relatively more likely to say the risk of side effects from the MMR vaccine is medium or high (43% vs. 29% of those with no minor-age children).

Parents of young children, blacks rate benefits of the MMR vaccine lower, risks of side effects higher

% of U.S. adults who say the ___ from the childhood vaccine for measles, mumps and rubella are/is high or medium



Note: Responses of very high and high are combined. Respondents who gave other responses or who did not give an answer are not shown. Whites and blacks are non-Hispanics only; Hispanics are of any race.

Source: Survey conducted May 10-June 6, 2016.

"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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¹² The sample of Hispanics in this survey is predominantly U.S. born and English-dominant.

There are no more than modest differences between men and women in perceptions of benefit and risk from the MMR vaccine.

Majorities of all major religious groups rate the preventive health benefits as high, and minorities rate the risk of side effects from the MMR vaccine as high or medium. Black Protestants, like blacks in general, are less likely to consider the preventive benefits of the measles, mumps and rubella vaccine to be high and more inclined to see the risk of side effects from such a vaccine as medium or high. Other religious groups tend to give similar assessments of the benefits and risks from the MMR vaccine.

When people give their overall judgment of the trade-offs, fully 88% of Americans say the benefits of childhood vaccines for measles, mumps and rubella outweigh the risks, just one-in-ten (10%) say otherwise.

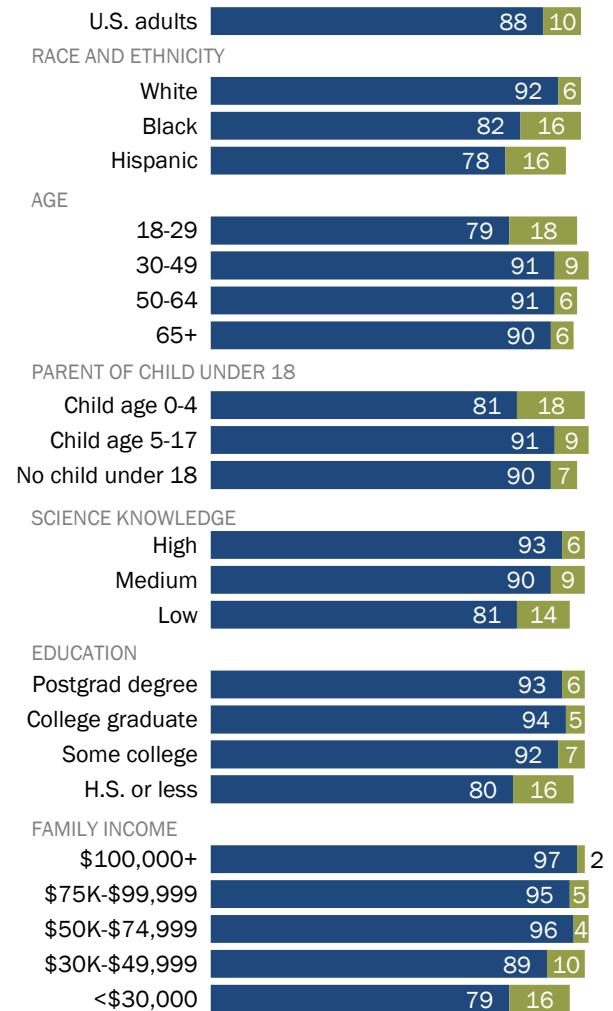
There are modest differences by science knowledge, parent status, age, race and ethnicity. People with high (93%) or medium (90%) science knowledge are more likely than those with low science knowledge (81%) to think the benefits of the MMR vaccine outweigh the risks. Whites (92%) are more inclined than blacks (82%) and Hispanics (78%) to say the benefits of childhood vaccines outweigh the risks.

Some 81% of parents with children ages 0 to 4 say the preventive health benefits of the MMR vaccine outweigh the risks, compared with 90% of those with no children under age 18. Similarly, younger adults, ages 18-29, are

Fewer younger adults say benefits of the MMR vaccine outweigh risk

% of U.S. adults who say the ___ for the childhood measles, mumps and rubella vaccine

■ Benefits outweigh the risks ■ Risks outweigh the benefits



Note: Respondents who did not give an answer are not shown. Whites and blacks are non-Hispanics only; Hispanics are of any race.

Source: Survey conducted May 10-June 6, 2016.

"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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somewhat less likely than older age groups to consider the benefits of vaccines to outweigh the risks (79% compared with at least 90% of those in older age groups.)

Statistical models underscore the strong relationship between people’s level of science knowledge, their age and their parent status in predicting their beliefs about the MMR vaccine. There are also modest race differences when it comes to views on the preventive health benefits of the MMR vaccine even after controlling for other factors. For details, see [Appendix A](#).

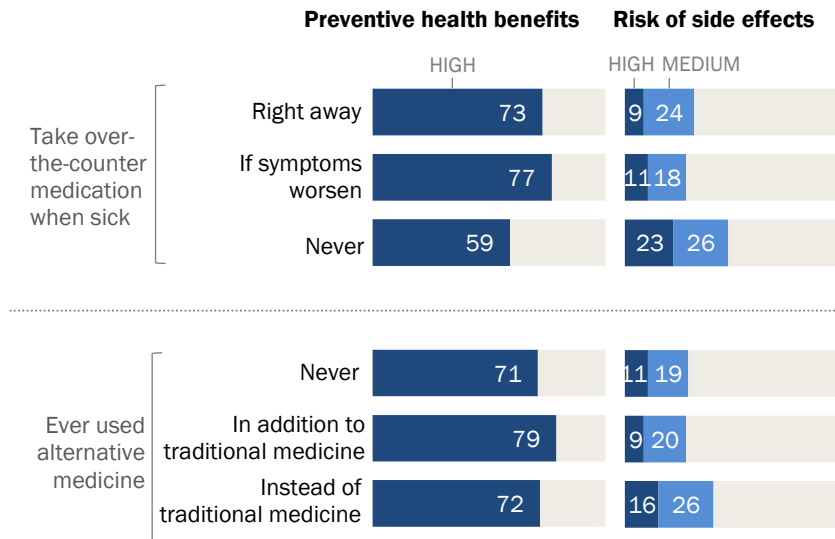
People’s medical care practices are also linked to their beliefs about the MMR vaccine

People’s practices regarding conventional and alternative medicine are also associated with their views about childhood vaccines. In particular, those who never take over-the-counter medication and people who have used alternative medicine instead of conventional medical treatment perceive higher risks from the MMR vaccine, compared with other Americans.

Some 49% of people who say they never take over-the-counter medications consider the risk of side effects from the MMR vaccine to be medium or high. By comparison, 33% of those who take over-the-counter medications for cold and flu symptoms right away say the same. Those who never take over-the-counter medications are also less likely to rate the preventive health benefits of the MMR vaccine as high (59% do so vs. 73% among those who take over-the-counter medications right away).

Those who never take over-the-counter medications see more risk from the MMR vaccine

% of U.S. adults who say the ___ from the childhood vaccine for measles, mumps and rubella are/is high or medium



Note: Responses of very high and high are combined. Respondents who gave other responses or who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 10-June 6, 2016.

“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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Similarly, people who have used alternative medicine instead of traditional, Western-based medical treatment are somewhat more likely to see a higher risk of side effects from the MMR vaccine. Some 42% of this group says the risks of the MMR vaccine are medium or high, compared with three-in-ten (30%) among those who have never used alternative medicine. Ratings of benefits from the MMR vaccine are roughly the same across these groups.

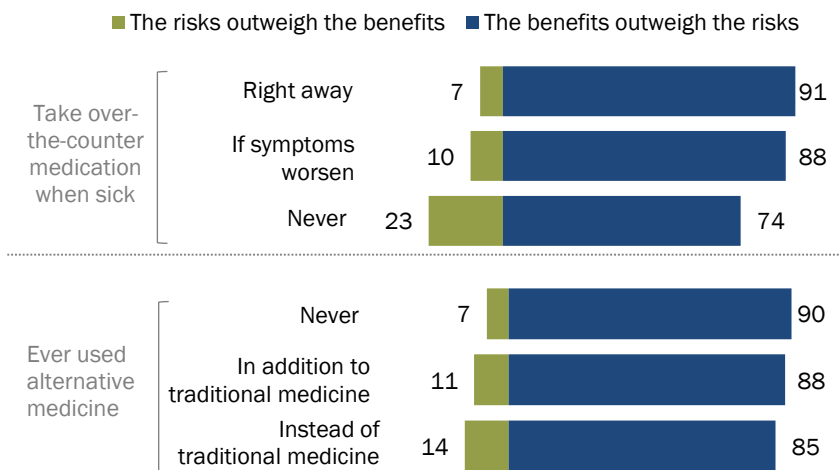
When Americans weigh the benefits and risks of childhood vaccines, similar patterns emerge. While an overwhelming majority of all subgroups say the benefits of the MMR vaccine outweigh the risks, people who never take over-the-counter medications are slightly more inclined to think the risks outweigh the benefits. Some 74% of those who report never taking over-the-counter medications say the benefits outweigh the risks, 23% of this group says the risks predominate. In contrast, nearly all of those who take over-the-counter medications for cold or flu symptoms right away say the benefits of the MMR vaccine outweigh the risks (91% vs. 7%).

Summary judgments of the risk-benefit trade-offs are about the same regardless of experience with alternative medicine.

Statistical models find people's practices regarding over-the-counter medications and alternative medicine are significantly associated with perceived risk from childhood vaccines when controlling for demographic and other factors. For details, see [Appendix A](#).

Those who avoid over-the-counter medications are more inclined to say the risks of childhood vaccines outweigh the benefits

% of U.S. adults in each group who say ____ for the childhood vaccine for measles, mumps and rubella



Note: Respondents who gave other responses or who did not give an answer are not shown.
Source: Survey conducted May 10-June 6, 2016.
"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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Perceived safety of childhood vaccines in 2015 survey linked with age, education

A Pew Research Center survey conducted in 2015 shortly after [an outbreak of measles](#), found a large majority (83%) of Americans thought childhood vaccines, such as MMR, were generally safe for healthy children, while only 9% believed childhood vaccines were not safe. Older adults and those with more education were a bit more likely to consider vaccines safe. Fully 91% of those ages 65 and older said vaccines were safe for healthy children; by comparison, 77% of those ages 18 to 29 said vaccines were safe. Roughly nine-in-ten (92%) college graduates said childhood vaccines were safe for healthy children. Smaller majorities of those with some college (85%) or a high school diploma or less (77%) said vaccines were generally safe.

More than eight-in-ten Americans favor school-based vaccine requirements; a minority says vaccines should be parents' choice

A majority of the American public (82%) says the measles, mumps and rubella vaccine should be a requirement “in order to attend public schools because of the potential risk for others when children are not vaccinated.”

Some 17% of Americans believe that “parents should be able to decide not to vaccinate their children, even if that may create health risks for other children and adults.”

Most Americans favor a school requirement for childhood vaccines

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted May 10-June 6, 2016.
“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

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Majorities of Americans across a range of demographic and educational groups support school requirements for the MMR vaccine. Older adults are especially strong in their support. Fully nine-in-ten (90%) adults ages 65 and older favor a school-based requirement that children be vaccinated for measles, mumps and rubella. A smaller majority of younger age groups say the same (77% of adults ages 18-29 and 78% of adults ages 30-49).

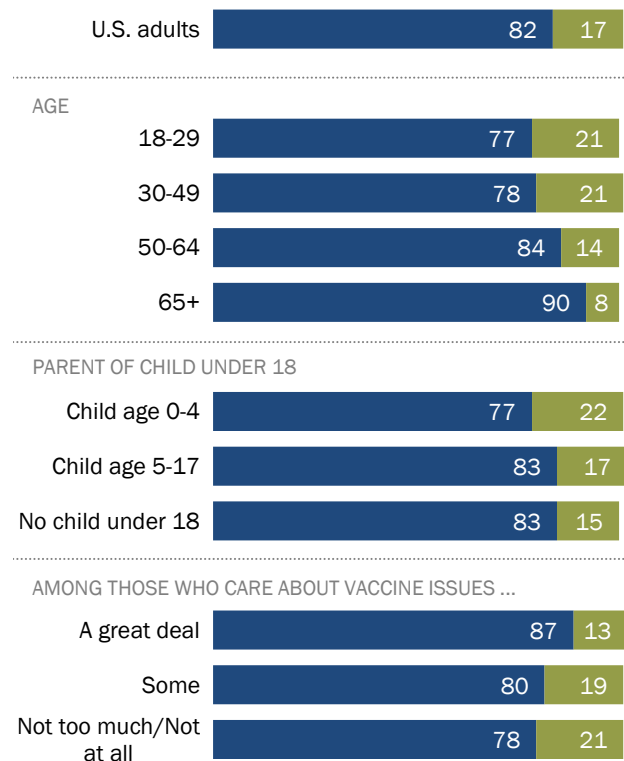
Parents of younger children, school-age children and those with no minor-age children hold roughly similar views on this issue with a majority of all three groups saying that healthy schoolchildren should be required to be vaccinated because of the health risk to others when children are not vaccinated.

People who care a great deal about childhood vaccine issues are more inclined to support school-based MMR vaccine requirements (87% favor this, compared with 80% of those who care some about childhood vaccine issues and 78% of those who care not too much or not at all about childhood vaccine issues).

Older adults strongly support school-based vaccine requirements

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others



Note: Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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On average, people with higher family incomes, earning at least \$100,000 annually, are a bit more inclined than those with lower incomes to support requiring the MMR vaccine for all public schoolchildren.

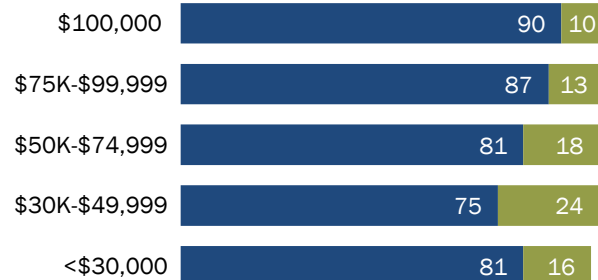
Higher income adults slightly more likely than lower income to support school-based vaccine requirements

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others

U.S. adults 82 17

FAMILY INCOME



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

“Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

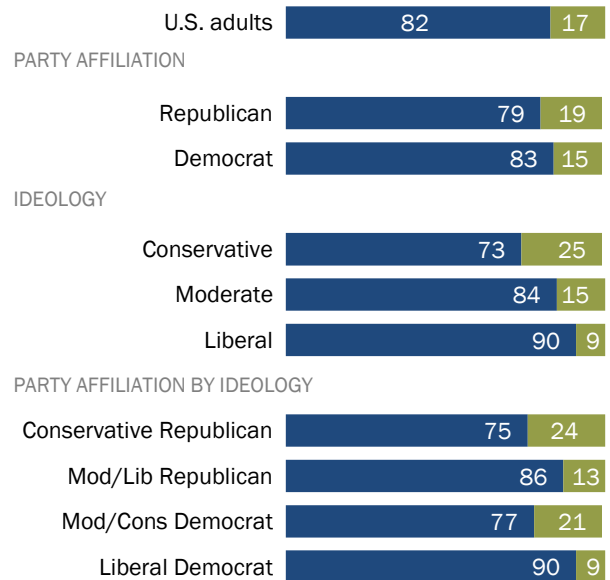
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Views about this issue are about the same by political party. However, political conservatives are more likely than either moderates or liberals to say that parents should be able to decide not to have their children vaccinated, even if that decision creates health risks for others.

Lower support among conservatives for school requirement of vaccines

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others



Note: Republicans and Democrats include independents and other nonpartisans who "lean" toward the parties. Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

"Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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White evangelical Protestants (22%) and the religiously unaffiliated (21%) are slightly more likely than white mainline Protestants and Catholics to say parents should be able to decide not to have their children vaccinated, even if that may create health risks for other children and adults. However, as noted above, the major religious groups have roughly similar views of the risks and benefits from the MMR vaccine.

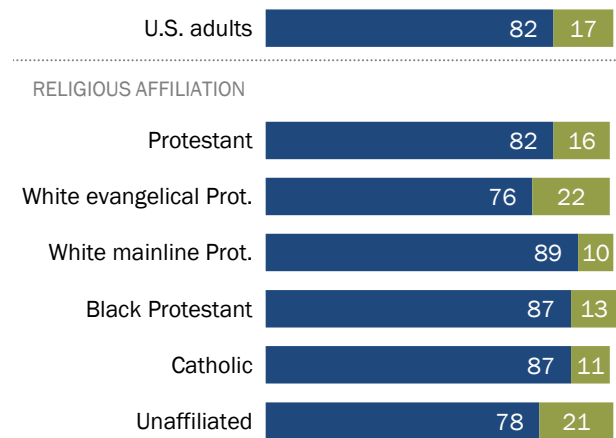
The survey found no or only small differences by gender, race and education on this issue.

Statistical models show that, on average, adults ages 65 and older are more likely than younger age groups to support school-based MMR vaccine requirements when controlling for demographic and other factors. In addition, conservatives are more likely than either moderates or liberals to say that parents should be able to decide whether to have their children vaccinated. Evangelical Protestants (of any race) are more likely than mainline Protestants to say that parents should be able to decide whether to have their children vaccinated even if it creates a health risk for others, when statistically controlling for other factors. For details, see [Appendix A](#).

White evangelicals and the religiously unaffiliated are slightly more likely to support parental choice for vaccination

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others



Note: Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
 "Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks"

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Public views on requiring vaccines in 2014 survey also differed by age, religion

A [2014 Pew Research Center survey](#) asked a more general question about vaccines. In that survey, 68% of U.S. adults said children should be required to be vaccinated for childhood diseases such as measles, mumps, rubella and polio, while 30% said parents should be able to decide whether to have their children vaccinated. Adults younger than 30 were less inclined than those ages 65 and older to think such vaccines should be required (59% of those ages 18 to 29, compared with 79% of those ages 65 and older). White evangelical Protestants were comparatively less inclined to favor requiring childhood vaccines (59%). By comparison, 70% of white mainline Protestants and 76% of Catholics supported requiring childhood vaccines. Views on this issue were slightly different by party; 64% of Republicans and leaning Republicans said vaccines should be required, compared with 74% of Democrats and leaning Democrats.

People’s practices in using conventional and alternative medicine are linked with their beliefs about school requirements for the measles, mumps and rubella vaccine

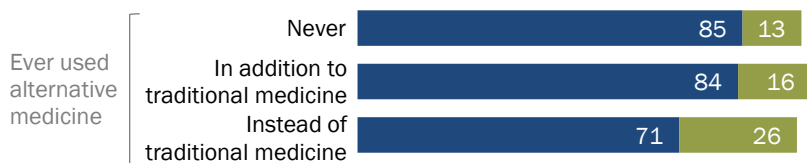
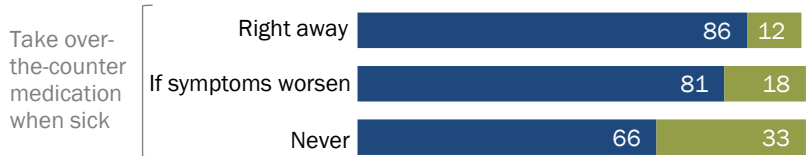
People who never take over-the-counter medication for cold or flu symptoms and people who have used alternative medicine instead of conventional treatment are more likely than other Americans to say parents should be able to decide whether to have their children vaccinated, even if not vaccinating them may create health risks for other people.

A third (33%) of people who never take over-the-counter medications say that parents should be able to decide whether to have their children vaccinated; two-thirds (66%) of this group say that children should be required to be vaccinated in order to attend public school. In contrast, just 12% of those who take over-the-counter medications right away say that parents should be able to decide whether to have their children vaccinated for

Those who have used alternative medicine, or never take over-the-counter medications are less likely to say vaccination should be required

% of U.S. adults who say ___ about the childhood vaccine for measles, mumps and rubella

- Healthy children should be required to be vaccinated to attend school because of potential health risk to others
- Parents should be able to decide not to vaccinate their children, even if that may create health risks for others



Note: Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
 “Vast Majority of Americans Say Benefits of Childhood Vaccines Outweigh Risks”

measles, mumps and rubella; 86% say children should be required to be vaccinated in order to attend school.

Similarly, people who have used alternative medicine instead of traditional medicine are a bit more inclined (26% compared with 13% of those who have never tried alternative medicine) to think parents should be able to decide whether to have their children vaccinated, though the majority support a school-based requirement for the MMR vaccine.

Statistical models find that people's practices regarding over-the-counter medications and alternative medicine are significantly associated with support for school-based MMR vaccine requirements. On average, those who never take over-the-counter medications for cold or flu symptoms and those who have used alternative medicine instead of conventional medicine are more likely to say that parents should be able to decide whether to have their children vaccinated, when controlling for demographic and other factors. For details, see [Appendix A](#).

4. Public trust in medical scientists and their research on childhood vaccines

Public trust in information from medical scientists about the health effects of the measles, mumps and rubella vaccine is more positive than negative. And more Americans trust information about this topic from medical scientists than from pharmaceutical industry leaders, people from holistic or alternative health groups, the news media or elected officials.

Most Americans see broad consensus among medical scientists that the MMR vaccine is safe for healthy children. Public perceptions of medical scientists' understanding about the vaccine also tilt positive. Nearly half of Americans think medical scientists understand the health risks and benefits of such vaccines very well, while a nearly equal portion rate their understanding as "fairly well"; only a small minority says medical scientists do not understand the health effects of the MMR vaccine at all or not too much.

About half or more Americans have a positive view of medical research about vaccine safety, saying that the best interests of children's health and the best available scientific evidence influence research most of the time. By comparison, fewer people say that researchers' desire to help connected industries or advance their careers influence medical research on vaccines most of the time.

There is considerable variation in public views about medical scientists, however. People with high knowledge about science, based on an index of nine general science questions, have more positive views of medical scientists and their research on vaccines than do those with low science knowledge. There is a similar, though less pronounced, tendency for people who care more deeply about childhood vaccine issues to see medical scientists in a more positive light.

There are modest differences in trust by generation, with younger adults a bit more skeptical than older generations about medical scientists and their research. Statistical models show that seniors, ages 65 and older, are consistently more likely than those ages 18 to 29 to hold positive views of medical scientists and their research on childhood vaccines, when controlling for demographic, education and political factors.

Overall, though, a strong majority of Americans support a role for medical scientists in policy decisions related to childhood vaccines.

Roughly half of Americans say almost all medical scientists are in agreement that vaccines are safe and that medical scientists understand the effects of childhood vaccines very well

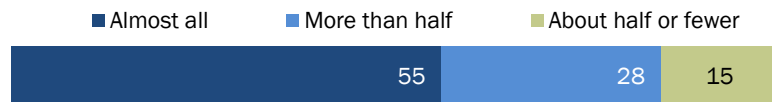
Some 55% of the general public says that “almost all” medical scientists see childhood vaccines for measles, mumps and rubella as safe for healthy children. An additional 28% say more than half of medical scientists are in agreement on this, while 15% say that about half or fewer medical scientists think that childhood vaccines are safe for healthy children.

A number of medical and scientific associations have issued statements about the safety of childhood vaccines, although most do not characterize the beliefs of medical scientists. A consensus study from National Academies of Sciences, Engineering and Medicine in 2011 reviewed the evidence for adverse effects connected with all vaccines recommended by the Centers for Disease Control and Prevention for routine administration in children including the MMR.¹³ It concluded “the MMR vaccine is linked to a disease called measles inclusion body encephalitis, which in very rare cases can affect people whose immune systems are compromised” and rejected a relationship between the MMR vaccine and autism.

A [2014 survey](#) by the Pew Research Center found that 86% of U.S.-based members of the American Association for the Advancement of Science (AAAS) (and 87% of members who are working

A majority of Americans believe that almost all medical scientists agree childhood vaccines are safe

% of U.S. adults who say ___ medical scientists say the childhood vaccine for measles, mumps and rubella is safe for healthy children



Note: Responses of about half/fewer than half /almost none are combined. Respondents who did not give an answer are not shown.

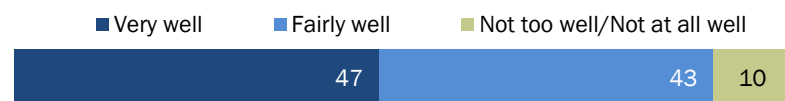
Source: Survey conducted May 10-June 6, 2016.

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Most Americans say medical scientists understand the health effects of the MMR vaccine very or fairly well

% of U.S. adults who say medical scientists understand the health risks and benefits of the childhood vaccine for measles, mumps and rubella ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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¹³ See [Report brief](#) for “[Adverse Effects of Vaccines: Evidence and Causality](#)” 2011. National Academies of Sciences, Engineering and Medicine, August. Also see the summary from the Centers for Disease Control and Prevention on [vaccine safety](#).

Ph.D. biomedical scientists) said that childhood vaccines such as the MMR and polio vaccines should be required. Just 13% said that the decision about whether to get vaccinated should be left to parents.

Nearly half of Americans (47%) think medical scientists understand the health risks and benefits of childhood vaccines very well, and 43% say medical scientists understand the risks and benefits fairly well. Just one-in-ten (10%) Americans think medical scientists understand the health risks and benefits not too well or not at all well.

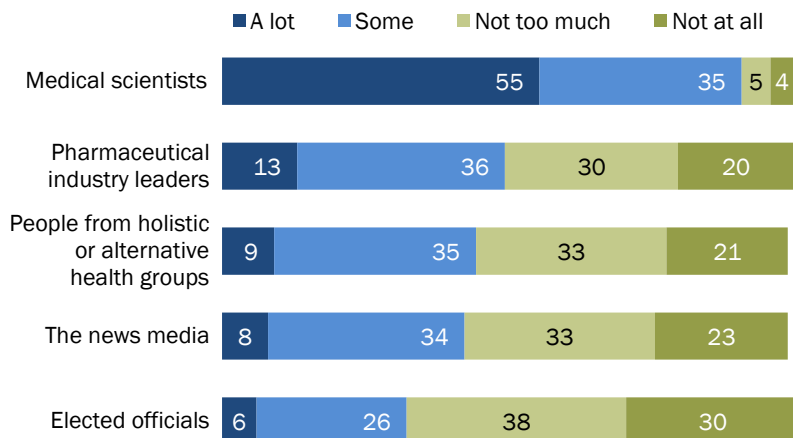
Roughly half of U.S. adults trust medical scientists a lot for information about the effects of vaccines; trust in information from other groups is much lower

Some 55% of Americans say that they trust medical scientists a lot to give full and accurate information about the risks and benefits of childhood vaccines. An additional 35% trust medical scientists at least some, and just 9% say they do not trust information from medical scientists about the risks and benefits at all or not too much.

Trust in information from other groups is much lower, by comparison. Just 13% of Americans trust information from pharmaceutical industry leaders a lot. At the same time, just 9% of Americans trust information on the effects of the MMR vaccine a lot from holistic or alternative health groups.

Most Americans trust medical scientists for full and accurate information on childhood vaccines

% of U.S. adults who say they trust each of these groups ___ to give full and accurate information about health risks and benefits of the childhood vaccine for measles, mumps and rubella



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Few people have a lot of trust in information from either the news media (8%) or elected officials (6%) about the health effects of the MMR vaccine; fully 56% of Americans say they do not trust

media information on this at all or not too much, and 67% say the same about information from elected officials.

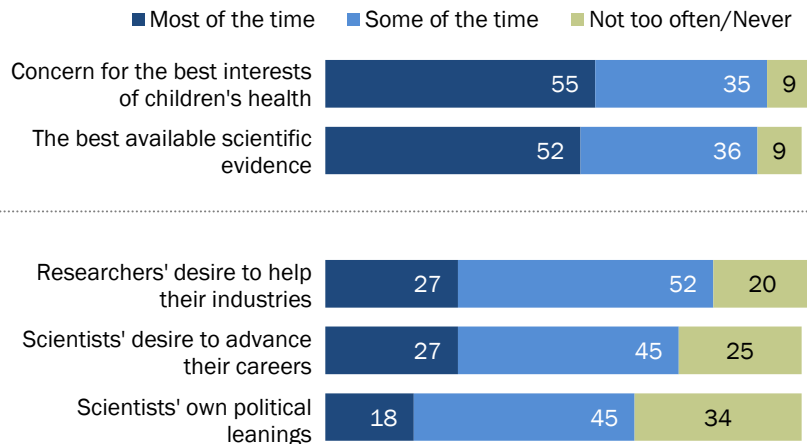
Roughly half of Americans say medical research is influenced by the best available scientific evidence and concern for children's health most of the time

Many Americans have a positive view of medical research about vaccine safety; roughly half say such research reflects the best interests of children's health (55%) and the best available scientific evidence (52%) most of time.

Smaller shares of the public say such research is influenced by medical scientists' desire to help their industries (27%), their desire to advance their careers (27%) or their own political leanings (18%) most of the time.

About half of Americans think the best available evidence influences vaccine research most of the time

% of U.S. adults who say research findings from medical scientists about the health risks and benefits of childhood vaccines are influenced by...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Patterns in public trust of medical scientists and vaccine research

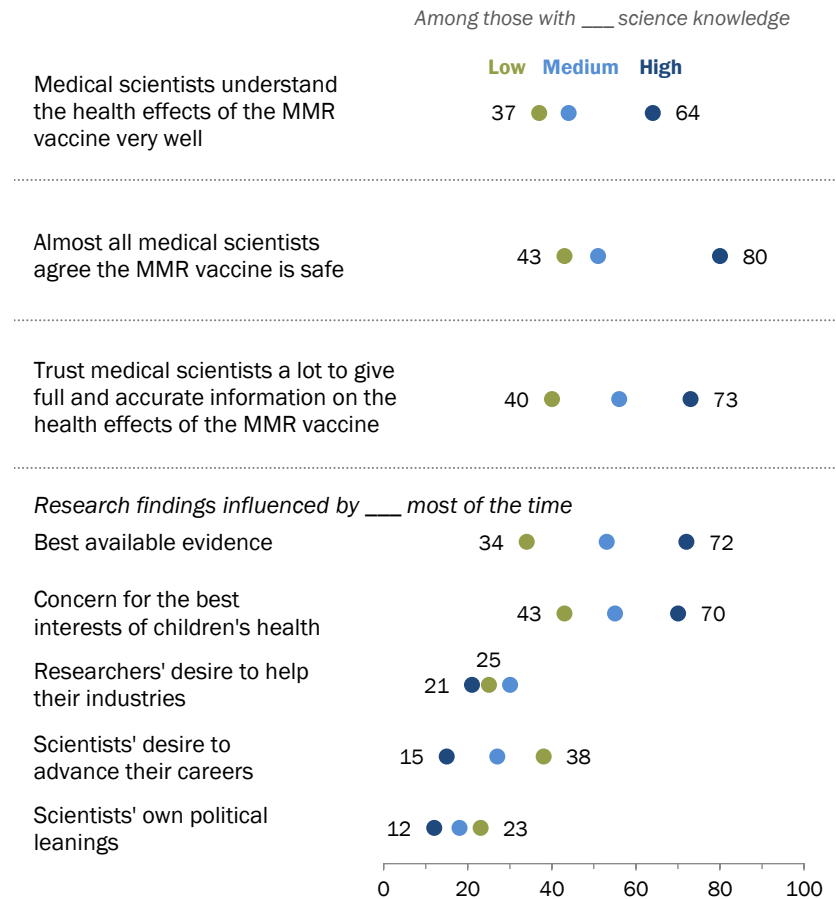
Those with more knowledge about science, in general, are especially likely to see consensus among medical scientists about the safety of the measles, mumps and rubella vaccine and to trust information from medical scientists about the effects of the MMR vaccine.

Eight-in-ten adults with high science knowledge (80%) say that almost all medical scientists consider the MMR vaccine to be safe. In contrast, 43% of those with low science knowledge think almost all medical scientists agree on this. Similarly, those with high science knowledge are more likely than those with low science knowledge to think medical scientists understand the health risks and benefits of the MMR vaccine very well (64% vs. 37%).

People with high science knowledge are more trusting of information from medical scientists. Some 73% of this group says they trust medical scientists a lot to give full and accurate information about the health effects of the MMR vaccine, compared with 40% of those with low science knowledge.

People high in science knowledge tend to see medical scientists and their research more favorably

% of U.S. adults who say the following



Note: Respondents who gave other responses or who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
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People high in science knowledge are more inclined to see medical research on vaccines in a positive light. Seven-in-ten (70%) of them say medical research is influenced by concern for the best interests of children’s health most of the time, compared with 43% of those low in science knowledge. Fully 72% of those high in science knowledge say childhood vaccine research is influenced by the best available scientific evidence most of the time, compared with 34% of those low in science knowledge.

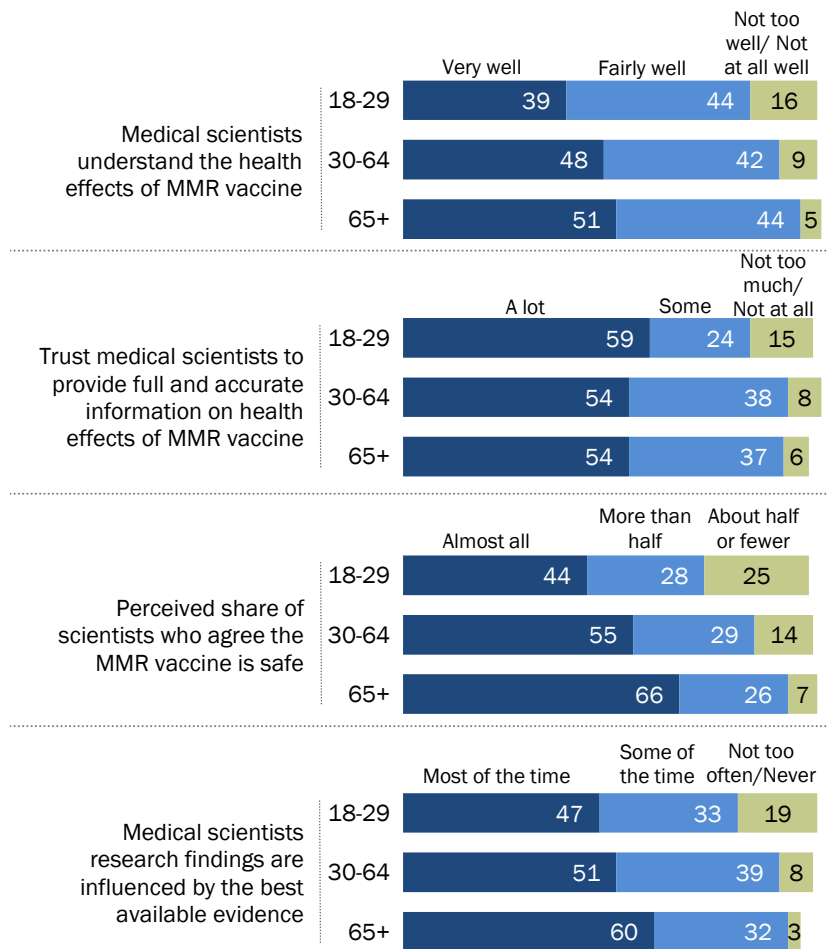
People’s science knowledge levels are closely associated with education. There are similar differences across educational groups in views about medical scientists and their research on childhood vaccines.

And, there is similar tendency, though a bit less pronounced, for those with a deep concern about childhood vaccine issues to express more trust in medical scientists and their research compared with those who do not care at all or not too much about these issues.

There are differences by age in views about medical scientists and their research. Younger adults, ages 18 to 29, are a bit less likely than older age groups to say that medical scientists understand the health effects of childhood vaccines very well and to perceive strong consensus among medical

Younger generations are more skeptical of medical scientists and their research on childhood vaccines

% of U.S. adults who say the following



Note: Respondents who did not give an answer are not shown.
 Source: Survey conducted May 10-June 6, 2016.
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scientists about the safety of the MMR vaccine.

Compared with older adults, those ages 18 to 29 are somewhat less likely to think the best available evidence influences research findings on childhood vaccines most of the time.

Trust in information from medical scientists is roughly the same across age groups, though a somewhat larger share of adults ages 18 to 29 do not trust information about the effects of vaccines from medical scientists at all or not too much.

There are modest differences in views of medical scientists connected with people's use of alternative and conventional medicine. People who have used alternative medicine instead of conventional treatment are a bit less likely to see medical scientists as understanding the health risks and benefits of the MMR vaccine very well (38% compared with 47% of those who have never tried alternative medicine).

People who have used alternative medicine instead of traditional medicine are less trusting of information from medical scientists (43% trust medical scientists a lot vs. 59% of those who have never used alternative medicine). But even among those who have tried alternative medicine, few say they trust information from people in holistic or alternative health groups a lot to give full and accurate information about the health effects of the MMR vaccine. And views about the influences on medical research related to childhood vaccines are about the same or only slightly different depending on one's past use of alternative medicine.

Americans who have used alternative medicine differ slightly in their views of medical scientists

% of U.S. adults who say the following

	Never	Used alternative medicine	
		In addition to traditional medicine	Instead of traditional medicine
Medical scientists understand the health risks and benefits of the MMR vaccine very well	47	52	38
Almost all medical scientists agree that the MMR vaccine is safe	54	59	50
<i>Trust ____ a lot to give full and accurate information about health effects of the MMR vaccine</i>			
Medical scientists	59	56	43
People from holistic or alternative health groups	7	5	17
<i>Research findings influenced by ____ most of the time</i>			
Concern for children's health	55	58	49
The best available scientific evidence	51	53	52

Note: Respondents who gave other responses or who did not give an answer are not shown. Source: Survey conducted May 10-June 6, 2016.

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Similarly, the 8% of Americans who say they never take over-the-counter medications for cold and flu symptoms are less likely than other Americans to believe that medical scientists understand the risks and benefits of the MMR vaccine very well (33% do so compared with 48% of those who take such medications right away). Those who never take over-the-counter medications are also less likely to trust information from medical scientists; some 34% of this group does not trust information from medical scientists at all or not too much, compared with 5% of those who take these medications right away. They are about equally likely to think the best available evidence influences medical research most of the time (44% vs. 49% of those who take these medications right away). However, differences in views about medical scientists and their research by use of over-the-counter medications or alternative medicine have no more than modest effects in statistical models when demographic and other factors are statistically controlled.

Overall, statistical models show that people with higher levels of science knowledge and greater concern about childhood vaccine issues are consistently associated with more positive views of medical scientists, even when statistically controlling for demographics, education and political factors. In addition, adults ages 65 and older are consistently more likely than younger adults to hold positive views of medical scientists across this set of measures in statistical models controlling for demographic and other factors. For details, see [Appendix A](#).

Views about medical scientists and their research on childhood vaccines are roughly the same across racial and ethnic groups, though beliefs about the risks and benefits of vaccines vary across these groups, as shown in [Chapter 3](#).

There are modest religious group differences in public trust in medical scientists on some of these measures. For example, white evangelical Protestants are less likely to trust information from medical scientists about the effects of the MMR vaccine compared with white mainline Protestants, Catholics and the religiously unaffiliated. White evangelical Protestants rate medical scientists' understanding of the risks and benefits of the MMR vaccine lower than do either white Catholics or the religiously unaffiliated. And, white evangelical Protestants are less likely than either white Catholics or the religiously unaffiliated to think medical research on childhood vaccines is influenced by the best available scientific evidence most of the time. A separate series of statistical models, not shown in this report, find differences by religious affiliation on these three judgments are statistically significant even when controlling for demographics, education and political factors.

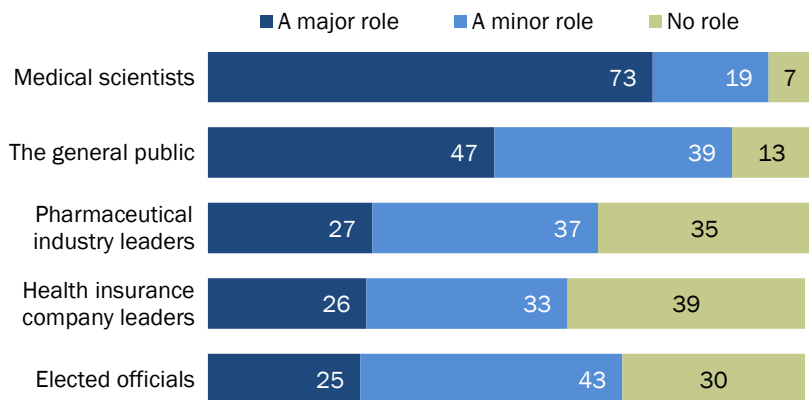
Most Americans support a major role for medical scientists in policymaking on childhood vaccine issues

Some 73% of U.S. adults say medical scientists should play a major role in policymaking decisions related to childhood vaccines. A smaller share, 47%, says the general public should play a major role in policy decisions about childhood vaccines.

A minority of Americans say pharmaceutical industry leaders (27%), health insurance company leaders (26%) and elected officials (25%) should have a major role in policy decisions on childhood vaccine issues.

A majority of the public says medical scientists should play a major role in policy decisions

% of U.S. adults who say each of these groups should have ___ in making decisions about policy issues related to childhood vaccines



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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5. Public views of media coverage on childhood vaccines

Most Americans say the media are doing a good job reporting issues related to childhood vaccines. People who care deeply about childhood vaccine issues and those who follow such news reports more closely are especially positive in their views of news coverage on this topic. Young adults, ages 18 to 29, are more negative in their overall views of media coverage.

Half of Americans say they follow news about childhood vaccines at least somewhat closely, with 13% saying they follow very closely and 37% somewhat closely.

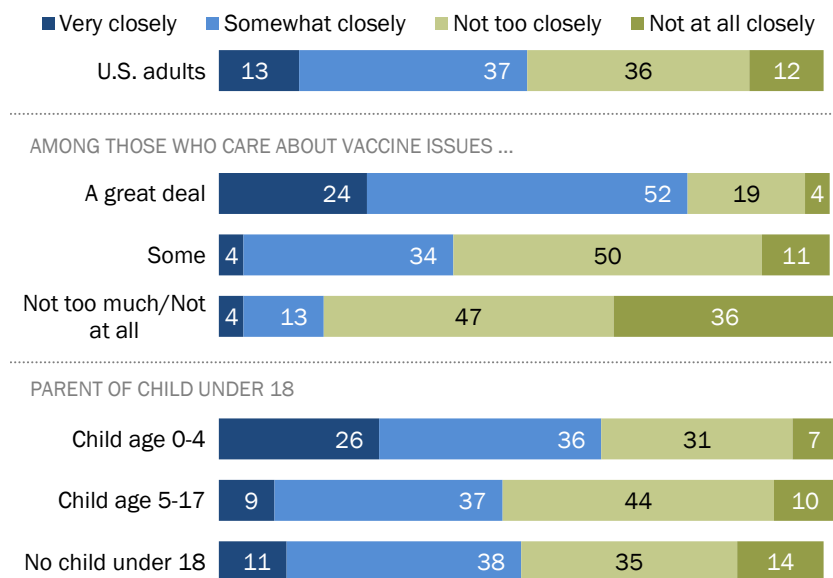
Those who care a great deal about childhood vaccine issues and parents of young children are much more likely to follow such news closely. Fully 76% of Americans who say that they care “a great deal” about issues related to childhood vaccines say they follow news regarding the topic very or somewhat closely, compared with 38% of those who care some and 17% of those who do not care at all or not too much about these issues.

Parents of children through age 4 are especially likely to follow news about childhood vaccines closely; 26% of this group say they follow news reports on the topic very closely. This compares with 9% of parents with school-age children only (ages 5-17).

Blacks, women and adults ages 65 and older adults are especially likely to follow news about childhood vaccines somewhat or very closely.

Half of Americans say they follow news about childhood vaccines closely

% of U.S. adults who say they follow news about childhood vaccines ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Overall, a 61% majority of Americans say the media are doing a good job reporting on issues related to childhood vaccines for measles, mumps and rubella; 37% say they are doing a bad job.

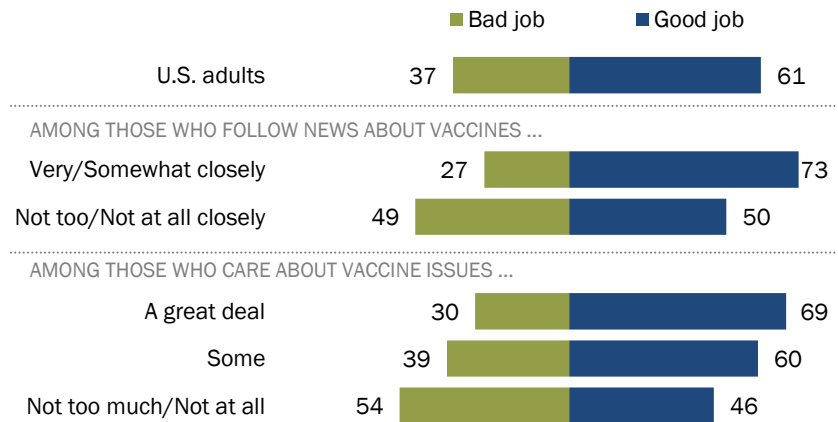
People who follow vaccine news reports more closely are particularly positive about media coverage on the MMR vaccine; 73% of this group say the media do a good job, compared with 50% of those who do not follow such news reports at all or not too closely.

People who care a great deal about childhood vaccine issues are also more positive in their views of media coverage. About seven-in-ten (69%) of those who care a great deal about vaccine issues say the media do a good job covering the MMR vaccine. This compares with 46% of those who do not care too much or at all about childhood vaccine issues.

Parents with young children (ages 0 to 4) hold roughly similar views as other Americans on media performance in covering MMR vaccine issues.

Those who care a great deal and closely follow news about vaccines say news media are doing a good job

% of U.S. adults who say the news media do a _____ in covering issues about the childhood vaccine for measles, mumps and rubella



Note: Responses of very good/somewhat good and very bad/somewhat bad are combined. Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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Blacks, adults age 65 and older, and Democrats have more favorable views of media coverage on the MMR vaccine.

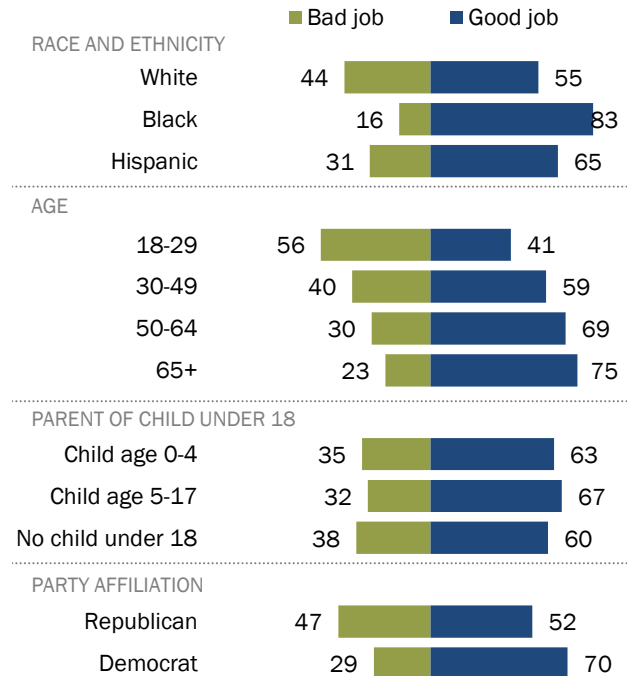
Fully 83% of blacks say that the news media do a good job covering MMR vaccine issues, compared with 55% of whites and 65% of Hispanics.

Some 75% of adults ages 65 and older say the news media are doing a good job covering MMR vaccine issues compared with 41% of adults ages 18-29.

More Democrats (70%) than Republicans (52%) say the media are doing a good job covering issues about the MMR vaccine.

Blacks, older adults and Democrats have more positive views of media coverage on childhood vaccines

% of U.S. adults who say the news media do a _____ covering issues about the childhood vaccine for measles, mumps and rubella



Note: Responses of very good/somewhat good and very bad/somewhat bad are combined. Respondents who did not give an answer are not shown. Whites and blacks are non-Hispanics only; Hispanics are of any race. Republicans and Democrats include independents and others who "lean" toward one of the parties.

Source: Survey conducted May 10-June 6, 2016.

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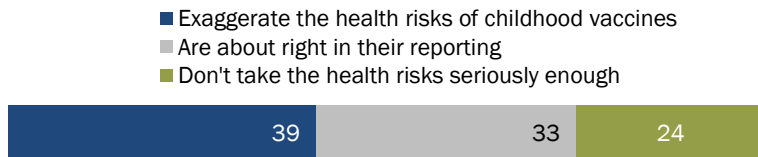
On balance, more Americans say media coverage on these issues generally exaggerates the health risks of childhood vaccines (39%) than say the media do not take the health risks seriously enough (24%). A third of adults (33%) say the media are about right in their reporting on these issues.

Similarly, four-in-ten adults (40%) say that the media generally give too much attention to skeptics of vaccines, while 24% say the media give too little attention to skeptics of vaccines. About a third (32%) of Americans say media reporting gives about the right amount of attention to skeptics of vaccines.

Men, whites, adults ages 18 to 49 and those with higher levels of science knowledge are slightly more likely to say that the news media exaggerate the health risks of childhood vaccines. These groups are also slightly more likely to see news coverage as giving too much attention to skeptics of vaccines.

More think the news media exaggerate than understate childhood vaccine health risks

% of U.S. adults who say the news media generally ...



Note: Respondents who did not give an answer are not shown.

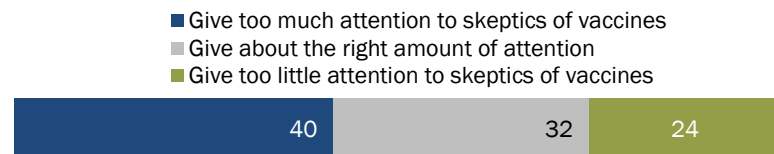
Source: Survey conducted May 10-June 6, 2016.

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Public divided over views of news media coverage of childhood vaccine skeptics

% of U.S. adults who say the news media generally ...



Note: Respondents who did not give an answer are not shown.

Source: Survey conducted May 10-June 6, 2016.

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About this report

This is the third in a series of reports that details public views on science and scientists in areas that connect with Americans' daily lives. An earlier report focused on [climate, energy and the environment](#), including the relationship between people's beliefs about these issues and their behaviors related to the environment in everyday life. Another report focused on Americans' views of food, including [organic and genetically modified foods](#).

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pewresearch.org/science.

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A number of outside experts helped guide the research in this report. We received valuable advice from John Besley, associate professor and Ellis N. Brandt Chair in Public Relations at Michigan State University; Karlyn Bowman, senior fellow and research coordinator at the American Enterprise Institute; Gordon Gauchat, assistant professor of sociology at the University of Wisconsin-Milwaukee; Dan Kahan, Elizabeth K. Dollard Professor of Law at Yale University; and Carolyn Miller, a veteran survey researcher who is a senior program officer at the Robert Wood

Johnson Foundation. We also received helpful advice on the analysis of this survey from Dan Salmon, associate professor in the Bloomberg School of Public Health at Johns Hopkins University. While the design and analysis of the project was guided by our consultations with these advisers, Pew Research Center is solely responsible for the design, interpretation and reporting of the data.

Methodology

This report is drawn from a survey conducted as part of the American Trends Panel (ATP), a nationally representative panel of randomly selected U.S. adults living in households, created by Pew Research Center. Respondents who self-identify as internet users and who provided an email address participate in the panel via monthly self-administered web surveys, and those who do not use the internet or decline to provide an email address participate via postal mail. The panel is being managed by Abt SRBI.

Data in this report are from the May wave of the panel, conducted May 10-June 6, 2016. Most findings in this report were gathered from 1,549 respondents (1,376 by web and 173 by mail) who were randomly assigned to complete one of three forms or sets of questions on the survey. The margin of sampling error for the sample of 1,549 respondents is plus or minus 4.0 percentage points.

Members of the American Trends Panel were recruited from two large, national landline and cellphone random-digit-dial (RDD) surveys conducted in English and Spanish. At the end of each survey, respondents were invited to join the panel. The first group of panelists was recruited from the 2014 Political Polarization and Typology Survey, conducted Jan. 23 to March 16, 2014. Of the 10,013 adults interviewed, 9,809 were invited to take part in the panel and a total of 5,338 agreed to

Margins of error

	Sample size	Margin of error in percentage points
Full sample in form 1	1,549	+/- 4.0
<i>Parent of a child under 18</i>		
Have a child 0 to 4 years	122	+/- 14.1
Have a child 5 to 17, no children 0 to 4	231	+/- 10.3
No children under age 18	1,147	+/- 4.6
Men	762	+/- 5.7
Women	787	+/- 5.6
White	1,183	+/- 4.5
Black	133	+/- 13.5
Hispanic	132	+/- 13.6
18-29	189	+/- 11.4
30-49	411	+/- 7.7
50-64	515	+/- 6.9
65 and older	434	+/- 7.5
<i>Science knowledge</i>		
High	462	+/- 7.3
Medium	798	+/- 5.5
Low	289	+/- 9.2
Postgraduate degree	344	+/- 8.4
College degree	406	+/- 7.8
Some college	512	+/- 6.9
H.S. or less	287	+/- 9.2

Note: Based on those completing form 1. Whites and blacks include only non-Hispanics; Hispanics are of any race.

The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.

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participate.¹⁴

The second group of panelists was recruited from the 2015 Survey on Government, conducted Aug. 27 to Oct. 4, 2015. Of the 6,004 adults interviewed, all were invited to join the panel, and 2,976 agreed to participate.¹⁵

Participating panelists provided either a mailing address or an email address to which a welcome packet, a monetary incentive and future survey invitations could be sent. Panelists received a small monetary incentive after participating in each wave of the survey.

The ATP data were weighted in a multi-step process that begins with a base weight incorporating the respondents' original survey selection probability and the fact that in 2014 some panelists were subsampled for invitation to the panel. Next, an adjustment was made for the fact that the propensity to join the panel and remain an active panelist varied across different groups in the sample. The final step in the weighting uses an iterative technique that matches gender, age, education, race, Hispanic origin and region to parameters from the U.S. Census Bureau's 2014 American Community Survey. Population density is weighted to match the 2010 U.S. Decennial Census. Telephone service is weighted to estimates of telephone coverage for 2016 that were projected from the July-December 2015 National Health Interview

Margins of error continued

	Sample size	Margin of error in percentage points
Full sample in form 1	1,549	+/- 4.0
<i>Family income</i>		
\$100,000 or more	409	+/- 7.7
\$75,000 to \$99,999	213	+/- 10.7
\$50,000 to \$74,999	236	+/- 10.2
\$30,000 to \$49,999	284	+/- 9.3
Under \$30,000	380	+/- 8.0
<i>Party affiliation</i>		
Republican/leaning Rep.	660	+/- 6.1
Democrat/leaning Dem.	843	+/- 5.4
<i>Political ideology</i>		
Conservative	525	+/- 6.8
Moderate	557	+/- 6.6
Liberal	464	+/- 7.3
<i>Religious affiliation</i>		
Protestant	714	+/- 5.8
White evangelical Protestant	303	+/- 9.0
White mainline Protestant	240	+/- 10.1
Black Protestant	101	+/- 15.5
Catholic	271	+/- 9.5
Unaffiliated	391	+/- 7.9

Note: Based on those completing form 1. Whites and blacks include only non-Hispanics; Hispanics are of any race.

The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.

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¹⁴ When data collection for the 2014 Political Polarization and Typology Survey began, non-internet users were subsampled at a rate of 25%, but a decision was made shortly thereafter to invite non-internet users to join. In total, 83% of non-internet users were invited to join the panel.

¹⁵ Respondents to the 2014 Political Polarization and Typology Survey who indicated that they were internet users but refused to provide an email address were initially permitted to participate in the American Trends Panel by mail, but were no longer permitted to join the panel after Feb. 6, 2014. Internet users from the 2015 Survey on Government who refused to provide an email address were not permitted to join the panel.

Survey. Volunteerism is weighted to match the 2013 Current Population Survey Volunteer Supplement. It also adjusts for party affiliation using an average of the three most recent Pew Research Center general public telephone surveys. Internet access is adjusted using a measure from the 2015 Survey on Government. Frequency of internet use is weighted to an estimate of daily internet use projected to 2016 from the 2013 Current Population Survey Computer and Internet Use Supplement. Sampling errors and statistical tests of significance take into account the effect of weighting. Interviews are conducted in both English and Spanish, but the Hispanic sample in the American Trends Panel is predominantly native born and English speaking.

The margins of error tables show the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups in the survey. Sample sizes and sampling errors for other subgroups are available upon request.

In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

The web component of the May wave had a response rate of 81% (4,091 responses among 5,053 web-based individuals in the panel); and, the mail component had a response rate of 77% (472 responses among 617 non-web individuals in the panel). Taking account of the combined, weighted response rate for the recruitment surveys (10.0%) and attrition from panel members who were removed at their request or for inactivity, the cumulative response rate for the May ATP wave is 2.9%.¹⁶

Margins of error continued

	Sample size	Margin of error in percentage points
Full sample in form 1	1,549	+/- 4.0
<i>Over-the-counter cold and flu medications</i>		
Take right away	606	+/- 6/3
Take if symptoms worsen	806	+/- 5.5
Never take	128	+/- 13.8
<i>Alternative medicine</i>		
Used instead of traditional medicine	288	+/- 9.2
Used in addition to traditional medicine	515	+/- 6.9
Never used	726	+/- 5.8
<i>Care about the issue of childhood MMR vaccines</i>		
A great deal	641	+/- 6.2
Some	627	+/- 6.2
Not too much/None	271	+/- 9.5

Note: Based on those completing form 1.

The margins of error are reported at the 95% level of confidence and are calculated by taking into account the average design effect for each subgroup.

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¹⁶ Approximately once per year, panelists who have not participated in multiple consecutive waves are removed from the panel. These cases are counted in the denominator of cumulative response rates.

Questionnaire development and testing

Pew Research Center developed the questionnaire for this study. The design of the questionnaire was informed by the results of nine separate pretests with a non-probability sample, as well as input from Pew Research Center staff and five external advisers on the project.

Outside advisers: Pew Research Center consulted with a number of expert advisers, listed in the acknowledgments section above, to inform the development of the questionnaire. We are grateful to this group for its input, though Pew Research Center bears full responsibility for the questionnaire design and analysis.

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Appendix A: Regression Analyses

The following tables detail the results of a series of statistical models predicting people's beliefs about the measles, mumps and rubella vaccine, their views about a school-based requirement for the MMR vaccine and their views of medical scientists associated with childhood vaccines from a set of explanatory variables.

The regression analyses using a binary logistic model are based on the full sample of U.S. adults in the survey. The analyses are based on the weighted sample, thus adjusting for differences in the probability of selection and nonresponse differences across groups. Results are based on 0.05 level of statistical significance. The dependent variable omits respondents who gave no response to that question.

Five separate statistical models are shown that predict people's beliefs about the MMR vaccine and their views on a school-based requirement. The tables show the degree to which the predictors of beliefs are consistent across models using different sets of independent variables. Where independent predictors have a strong conceptual overlap, such as the use of alternative medicine with the use of over-the-counter medicines, only one such predictor is included in each statistical model.

Each figure in the tables shows the difference in predicted probability between two categories if that independent variable is a statistically significant predictor of attitudes. For example, in the first column of Table 1 (Model 1), an individual with high science knowledge is 28 percent more likely to say the preventive health benefits of the MMR vaccine are high than is an individual with low science knowledge, holding the other variables at their means. And in the same table and column (Model 1), a black (non-Hispanic) person is predicted to be 15 percent less likely than a white (non-Hispanic) person to say the preventive health benefits of the MMR vaccine are high, holding the other variables at their means.

The independent variables included in these analyses are as follows: gender (women compared with men); race and ethnicity (non-Hispanic blacks, Hispanics and other or mixed race as compared with non-Hispanic whites) age (ages 18-29, 30-49, 50-64 as compared with those ages 65 and older); parent status (parent of at least one child age 0-4, parent of at least one child ages 5-17 but no children ages 0-4, respondent age 18-49 with no children ages 0-17 as compared with respondents ages 50 and older with no children ages 0-17); education (having a postgraduate degree, college degree or some college as compared with those having a high school diploma or less education); science knowledge (those with a high or medium knowledge level as compared with a low knowledge level based on a nine-item index); party affiliation (Democrats and

independent-leaning Democrats, those with no party affiliation or leaning toward either party as compared with Republicans and independent-leaning Republicans); political ideology (liberals, moderates as compared with conservatives); care about the issue of childhood vaccines (care a great deal, care some compared with care not too much or not at all); take over-the-counter medication for cold or flu symptoms (never use compared with those who use when symptoms worsen or right away); used alternative medicine (instead of “traditional” medicine compared with those who have used in addition to conventional medicine or have never used alternative medicine).¹⁷

The total number of respondents in each analysis ranges between roughly 1,464 and a possible maximum of 1,549 respondents, depending on the number of missing responses to an independent variable in the model or to the dependent variable.

¹⁷ Several of the conceptual independent factors such as age or education are tested with a set of independent variables. Factors are classified as significant if the most extreme category in each set is significant at the 0.05 level. The difference in predicted probabilities shown compare the most extreme category with the baseline comparison group. Race/ethnicity is classified as having a significant effect if either the variable for black or the variable for Hispanic is statistically different than for non-Hispanic whites, the baseline comparison group.

Table 1: Parents of young children, blacks less likely to rate preventive health benefits of the MMR vaccine as high

Difference in predicted probabilities in saying the preventive health benefits are high on a scale of 0 to 1 for each variable

	Model 1	Model 2	Model 3	Model 4	Model 5
Women	NS	NS	NS	NS	NS
Black	-0.15	NS	-0.17	-0.16	-0.15
Hispanic	NS	NS	NS	NS	NS
Other or mixed race	NS	NS	NS	NS	NS
Age 18-29	-0.15	--	-0.13	-0.13	-0.13
Age 30-49	NS	--	NS	NS	NS
Age 50-64	NS	--	NS	NS	NS
Parent of at least one child, age 0-4	--	-0.16	--	--	--
Parent of at least one child, age 5-17; no children age 0-4	--	NS	--	--	--
Respondent age 18-49 with no children age 0-17	--	NS	--	--	--
Some college	NS	NS	NS	NS	NS
College graduate	+0.16	+0.16	+0.16	+0.15	+0.17
Postgraduate degree	NS	NS	NS	NS	NS
High science knowledge	+0.28	+0.29	+0.28	+0.28	+0.29
Medium science knowledge	+0.17	+0.13	+0.16	+0.16	+0.16
Democrat/lean Democrat	NS	NS	NS	NS	NS
No party affiliation or lean	NS	NS	NS	NS	NS
Liberal	NS	NS	NS	NS	NS
Moderate	NS	NS	NS	NS	NS
Mainline Protestant	+0.14	+0.11	--	--	--
Catholic	NS	NS	--	--	--
Other Christian (e.g., Mormon, Orthodox)	NS	NS	--	--	--
Other religion	NS	NS	--	--	--
Unaffiliated	NS	NS	--	--	--
Care a great deal about the issue of childhood vaccines	--	--	+0.12	--	--
Care some about the issue of childhood vaccines	--	--	NS	--	--
Never take over-the-counter medicine	--	--	--	NS	--
Alternative medicine instead of traditional medicine	--	--	--	--	NS
Model N	1,516	1,473	1,508	1,510	1,498

Note: Figures shown are differences between selected groups in the predicted probabilities of saying the response shown while other factors are held at their mean using binary logistic regressions. Positive and negative values indicate the direction of effects. NS indicates not statistically significant (based on a two-tailed *p* value <0.05).

Source: Survey conducted May 10-June 6, 2016.

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Table 2: Science knowledge strong predictor of saying the risk of side effects from the MMR vaccine is low*Difference in predicted probability of saying the risk of side effects is low on a scale of 0 to 1 for each variable*

	Model 1	Model 2	Model 3	Model 4	Model 5
Women	NS	NS	NS	NS	NS
Black	NS	NS	NS	NS	NS
Hispanic	NS	NS	NS	NS	NS
Other or mixed race	NS	NS	NS	NS	NS
Age 18-29	NS	--	NS	NS	NS
Age 30-49	NS	--	NS	NS	NS
Age 50-64	NS	--	NS	NS	NS
Parent of at least one child, age 0-4	--	-0.19	--	--	--
Parent of at least one child, age 5-17; no children age 0-4	--	NS	--	--	--
Respondent age 18-49 with no children age 0-17	--	NS	--	--	--
Some college	NS	NS	NS	NS	NS
College graduate	NS	NS	NS	NS	+0.11
Postgraduate degree	+0.16	+0.16	+0.16	+0.16	+0.16
High science knowledge	+0.24	+0.22	+0.26	+0.27	+0.26
Medium science knowledge	+0.19	+0.16	+0.21	+0.22	+0.21
Democrat/lean Democrat	NS	NS	NS	NS	NS
No party affiliation or lean	NS	NS	NS	NS	NS
Liberal	NS	NS	NS	NS	NS
Moderate	NS	NS	NS	NS	NS
Mainline Protestant	NS	NS	--	--	--
Catholic	NS	NS	--	--	--
Other Christian (e.g., Mormon, Orthodox)	NS	NS	--	--	--
Other religion	NS	NS	--	--	--
Unaffiliated	NS	NS	--	--	--
Care a great deal about the issue of childhood vaccines	--	--	NS	--	--
Care some about the issue of childhood vaccines	--	--	NS	--	--
Never take over-the-counter medicine	--	--	--	-0.22	--
Alternative medicine instead of traditional medicine	--	--	--	--	-0.13
Model N	1,517	1,474	1,509	1,511	1,500

Note: Figures shown are differences between selected groups in the predicted probabilities of saying the response shown while other factors are held at their mean using binary logistic regressions. Positive and negative values indicate the direction of effects. NS indicates not statistically significant (based on a two-tailed p value <0.05)

Source: Survey conducted May 10-June 6, 2016.

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Table 3: Younger Americans less inclined to say benefits of the MMR vaccine outweigh risks*Difference in predicted probabilities of saying the benefits outweigh the risks on a scale of 0 to 1 for each variable*

	Model 1	Model 2	Model 3	Model 4	Model 5
Women	NS	NS	NS	NS	NS
Black	-0.08	NS	NS	NS	NS
Hispanic	NS	NS	NS	NS	NS
Other or mixed race	-0.13	-0.11	-0.13	-0.12	-0.14
Age 18-29	NS	--	-0.11	-0.11	-0.10
Age 30-49	NS	--	NS	NS	NS
Age 50-64	NS	--	NS	NS	NS
Parent of at least one child, age 0-4	--	-0.09	--	--	--
Parent of at least one child, age 5-17; no children age 0-4	--	NS	--	--	--
Respondent age 18-49 with no children age 0-17	--	NS	--	--	--
Some college	+0.07	NS	+0.07	+0.07	+0.08
College graduate	NS	NS	NS	NS	NS
Postgraduate degree	NS	NS	NS	NS	NS
High science knowledge	NS	NS	NS	NS	NS
Medium science knowledge	NS	NS	NS	NS	NS
Democrat/lean Democrat	NS	-0.07	NS	NS	NS
No party affiliation or lean	NS	NS	NS	NS	NS
Liberal	+0.08	+0.12	+0.07	+0.08	+0.08
Moderate	NS	+0.10	NS	NS	NS
Mainline Protestant	NS	NS	--	--	--
Catholic	NS	NS	--	--	--
Other Christian (e.g., Mormon, Orthodox)	NS	NS	--	--	--
Other religion	NS	NS	--	--	--
Unaffiliated	-0.06	-0.05	--	--	--
Care a great deal about the issue of childhood vaccines	--	--	NS	--	--
Care some about the issue of childhood vaccines	--	--	NS	--	--
Never take over-the-counter medicine	--	--	--	-0.10	--
Alternative medicine instead of traditional medicine	--	--	--	--	NS
Model N	1,506	1,464	1,500	1,500	1,490

Note: Figures shown are differences between selected groups in the predicted probabilities of saying the response shown while other factors are held at their mean using binary logistic regressions. Positive and negative values indicate the direction of effects. NS indicates not statistically significant (based on a two-tailed p value <0.05).

Source: Survey conducted May 10-June 6, 2016.

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Table 4: Older Americans most likely to say childhood vaccines should be required to attend public schools

Difference in predicted probabilities saying healthy children should be required to vaccinated to attend school because of the health risks to others on a scale of 0 to 1 for each variable

	Model 1	Model 2	Model 3	Model 4	Model 5
Women	NS	NS	NS	NS	NS
Black	NS	NS	NS	NS	NS
Hispanic	NS	NS	NS	NS	NS
Other or mixed race	NS	NS	NS	NS	NS
Age 18-29	-0.12	--	-0.11	-0.11	-0.10
Age 30-49	-0.13	--	-0.14	-0.16	-0.14
Age 50-64	NS	--	NS	NS	NS
Parent of at least one child, age 0-4	--	-0.13	--	--	--
Parent of at least one child, age 5-17; no children age 0-4	--	NS	--	--	--
Respondent age 18-49 with no children age 0-17	--	-0.08	--	--	--
Some college	NS	NS	NS	NS	NS
College graduate	NS	NS	NS	NS	NS
Postgraduate degree	NS	NS	NS	NS	NS
High science knowledge	NS	NS	NS	NS	NS
Medium science knowledge	NS	-0.09	NS	NS	NS
Democrat/lean Republican	NS	NS	NS	NS	NS
No party affiliation or lean	NS	NS	NS	NS	NS
Liberal	+0.18	+0.17	+0.19	+0.20	+0.19
Moderate	+0.10	+0.09	+0.12	+0.13	+0.12
Mainline Protestant	+0.08	+0.08	--	--	--
Catholic	NS	NS	--	--	--
Other Christian (e.g., Mormon, Orthodox)	NS	NS	--	--	--
Other religion	NS	NS	--	--	--
Unaffiliated	NS	NS	--	--	--
Care a great deal about the issue of childhood vaccines	--	--	NS	--	--
Care some about the issue of childhood vaccines	--	--	NS	--	--
Never take over-the-counter medicine	--	--	--	-0.18	--
Alternative medicine instead of traditional medicine	--	--	--	--	-0.10
Model N	1,513	1,471	1,508	1,508	1,496

Note: Figures shown are differences between selected groups in the predicted probabilities of saying the response shown while other factors are held at their mean using binary logistic regressions. Positive and negative values indicate the direction of effects. NS indicates not statistically significant (based on a two-tailed p value <0.05).

Source: Survey conducted May 10 - June 6, 2016.

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Table 5: Science knowledge closely linked to views about medical scientists studying childhood vaccines

Difference in predicted probabilities on a scale of 0 to 1 for each factor

	Party	Ideology	Care about issue	Education	Science Knowledge	Age group	Gender	Race, ethnicity
Medical scientists policy role								
Predicting a major role								
Medical scientists should have a major role in making policy decisions	NS	+0.15	+0.19	NS	+0.20	-0.14	NS	NS
Medical scientists understand very well...								
Predicting very well								
The health risks and benefits of childhood vaccines for MMR	NS	NS	+0.22	+0.15	+0.30	-0.18	NS	NS
Perception of scientific consensus								
Predicting almost all agree								
Almost all medical scientists agree that childhood vaccines for MMR are safe for healthy children	NS	NS	+0.29	NS	+0.37	-0.32	NS	NS
Information on childhood vaccines								
Predicting "a lot"								
Trust <i>medical scientists</i> a lot to give full and accurate information about the health risks and benefits of childhood vaccines for measles, mumps and rubella	NS	+0.20	+0.20	+0.18	+0.25	NS	NS	NS
Research findings are influenced by ____ most of the time								
Predicting most of the time								
Best available scientific evidence	NS	NS	+0.19	+0.15	+0.36	-0.22	NS	NS
Concern for best interests of children's health	NS	+0.14	NS	NS	+0.28	-0.29	NS	NS
Scientists' desire to advance their careers	NS	NS	NS	-0.14	NS	-0.17	NS	+0.14 (Black)
Scientists' own political leanings	NS	NS	NS	NS	NS	NS	NS	NS
Researchers' desire to help the industries they work with or work for	NS	NS	NS	NS	NS	-0.13	+0.12	NS

Notes: Figures shown are differences between selected groups in the predicted probabilities of saying the response shown while other factors are held at their mean using binary logistic regressions. Positive and negative values indicate the direction of effects. NS indicates not statistically significant (based on a two-tailed p value <0.05).

Source: Survey conducted May 10-June 6, 2016.

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Survey questionnaire and topline

2016 PEW RESEARCH CENTER'S AMERICAN TRENDS PANEL

WAVE 17 May FINAL TOPLINE May 10 – June 6, 2016 FORM 1 N=1,549

ASK ALL FORMS [N=4,563]:

TALK Thinking about conversations you have had in person, on the phone, or by email, text message or social media, which of these topics, if any, have you talked about in the PAST 7 DAYS?
[Check all that apply] **[RANDOMIZE ITEMS; item g always last]**

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	The economy and job situation	46	54
b.	Severe storms	37	63
c.	Food and nutrition	47	53
d.	The 2016 presidential election campaign	66	34
e.	Health and medicine	53	47
f.	Sports	36	64
g.	None of these [EXCLUSIVE PUNCH]	7	93

ASK FORM 1 [N=1,549]:

LOCAL How much, if at all, is each of the following a problem in your local community?
[RANDOMIZE ITEMS]

a. The quality of K-12 education in the public schools

May 10-June 6

2016

26	Big problem in my local community
39	Small problem in my local community
33	Not a problem in my local community
1	No answer

b. Access to good quality health care

May 10-June 6

2016

27	Big problem in my local community
42	Small problem in my local community
30	Not a problem in my local community
1	No answer

LOCAL CONTINUED...

c. Availability of jobs

May 10-June 6

2016

44	Big problem in my local community
41	Small problem in my local community
14	Not a problem in my local community
1	No answer

ASK FORM 1 [N=1,549]:

BIO1 Compared with twenty years ago, do you think the health of the ADULT POPULATION in the U.S. as a whole is generally...

May 10-June 6

2016

33	Better today
42	Worse today
24	About the same
*	No answer

ASK FORM 1 [N=1,549]:

BIO2 Compared with twenty years ago, do you think health of CHILDREN in the U.S. as a whole is generally...

May 10-June 6

2016

31	Better today
48	Worse today
20	About the same
1	No answer

BIO3 THROUGH BIO7 PREVIOUSLY RELEASED [[Half of Americans Say Threats from Infectious Diseases are Growing](#)]**ASK FORM 1 [N=1,549]:**

BIO8 How important, if at all, do you think each of the following are when it comes to preventing a person from getting serious diseases such as cancer or heart disease?
[RANDOMIZE ITEMS]

a. Healthy eating habits

May 10-June 6

2016

70	Very important
25	Somewhat important
3	Not too important
1	Not at all important
1	No answer

BIOS CONTINUED...

b. Genetics and hereditary factors

May 10-June 6

2016

55	Very important
38	Somewhat important
5	Not too important
1	Not at all important
1	No answer

c. Getting enough physical exercise

May 10-June 6

2016

66	Very important
29	Somewhat important
3	Not too important
1	Not at all important
1	No answer

d. Safe and healthy housing conditions

May 10-June 6

2016

55	Very important
35	Somewhat important
7	Not too important
2	Not at all important
1	No answer

ASK FORM 1 [N=1,549]:

BIO9 Overall, would you say you, personally, have a...

May 10-June 6

2016

14	Very healthy lifestyle
66	Somewhat healthy lifestyle
17	Not very healthy lifestyle
2	Not at all healthy lifestyle
1	No answer

TREND FOR COMPARISON:

CBS News/New York Times survey conducted by telephone: Would you say you personally have a very healthy lifestyle, somewhat healthy, not very healthy, or not at all healthy lifestyle?

	CBS News/ New York Times 1997
Very healthy	36
Somewhat	57
Not very	6
Not at all	1
Don't know/No answer	*

ASK FORM 1 [N=1,549]:

BIO10 How often, if at all, do you hear or read news stories about the ways people can protect themselves from the risk of serious diseases such as cancer and heart disease?

May 10-June 6

2016

16	Every day
40	A few times a week
28	A few times a month
15	Less often than that
1	No answer

ASK FORM 1 [N=1,549]:

BIO11 How often, if at all, do you hear or read news stories that have advice about ways people can protect themselves from the risk of serious diseases which CONFLICTS WITH earlier news stories on these topics?

May 10-June 6

2016

13	All the time
50	Some of the time
29	Not too often
6	Not at all
2	No answer

ASK FORM 1 [N=1,549]:

BIO12 Which of these statements is closer to your own views, even if neither is exactly right?
[RANDOMIZE ORDER OF RESPONSE OPTIONS 1-2]

May 10-June 6

2016

74	New research is constantly improving our understanding about ways to protect people from the risk of serious disease, so it makes sense that these findings conflict with prior studies.
23	Research about ways people can protect themselves from the risk of serious disease cannot really be trusted because so many studies conflict with each other.
2	No answer

ASK FORM 1 [N=1,549]:

BIO13 Which, if any, of the following have you done within the PAST 12 MONTHS?

[Check all that apply] **[RANDOMIZE ITEMS; item e always last]**

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	Gone to a health care provider for a general physical checkup exam	69	31
b.	Had a dental checkup or teeth cleaning	55	45
c.	Had an eye exam	43	57
d.	Had a flu shot	40	60
e.	None of these [EXCLUSIVE PUNCH]	12	88

ASK FORM 1 [N=1,549]:

BIO14 Do you currently have one person you think of as your primary care doctor or health care provider that you usually go to when you are sick or need health care, or not?

May 10-June 6

2016

76	Yes
23	No
1	No answer

ASK FORM 1 [N=1,549]:

BIO15 Have you seen a health care provider FOR AN ILLNESS OR MEDICAL CONDITION in the past 12 months, or not?

May 10-June 6

2016

63	Yes
36	No
2	No answer

COMBINED RESPONSES BIO15 AND BIO16 [BASED ON TOTAL N=1,549]:

BIO15 Have you seen a health care provider FOR AN ILLNESS OR MEDICAL CONDITION in the past 12 months, or not?

BIO16 Have you experienced the following when dealing with doctors, nurses, or other health care providers about an illness or medical condition within the past 12 months?

[RANDOMIZE ITEMS]

a. Your symptoms or concerns were carefully listened to
May 10-June 6
2016

		Among those who have seen a health care provider for an illness in the past year [n=1,076]
63	Have seen a health care provider for an illness in the past year	
55	Yes	87
7	No	12
1	Don't remember	1
*	No answer	*
36	Haven't seen a health care provider	
2	No answer	

b. You were confused about instructions you were given for treatment, medications or care you needed at home
May 10-June 6
2016

		Among those who have seen a health care provider for an illness in the past year [n=1,076]
63	Have seen a health care provider for an illness in the past year	
9	Yes	15
52	No	83
1	Don't remember	2
*	No answer	*
36	Haven't seen a health care provider	
2	No answer	

c. You felt rushed by your health care provider
May 10-June 6
2016

		Among those who have seen a health care provider for an illness in the past year [n=1,076]
63	Have seen a health care provider for an illness in the past year	
14	Yes	23
47	No	75
1	Don't remember	1
*	No answer	1
36	Haven't seen a health care provider	
2	No answer	

BIO15 AND BIO16 CONTINUED...

d. You got all the information you needed about your treatment, medications or care you needed at home

May 10-June 6
2016

		Among those who have seen a health care provider for an illness in the past year [n=1,076]
63	Have seen a health care provider for an illness in the past year	
51	Yes	80
11	No	17
1	Don't remember	2
*	No answer	1
36	Haven't seen a health care provider	
2	No answer	

e. You felt your health care provider really cared about your health and well-being

May 10-June 6
2016

		Among those who have seen a health care provider for an illness in the past year [n=1,076]
63	Have seen a health care provider for an illness in the past year	
53	Yes	84
8	No	13
1	Don't remember	2
1	No answer	1
36	Haven't seen a health care provider	
2	No answer	

ASK FORM 1 [N=1,549]:

People have different ways of dealing with medications and doctor visits when they are sick or have a health care concern.

BIO17 When you are experiencing cold or flu symptoms, do you usually take over-the-counter medications right away, or do you usually wait and see if your symptoms get worse?

May 10-June 6
2016

41	I usually take over-the-counter medications right away
49	I usually wait and see if my symptoms get worse before taking over-the-counter medications
8	I never take over-the-counter medications
1	No answer

ASK FORM 1 [N=1,549]:

BIO18 When you feel sick, do you usually contact a doctor or health care provider immediately or do you usually wait until it is absolutely necessary? **[RANDOMIZE RESPONSE OPTIONS 1 and 2]**

May 10-June 6

2016

13	I usually contact a doctor or health care provider immediately
86	I usually wait until it is absolutely necessary before contacting a doctor or health care provider
1	No answer

TREND FOR COMPARISON:

CBS News/New York Times survey conducted by telephone: Some people usually call or go to the doctor almost immediately when they feel sick and other people usually wait to call or go to the doctor until it is absolutely necessary. How about you – do you usually call or go to the doctor almost immediately, or do you usually wait?

	<i>CBS News/ New York Times 1997</i>
Immediately	21
Wait	72
Other/Depends (VOL.)	6
Don't know/No answer	1

ASK FORM 1 [N=1,549]:

BIO19 When you make decisions about treatment for a serious health problem, which of these statements best describes you, even if neither is exactly right? **[RANDOMIZE RESPONSE OPTIONS 1 and 2]**

May 10-June 6

2016

30	I usually just ask a doctor or health care provider for advice
68	I usually ask a doctor or health care provider for advice and ALSO do my own research
2	No answer

TREND FOR COMPARISON:

CBS News/New York Times survey conducted by telephone: Think about how you make decisions about your own health. Do you usually just ask doctors for advice or do you ask doctors for advice and also do you own research?

	<i>CBS News/ New York Times 1997</i>
Just ask doctor's advice	34
Advice plus research	62
Only research (VOL.)	2
Something else (VOL.)	1
Don't know/No answer	1

ASK IF "ALSO DOES OWN RESEARCH" (BIO19=2) [N=1,121]:

BIO20 Which of these is the MAIN REASON that you also do your own research when making decisions about treatment for a serious health problem? **[RANDOMIZE RESPONSE OPTIONS 1-3]**

May 10-June 6

2016

53	Just to learn more about what the health care provider recommended
31	To check for other treatment options
14	To check for treatment side effects
3	No answer

COMBINED RESPONSES BIO19 AND BIO20 [BASED ON TOTAL N=1,549]:

BIO19 When you make decisions about treatment for a serious health problem, which of these statements best describes you, even if neither is exactly right?

[RANDOMIZE RESPONSE OPTIONS 1 and 2]

ASK IF "ALSO DOES OWN RESEARCH" (BIO19=2) [N=1,121]:

BIO20 Which of these is the MAIN REASON that you also do your own research when making decisions about treatment for a serious health problem?

[RANDOMIZE RESPONSE OPTIONS 1-3]

May 10-June 6

2016

30	I usually just ask a doctor or health care provider for advice
68	I usually ask a doctor or health care provider for advice and ALSO do my own research
36	Just to learn more about what the health care provider recommended
21	To check for other treatment options
9	To check for treatment side effects
2	No answer
2	No answer

ASK FORM 1 [N=1,549]:

BIO21 As far as you know, were you vaccinated against the major childhood diseases such as measles, mumps, rubella, polio, diphtheria and others when you were a child or teen, or didn't you have these vaccines?

May 10-June 6

2016

92	Yes, was vaccinated for the major childhood diseases
4	No, was not
4	Don't remember
1	No answer

NO QUESTION BIO22

ASK FORM 1 [N=1,549]:

BIO23 Are you currently a cigarette smoker, a former smoker or have you never smoked?

May 10-June 6

2016

18	Current smoker
28	Former smoker
52	Never smoked
1	No answer

TREND FOR COMPARISON:

NPR/Robert Wood Johnson Foundation/Harvard School of Public Health survey conducted by telephone: Are you a current smoker, former smoker or have you never smoked?

*NPR/Robert Wood Johnson
Foundation/Harvard School of
Public Health*

Sep 15-Oct 15, 2014

Current smoker	15
Former smoker	28
Never smoked	56
Don't know/Refused	1

ASK FORM 1 [N=1,549]:

Thinking about alternative medicines, including herbal remedies, acupuncture, chiropractic, energy therapies and other therapies...

BIO24 How much, if anything, have you heard or read about alternative medicines, used instead of or in addition to traditional medical treatments?

May 10-June 6

2016

32	A lot
54	A little
13	Nothing at all
1	No answer

ASK FORM 1 [N=1,549]:

BIO25 Have you, personally, ever tried any alternative medicine?

May 10-June 6

2016

50	Yes
50	No
1	No answer

ASK IF "EVER TRIED ALTERNATIVE MEDICINE" (BIO25=1) [N=812]:

BIO26 The most recent time you used alternative medicine, did you use it...
[RANDOMIZE OPTIONS 1 AND 2]

May 10-June 6

2016

40	Instead of traditional medical treatments
59	In addition to traditional medical treatments
1	No answer

COMBINED RESPONSES BIO25 AND BIO26 [BASED ON TOTAL N=1,549]:

BIO25 Have you, personally, ever tried any alternative medicine?

ASK IF "EVER TRIED ALTERNATIVE MEDICINE" (BIO25=1)

BIO26 The most recent time you used alternative medicine, did you use it...
[RANDOMIZE OPTIONS 1 AND 2]

May 10-June 6

2016

50	Yes, have tried
20	Instead of traditional medical treatments
29	In addition to traditional medical treatments
1	No answer
50	No
1	No answer

TRENDS FOR COMPARISON:

CBS News/New York Times survey conducted by telephone: Have you personally ever tried any alternative medicine?

	<i>CBS News/ New York Times 1997</i>
Yes	33
No	66
Don't know/No answer	1

CBS News/New York Times survey conducted by telephone: Did you use it (alternative medicine) in addition to traditional medicine, or instead of traditional medicine?

Note: Based on those saying they have ever tried any alternative medicine (33%)

	<i>CBS News/ New York Times 1997</i>
In addition	46
Instead of	42
Other (VOL.)	10
Don't know/No answer	2

ASK FORM 1 [N=1,549]:

BIO27 If you had a chronic medical condition, such as high blood pressure, asthma, diabetes, heart disease, cancer, chronic pain or others, how likely would you be to use alternative medicine?

May 10-June 6

2016

23	Very likely
32	Somewhat likely
31	Not too likely
13	Not at all likely
1	No answer

ASK FORM 1 [N=1,549]:

BIO28 Thinking about your CLOSEST FAMILY AND FRIENDS, how many of them...
[RANDOMIZE ITEMS]

a. Have a very healthy lifestyle

May 10-June 6

2016

20	Most of them
56	Some of them
20	Only a few
4	None of them
1	No answer

b. Ever use alternative medicine, such as herbal remedies, acupuncture, chiropractic, energy therapies and other therapies

May 10-June 6

2016

8	Most of them
32	Some of them
32	Only a few
27	None of them
1	No answer

NO QUESTION BIO29 OR BIO30**ASK FORM 1 [N=1,549]:**

BIO31 How often do you exercise or participate in vigorous physical activity?

May 10-June 6

2016

15	Every day
38	A few times a week
23	A few times a month
23	Less often than that
1	No answer

TREND FOR COMPARISON:

NPR/Robert Wood Johnson Foundation/Harvard School of Public Health survey conducted by telephone: How often do you exercise or participate in vigorous activity – every day, a few times a week, a few times a month, or less frequently than that?

	<i>NPR/Robert Wood Johnson Foundation/Harvard School of Public Health Sep 15-Oct 15, 2014</i>
Every day	29
A few times a week	45
A few times a month	13
Less frequently than that	13
Don't know/Refused	*

ASK FORM 1 [N=1,549]:

BIO32 When it comes to physical exercise, which of these statements best describes you?

May 10-June 6

2016

20	I get as much physical exercise as I should
79	I should probably be getting more physical exercise
1	No answer

TRENDS FOR COMPARISON:

Surveys conducted by telephone: Do you feel that you probably get as much physical exercise as you should, or do you feel you should probably be getting more physical exercise?

	<i>Pew Research Center Feb 8-March 7 2006</i>	<i>Harvard School of Public Health June 2005</i>	<i>ABC News/ Time Magazine May 2004</i>
Get as much as you should	28	34	29
Should be getting more	70	66	71
Don't know/Refused	2	*	*

ASK FORM 1 [N=1,549]:

BIO33 Thinking about childhood vaccines for measles, mumps and rubella (MMR), how would you rate...**[RANDOMIZE ITEMS] [FLIP ORDER OF RESPONSE OPTIONS HIGH TO LOW; LOW TO HIGH USING SAME ORDER FOR BOTH ITEMS]**

a. The risk of side effects

May 10-June 6

2016

5	Very high
6	High
21	Medium
29	Low
38	Very low
1	No answer

BIO33 CONTINUED...

b. The preventive health benefits

May 10-June 6

2016

45	Very high
28	High
18	Medium
4	Low
3	Very low
2	No answer

ASK FORM 1 [N=1,549]:

BIO34 Overall, do you think...

May 10-June 6

2016

88	The benefits of childhood vaccines for measles, mumps and rubella outweigh the risks
10	The risks of childhood vaccines for measles, mumps and rubella outweigh the benefits
2	No answer

ASK FORM 1 [N=1,549]:BIO35 Which comes closer to your views about childhood vaccines for measles, mumps and rubella, even if neither is exactly right? **[RANDOMIZE RESPONSE OPTIONS 1-2]**

May 10-June 6

2016

17	Parents should be able to decide NOT to vaccinate their children, even if that may create health risks for other children and adults
82	Healthy children should be required to be vaccinated in order to attend public schools because of the potential risk for others when children are not vaccinated
2	No answer

ASK FORM 1 [N=1,549]:

BIO36 How much do you, personally, care about issues related to childhood vaccines?

May 10-June 6

2016

42	A great deal
39	Some
14	Not too much
3	Not at all
1	No answer

ASK FORM 1 [N=1,549]:

BIO37 What role, if any, do you think each of the following groups should have in MAKING DECISIONS ABOUT POLICY ISSUES related to childhood vaccines? **[RANDOMIZE ITEMS]**

a. Elected officials

May 10-June 6

2016

25	A major role
43	A minor role
30	No role
1	No answer

b. The general public

May 10-June 6

2016

47	A major role
39	A minor role
13	No role
1	No answer

c. Medical scientists

May 10-June 6

2016

73	A major role
19	A minor role
7	No role
2	No answer

d. Health insurance company leaders

May 10-June 6

2016

26	A major role
33	A minor role
39	No role
1	No answer

e. Pharmaceutical industry leaders

May 10-June 6

2016

27	A major role
37	A minor role
35	No role
2	No answer

ASK FORM 1 [N=1,549]:

BIO38 Thinking about what you have read and heard, how well do medical scientists understand the health risks and benefits of childhood vaccines for measles, mumps and rubella?

May 10-June 6

2016

47	Very well
43	Fairly well
7	Not too well
3	Not at all well
1	No answer

ASK FORM 1 [N=1,549]:

BIO39 How much, if at all, do you trust each of the following groups to give full and accurate information about the health risks and benefits of childhood vaccines for measles, mumps and rubella? **[RANDOMIZE ITEMS]**

a. Elected officials

May 10-June 6

2016

6	A lot
26	Some
38	Not too much
30	Not at all
1	No answer

b. Medical scientists

May 10-June 6

2016

55	A lot
35	Some
5	Not too much
4	Not at all
1	No answer

c. Pharmaceutical industry leaders

May 10-June 6

2016

13	A lot
36	Some
30	Not too much
20	Not at all
2	No answer

BIO39 CONTINUED...

d. The news media

May 10-June 6

2016

8	A lot
34	Some
33	Not too much
23	Not at all
1	No answer

e. People from holistic or alternative health groups

May 10-June 6

2016

9	A lot
35	Some
33	Not too much
21	Not at all
2	No answer

ASK FORM 1 [N=1,549]:

BIO40 As far as you know, how many medical scientists say that childhood vaccines for measles, mumps and rubella are safe for healthy children?

May 10-June 6

2016

55	Almost all
28	More than half
9	About half
4	Fewer than half
2	Almost none
2	No answer

ASK FORM 1 [N=1,549]:

BIO41 How often, if ever, do you think research findings from medical scientists about the health risks and benefits of childhood vaccines are influenced by each of the following?
[RANDOMIZE ITEMS]

a. The desire to help the industries they work with or work for

May 10-June 6

2016

27	Most of the time
52	Some of the time
15	Not too often
5	Never
2	No answer

BIO41 CONTINUED...

b. Concern for the best interests of children's health

May 10-June 6

2016

55	Most of the time
35	Some of the time
5	Not too often
3	Never
2	No answer

c. Their own personal political leanings

May 10-June 6

2016

18	Most of the time
45	Some of the time
28	Not too often
7	Never
3	No answer

d. The desire to advance their career

May 10-June 6

2016

27	Most of the time
45	Some of the time
20	Not too often
6	Never
2	No answer

e. The best available scientific evidence

May 10-June 6

2016

52	Most of the time
36	Some of the time
6	Not too often
4	Never
2	No answer

ASK FORM 1 [N=1,549]:

BIO42 How closely, if at all, do you follow news about childhood vaccines?

May 10-June 6

2016

13	Very closely
37	Somewhat closely
36	Not too closely
12	Not at all closely
2	No answer

ASK FORM 1 [N=1,549]:

BIO43 Overall, how would you rate the job news media do in covering issues about childhood vaccines for measles, mumps and rubella?

May 10-June 6

2016

10	Very good job
51	Somewhat good job
29	Somewhat bad job
9	Very bad job
1	No answer

NO QUESTION BIO44**[RANDOMIZE ITEMS BIO45-BIO46]****ASK FORM 1 [N=1,549]:**

BIO45 Do you think the news media generally... **[RANDOMIZE RESPONSE OPTIONS 1 AND 2 WITH 3 ALWAYS LAST]**

May 10-June 6

2016

39	Exaggerate the health risks of childhood vaccines
24	Don't take the health risks of childhood vaccines seriously enough
33	Are about right in their reporting
3	No answer

ASK FORM 1 [N=1,549]:

BIO46 Do you think the news media generally... **[RANDOMIZE RESPONSE OPTIONS 1 AND 2 WITH 3 ALWAYS LAST]**

May 10-June 6

2016

40	Give too much attention to skeptics of childhood vaccines
24	Give too little attention to skeptics of childhood vaccines
32	Give about the right amount of attention to skeptics of childhood vaccines
4	No answer

ASK ALL FORMS:

Here's a different kind of question. (If you don't know the answer, select "Not sure.") As far as you know...

ASK ALL [N=4,563]:

KNOSCT22 Which is the better way to determine whether a new drug is effective in treating a disease? If a scientist has a group of 1,000 volunteers with the disease to study, should she... **[RANDOMIZE OPTIONS 1-2]**

May 10-June 6

2016

65	Give the drug to half of them but not to the other half, and compare how many in each group get better (<i>Correct</i>)
35	NET Incorrect/Not sure/No answer
14	Give the drug to all of them and see how many get better
20	Not sure
1	No answer

[RANDOMIZE ITEMS KNOSCT23 TO KNOSCT34; KNOSCT22 ALWAYS FIRST]**ASK ALL:**

KNOSCT23 What gas is made as a consequence of burning fossil fuels? Is it ... **[RANDOMIZE OPTIONS 1-4]**

May 10-June 6

2016

68	Carbon dioxide (<i>Correct</i>)
32	NET Incorrect/Not sure/No answer
4	Hydrogen
1	Helium
2	Radon
24	Not sure
1	No answer

NO QUESTION KNOSCT24, KNOSCT25 AND KNOSCT26

ASK ALL:

KNOSCT27

If the chances that an old bridge will collapse starts at 1% in week 1 and doubles each week (as shown below), what is the chance that the old bridge will collapse during week 7?

Chances the bridge will collapse is ...

1% at Week 1
2% at Week 2
4% at Week 3
8% at Week 4

Enter the % chance that the bridge will collapse at Week 7

May 10-June 6

2016

58 64% (*Correct*)
42 NET Incorrect/Not sure/No answer
20 All other numeric responses
19 Not sure
2 No answer

ASK ALL:

KNOSCT28

Which of the following conditions can be treated effectively by antibiotic medications?

[Check all that apply] **[RANDOMIZE ITEMS with ITEM e and f always last]**

May 10-June 6

2016

44 Bacterial infection only (*Correct*)
56 NET Incorrect/Not sure/No answer

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	Viral infections (such as a cold)	22	78
b.	Fungal infections (such as athlete's foot)	27	73
c.	Bacterial infections (such as strep throat infections)	81	19
d.	Allergic reactions to insect bites	17	83
e.	None of these [EXCLUSIVE PUNCH]	2	98
f.	Not sure [EXCLUSIVE PUNCH]	10	90

ASK ALL:

KNOSCT29 If a scientist wants to determine if a new drug is effective at treating high blood pressure by giving half of a group of 1,000 volunteers a new medication and the other half a "sugar pill," she wants to rule out... **[RANDOMIZE OPTIONS 1-3]**

May 10-June 6

2016

55	A placebo effect (<i>Correct</i>)
45	NET Incorrect/Not sure/No answer
3	A third-person effect
17	A false consensus effect
23	Not sure
1	No answer

NO QUESTION KNOSCT30**ASK ALL:**

KNOSCT31 Which of these terms refers to health benefits occurring when most people in a population get a vaccine? **[RANDOMIZE OPTIONS 1-3]**

May 10-June 6

2016

32	Herd immunity (<i>Correct</i>)
68	NET Incorrect/Not sure/No answer
8	Population control
33	Vaccination rate
26	Not sure
2	No answer

ASK ALL:

KNOSCT32 Which of the following can be genetically modified?

[Check all that apply] **[RANDOMIZE ITEMS with ITEM e and f always last]**

May 10-June 6

2016

36	Selected all (<i>Correct</i>)
64	NET Incorrect/Not sure/No answer

		<u>Selected</u>	<u>Not selected</u> <u>/No answer</u>
a.	An apple	59	41
b.	Salmon	51	49
c.	A mosquito	42	58
d.	Corn	70	30
e.	None of these [EXCLUSIVE PUNCH]	2	98
f.	Not sure [EXCLUSIVE PUNCH]	20	80

ASK ALL:

KNOSCT33 Humans and mice share the same genetic make-up by... **[RANDOMIZE ORDER LOW TO HIGH; HIGH TO LOW with NOT SURE ALWAYS LAST]**

May 10-June 6

2016

33	About 50% or more (<i>Correct</i>)
67	NET Incorrect/Not sure/No answer
7	Less than 10%
14	Between 11% and 49%
46	Not sure
1	No answer

ASK ALL:

KNOSCT34 Which gas makes up most of the Earth's atmosphere? **[RANDOMIZE OPTIONS 1-4]**

May 10-June 6

2016

27	Nitrogen (<i>Correct</i>)
73	NET Incorrect/Not Sure/No answer
9	Hydrogen
10	Carbon dioxide
35	Oxygen
17	Not sure
2	No answer

TOTAL NUMBER CORRECT KNOSCT22 THROUGH KNOSCT34 [N=4,563]:

May 10-June 6

2016

4	9 out of 9
8	8 out of 9
10	7 out of 9
10	6 out of 9
13	5 out of 9
14	4 out of 9
11	3 out of 9
12	2 out of 9
10	1 out of 9
8	0 out of 9
22	High science knowledge (7-9 correct)
48	Medium science knowledge (3-6 correct)
30	Low science knowledge (0-2 correct)

More details on the science knowledge index can be found in [Chapter 4](#) and the [Methodology](#) section of the related report, "[The Politics of Climate.](#)"