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INSIGHTS: Data Brief

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PREPAREDNESS FOR FUTURE DISEASE OUTBREAKS IN THE UNITED STATES: RESULTS OF A NATIONAL SURVEY

KEY TAKEAWAYS

- Nearly one in three adults in the U.S. (29%) self-reported that they believed an infectious disease outbreak is highly likely to occur in the U.S. within the next year.
- Approximately half of U.S. adults reported looking heavily to the CDC, local or state health departments, or their personal doctor or health system to obtain reliable information on how to cope with disease outbreaks. Adults with lower levels of formal education were less likely to use these sources of information, compared to those with more formal education.
- Over 90% of adults reported moderate to high levels of knowledge on how to take specific personal actions to help combat outbreaks, including finding information about disease outbreaks and symptoms; where to obtain a high-quality mask and how to wear it properly; and where to get tested or vaccinated. However, about 1 in 5 adults lacked knowledge about how to use or install a high efficiency air filter.
- Nearly three-quarters (71%) of the adult population said they would be highly likely to get vaccinated if recommended during an infectious disease outbreak. Conversely, one in ten adults (10%) reported being unlikely to get vaccinated during a disease outbreak.
- One-fifth of U.S. adults reported that it would not be possible to isolate a sick household member in their own bedroom and bathroom. Adults who were younger, had less education, and who had lower household incomes were less able to isolate sick family members, compared to adults who were older, had higher education levels, and who had higher household incomes.
- 11%-16% of adults perceived that their employer and local, state, and public health authorities are not prepared for future disease outbreaks. Adults reported that their households, their doctor's office, or their health system were more prepared compared to their employers or public health agencies.
- One out of 14 adults (7%) reported low levels of household preparedness if an infectious disease outbreak of similar severity to COVID-19 occurred within the next 12 months. Adults who were younger, Black or African American, less educated, or with low household incomes were less likely to be prepared, compared to adults who were older, White, or with higher education or household incomes.



INTRODUCTION

The recent COVID-19 pandemic changed the landscape of public health and response to infectious disease outbreaks. Even though this public health emergency officially ended on May 11, 2023 (1), we continue to experience periodic increases in a wide range of respiratory infectious diseases. For example, one of the unique challenges that we are currently facing is the risk for simultaneous rises in rates of COVID-19, influenza, and respiratory syncytial virus (RSV), or a “tripledeemic” (2,3). There is an especially high risk for influenza and RSV infections this season, due to lack of immunity among children and adults who have not been exposed to these diseases for several seasons while COVID-19 masking and other precautions were in place. Thus, adhering to precautions to prevent infectious disease spread and future outbreaks remains important.

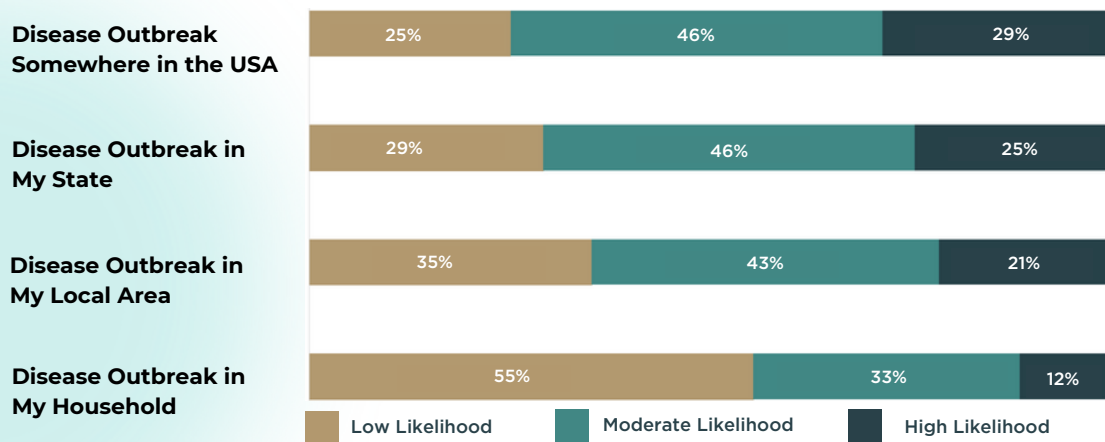
We conducted a representative national panel survey of 4,498 adults in May 2023, immediately following the end of the COVID-19 public health emergency declaration. The survey assessed public opinions regarding risk for future outbreaks, preferred sources of outbreak information, and preparedness for future outbreaks.

PERCEPTIONS OF RISK FOR FUTURE OUTBREAKS



When asked about perceived risk of future infectious disease outbreaks, 3 out of 4 U.S. adults (75%) reported believing that an outbreak is at least moderately likely to occur somewhere in the U.S. over the next year (Figure 1); nearly 1 in 3 adults (29%) thought that an outbreak is highly likely to occur. Adults perceived a higher likelihood of an outbreak occurring somewhere in the U.S. or in their state, compared to the perceived risk in their local area or in their household. Simultaneously, 1 in 4 adults (25%) perceived that the likelihood of a disease outbreak in the U.S. is low, with risk perception being progressively lower when asked about the likelihood of an outbreak occurring in the respondent's state, local area, and their household.

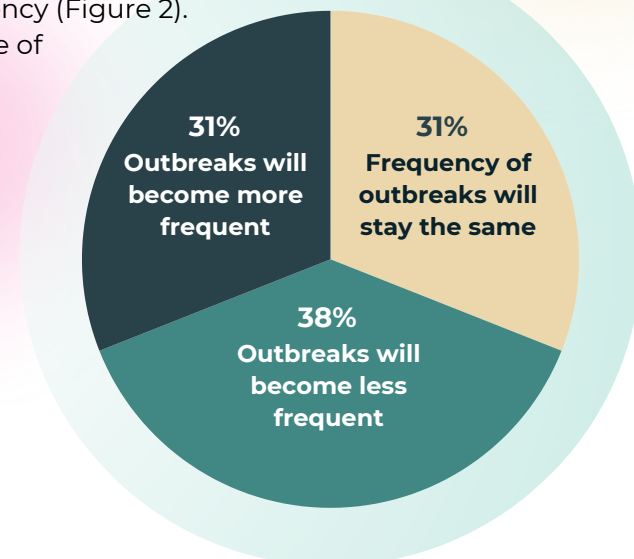
Figure 1. Perceptions among U.S. adults regarding the likelihood of an infectious disease outbreak occurring within the next 12 months



NOTE: Categories were based on responses to 10-point Likert scale survey questions pertaining to perceived likelihood of infectious outbreaks occurring, with responses categorized as follows: 1-3 (low likelihood), 4-7 (moderate likelihood), 8-10 (high likelihood).

Adults were also asked about their perceptions of risk for infectious disease outbreaks of similar severity to the COVID-19 pandemic occurring over the next 5-10 years. Nearly equal proportions of adults thought that this type of outbreak would occur with more, similar, or less frequency (Figure 2). Specifically, nearly one-third of adults (31%) said they think this type of outbreak will become more frequent over the next 5-10 years, compared to 38% who thought that outbreaks of similar severity will become less frequent.

Figure 2. Perceptions among U.S. adults of the risk for infectious disease outbreaks of similar severity to COVID-19 occurring in the next five to ten years

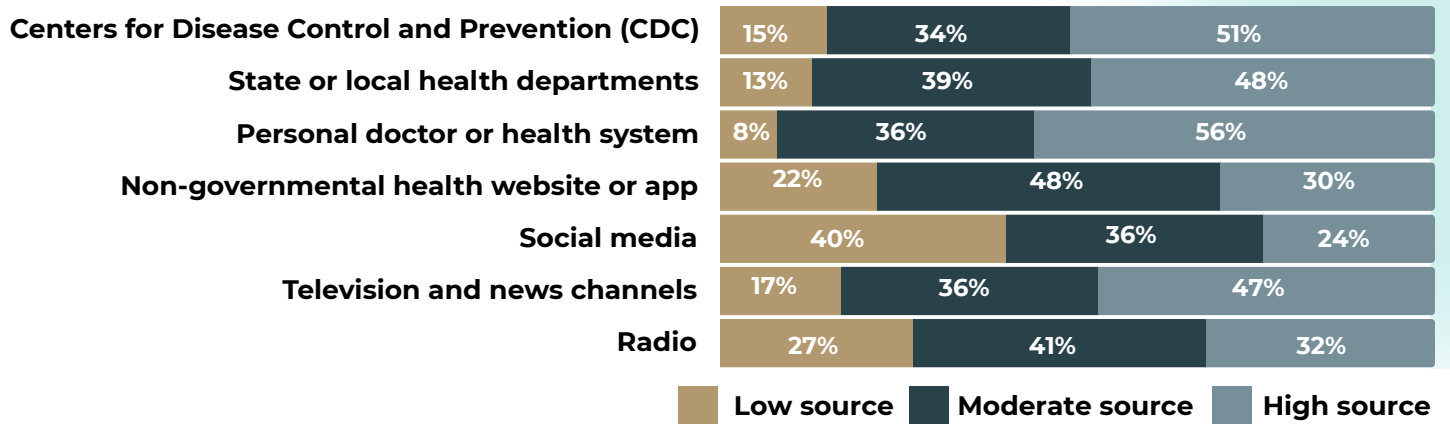




PREFERRED SOURCES OF OUTBREAK INFORMATION

The survey asked about sources used to obtain information on how to cope with disease outbreaks. Overall, adults reported obtaining information from a variety of sources (Figure 3). The most highly sought sources were government agencies, such as the CDC or health departments; doctors or health systems; or television and news channels (all were highly used by approximately half of adults). In contrast, approximately 1 out of 8 adults reported very low use of the CDC or health departments, and 1 out of 12 adults reported very low use of their doctor or health system, to obtain information on how to cope with disease outbreaks.

Figure 3. Preferred sources of reliable information among U.S. adults on how to cope with disease outbreaks

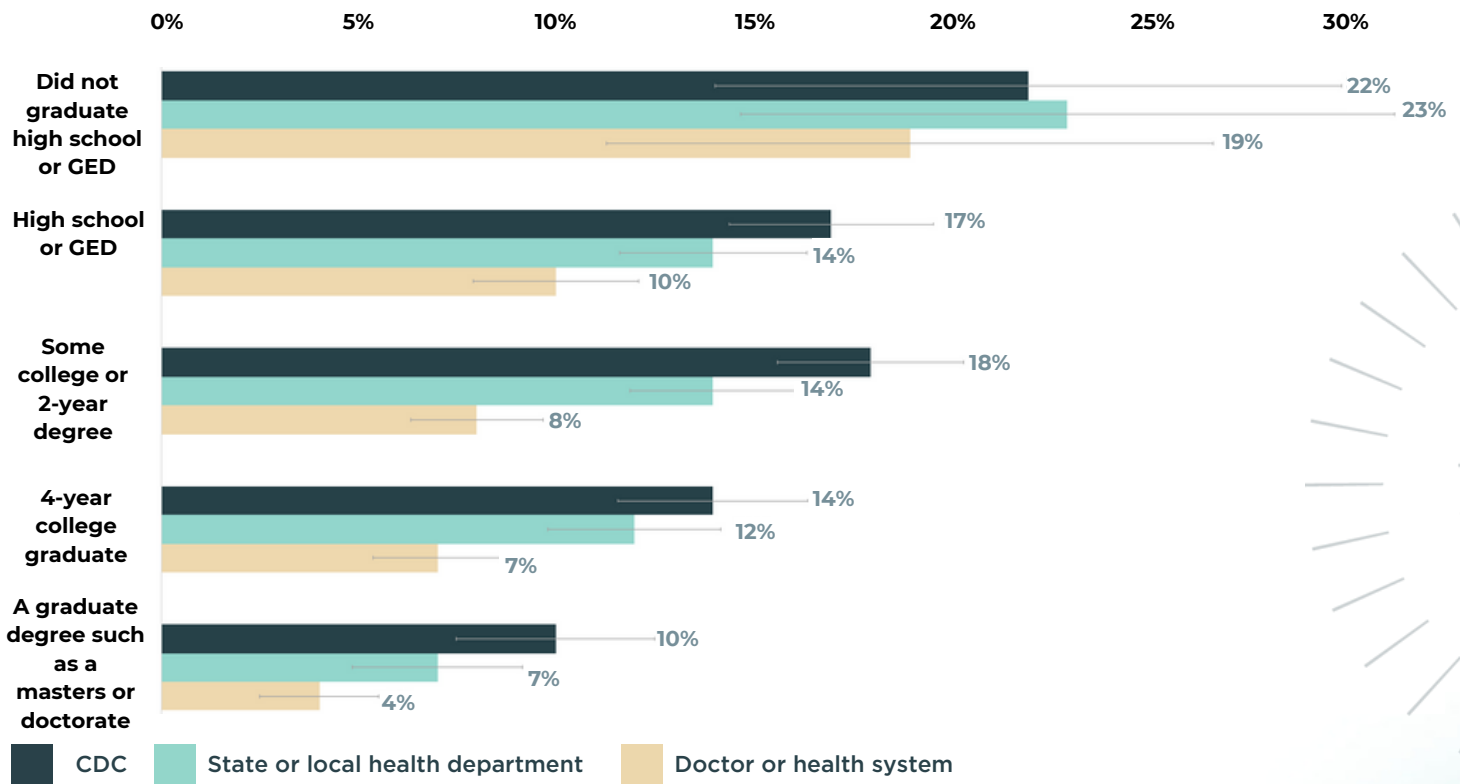


NOTE: Categories were based on responses to 10-point Likert scale survey questions regarding the extent to which adults relied on different sources to obtain information on how to cope with disease outbreaks, with responses categorized as follows: 1-3 (low source), 4-7 (moderate source), 8-10 (high source).



We observed a trend where adults with lower education levels demonstrated a lower preference for the CDC, health departments, or doctors or health systems as sources of outbreak information (Figure 4). Compared to adults with higher education levels, adults with less than a high school education were the least likely to use these sources of information (approximately 1 out of 5 adults in this group reported low use of these sources).

Figure 4. Percentage of U.S. adults by education level who reported low preference for the CDC, health departments, or their doctor or health system as reliable sources of outbreak information



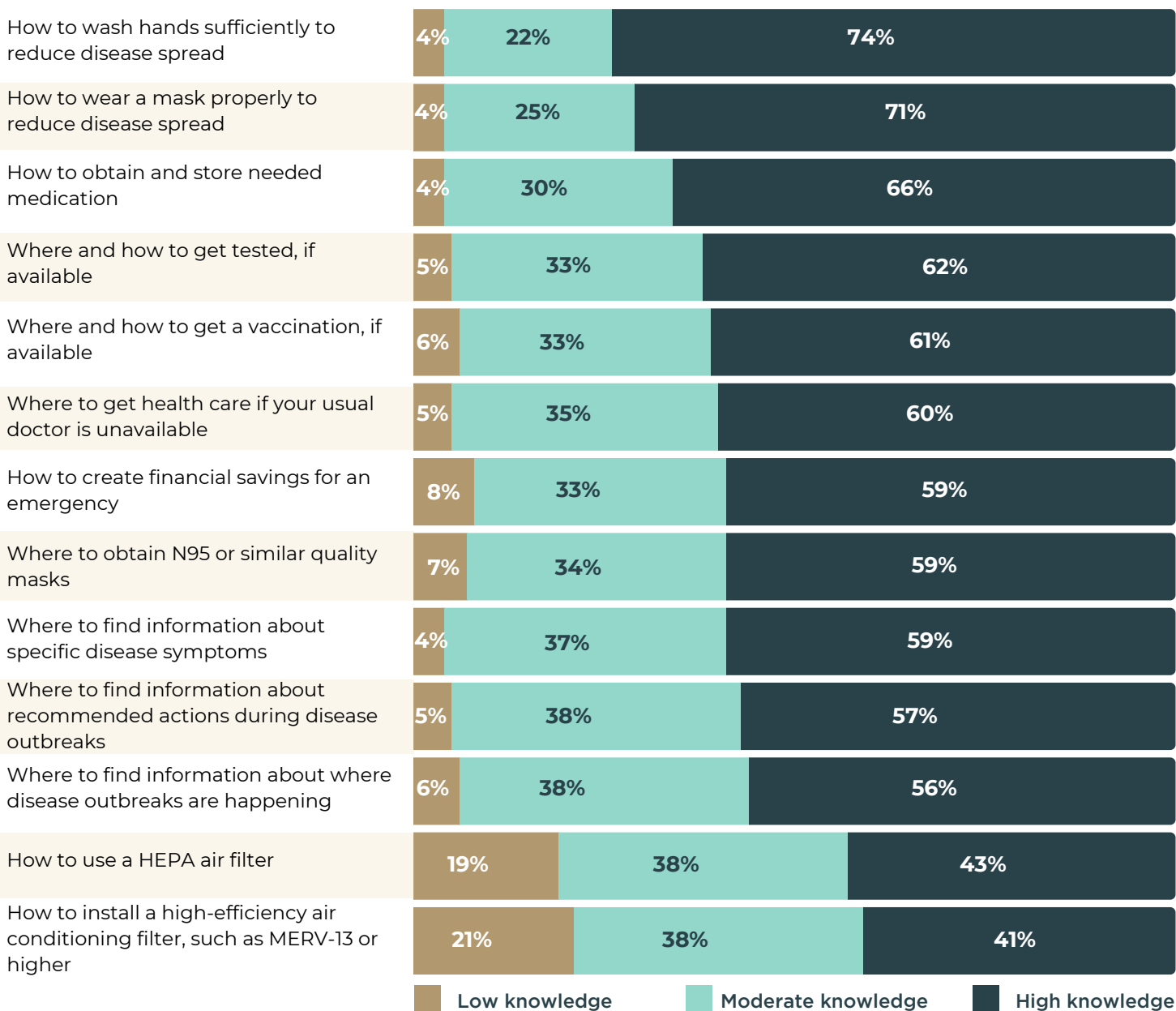
NOTE: Estimates represent the percentages of adults who responded 1-3 on 10-point Likert scale questions assessing the extent to which they used the CDC, state or local health departments, or their personal doctor or health system as sources of information on how to cope with disease outbreaks (1 represented “not at all” and 10 represented “a great deal”).

PREPAREDNESS FOR FUTURE DISEASE OUTBREAKS



We assessed adults' knowledge of how to prepare for future infectious disease outbreaks, in accordance with federal guidelines for preparedness. Across the areas of knowledge assessed, the percentage of adults who self-reported having high knowledge ranged from 41%-74% (Figure 5). The adult population appeared most confident in their knowledge about wearing a mask properly and washing hands to reduce disease spread (with 71% and 74% of adults reporting high knowledge, respectively). The areas in which adults were least confident in their knowledge were in how to use a high efficiency particulate air (HEPA) filter or in how to install a high-efficiency air conditioning filter, with approximately one-fifth of adults reporting low knowledge of how to take these actions. Across all preparedness areas assessed, at least 4% of adults reported low knowledge.

Figure 5. Knowledge among U.S. adults of how to prepare for infectious disease outbreaks



NOTE: Estimates represent the percentage of adults who indicated they had low, moderate, or high knowledge in each of the areas shown. Categories were based on responses to 10-point Likert scale survey questions assessing knowledge as follows: 1-3 (low), 4-7 (moderate), 8-10 (high).



We assessed perceptions surrounding the importance of vaccinations and the respondents' likelihood of getting vaccinated (Figures 6 and 7). Sixty-one percent of adults said that vaccination would be highly important for outbreak preparedness, and 71% of adults said that they would be highly likely to get vaccinated if it were recommended due to an infectious disease outbreak. Conversely, 12% of adults reported low perceived importance of vaccinations as a preparative measure, and 10% of adults said they would be unlikely to be vaccinated if recommended due to an outbreak.

Perceptions of vaccine importance were strongly related to likelihood of receiving vaccination. Among adults who rated vaccinations as having low importance, only 24% said they would be highly likely to be vaccinated if recommended, compared to 44% of adults who perceived moderate importance and 92% of adults who perceived high importance of vaccinations.

Figure 6. Perceived importance among U.S. adults of getting vaccinated if recommended to be prepared for infectious disease outbreaks

NOTE: Categories were based on responses to 10-point Likert scale survey question assessing perceptions of importance of vaccinations as a preparedness measure for disease outbreaks as follows: 1-3 (low), 4-7 (moderate), 8-10 (high).

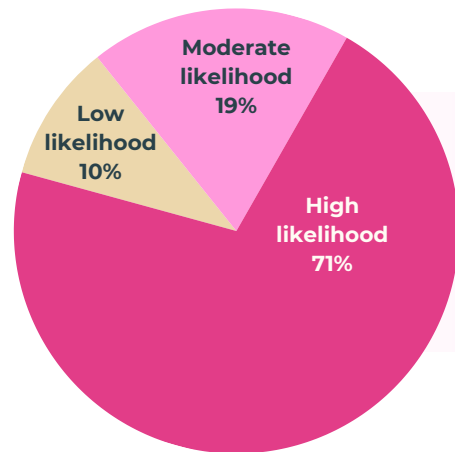
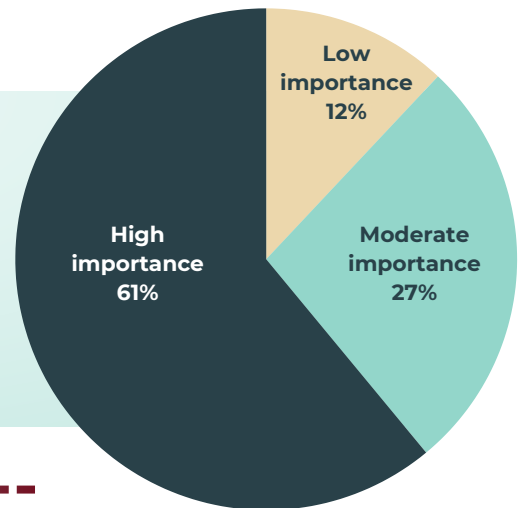


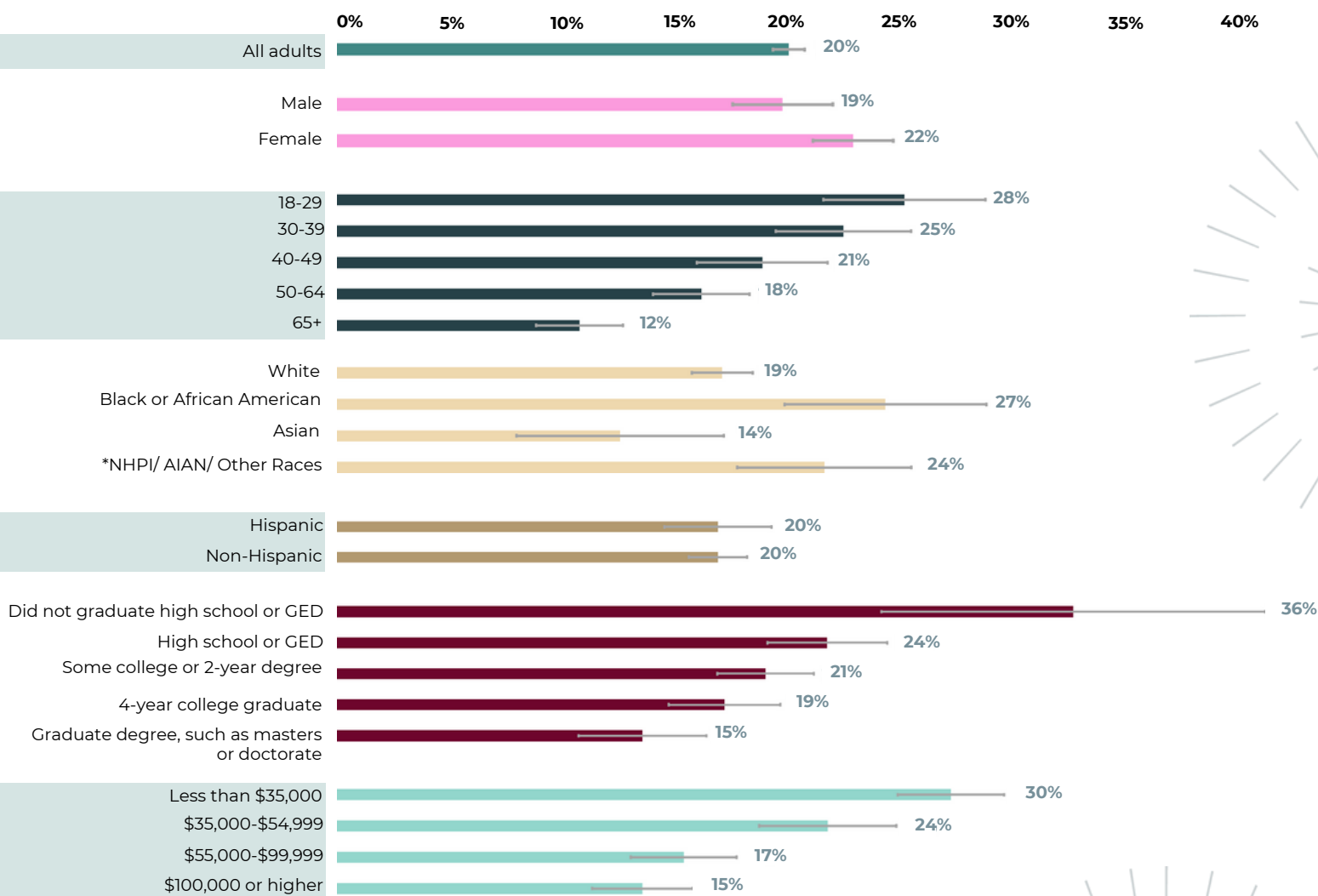
Figure 7. Likelihood among U.S. adults to get vaccinated if recommended during an infectious disease outbreak

NOTE: Categories were based on responses to a 10-point Likert scale survey question assessing likelihood of vaccination if recommended during a disease outbreak as follows: 1-3 (low), 4-7 (moderate), 8-10 (high).



We assessed adults' ability to isolate sick family members in their own bedroom and bathroom, if needed, to prevent infectious disease spread within a household. One in five U.S. adults reported that it would not be possible for them to isolate a sick household member in their own bedroom and bathroom if they were to become sick with an infectious disease (Figure 8). Adults who were younger, had less education, and who had lower household incomes were less able to isolate sick family members compared to adults who were older, had higher education levels, and who had higher household incomes.

Figure 8. Percentage of U.S. adults by demographic characteristics who reported being unable to isolate sick household members in their home if recommended due to infectious disease



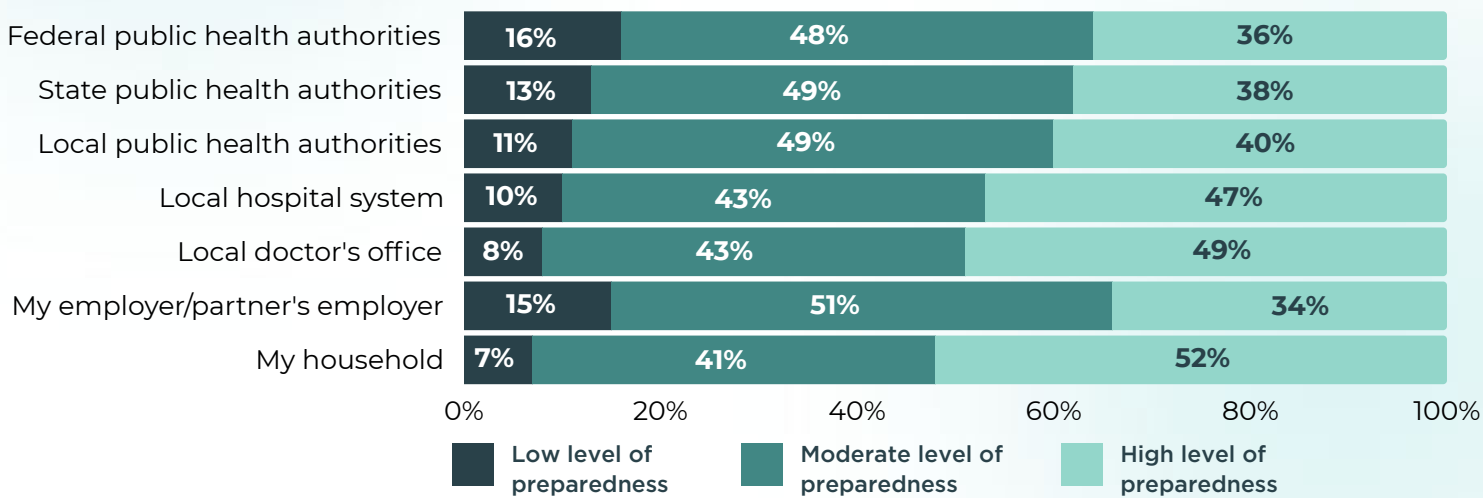
NOTE: *NHPI = Native Hawaiian or Other Pacific Islander. AIAN = American Indian or Alaska Native. Other races can include respondents who reported multiple races. Due to small numbers of respondents within each of these race categories, we were unable to draw conclusions for these individual groups, and we combined categories for analysis.



Adults were asked to report their perceptions regarding preparedness of their households and certain types of organizations if an outbreak of similar severity to COVID-19 were to occur within the next 12 months. Adults reported generally higher levels of perceived preparedness within their households, local doctor's office, or health system when compared to perceived preparedness of their employers or public health agencies (Figure 9). Specifically, 11%-16% of adults felt that their employer and local, state, and federal public health authorities had low levels of preparedness for future disease outbreaks. In contrast, 7% of adults reported low levels of their own household's preparedness. Overall, approximately half (52%) of adults self-reported that their own household would be highly prepared.

We examined whether perceptions of risk for an outbreak were associated with actual household preparedness. After accounting for related demographic factors (age, sex, race, ethnicity, education level, and income), adults who perceived high risk for future outbreaks had on average 0.4 points higher self-reported scores for household preparedness (on a 1 to 10 scale), when compared to adults who perceived low risk for an infectious disease outbreak over the next 12 months.

Figure 9. Public perceptions of preparedness if a disease outbreak with similar severity as COVID-19 occurred within the next 12 months

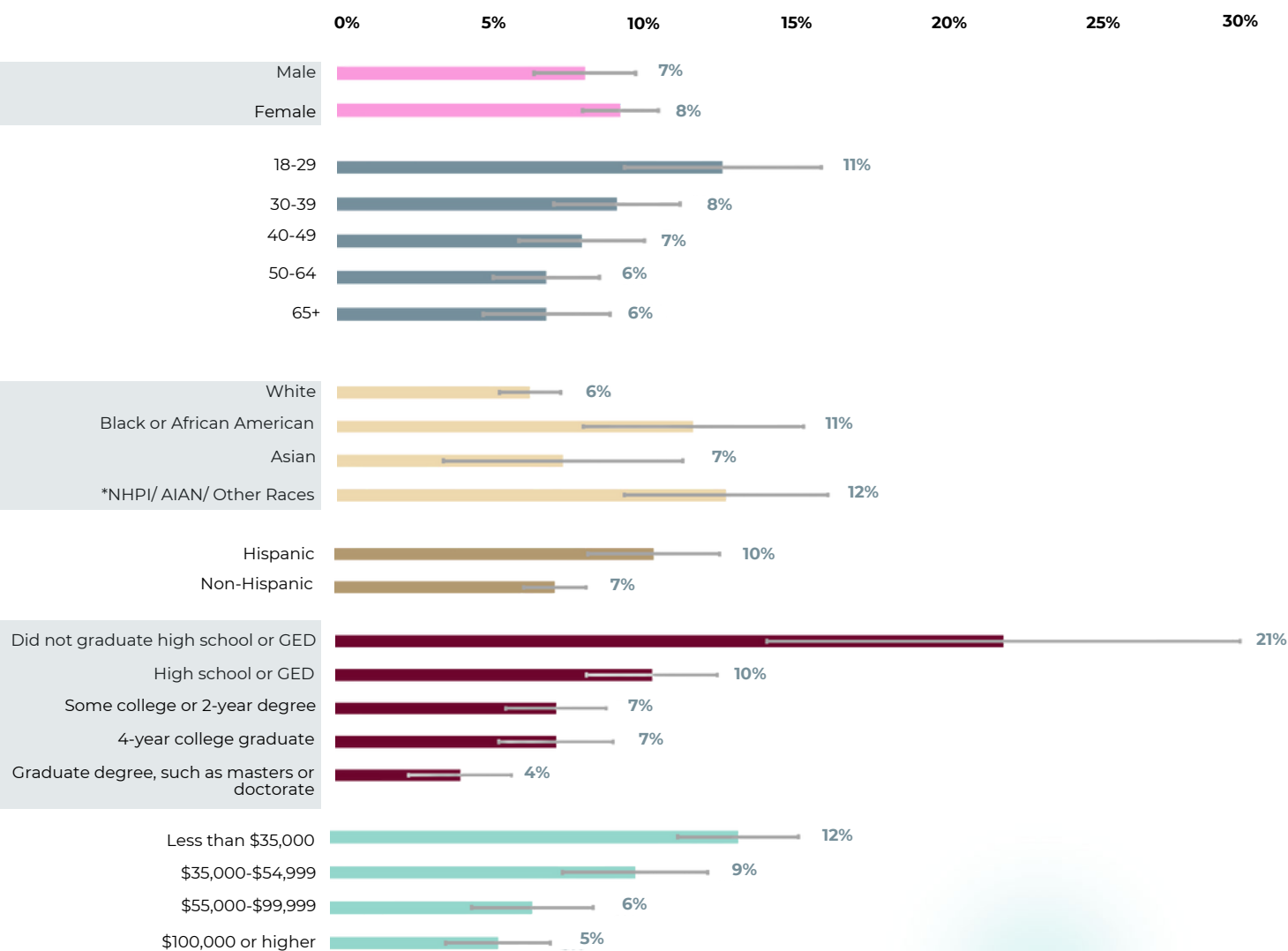


NOTE: Estimates represent the percentage of adults who perceived low, moderate, or high levels of outbreak preparedness for the entities shown. Categories were based on responses to 10-point Likert scale survey questions assessing perceptions of preparedness as follows: 1-3 (low), 4-7 (moderate), 8-10 (high).



We observed differences in self-reported household outbreak preparedness according to age, race, ethnicity, education, and income. Adults who were ages 18-29 or who were Black or African American were nearly twice as likely to report being unprepared, compared to adults who were ages 50 or older or who were White, respectively (Figure 10). Approximately 1 out of 5 adults with less than a high school education self-reported being unprepared for a future outbreak, which was 5 times higher than the percentage of adults with a graduate degree who self-reported that they would be unprepared. More than twice the percentage of adults with an annual household income less than \$35,000 (12%) self-reported that their households would be unprepared, compared to adults with an annual household income greater than \$100,000 (5%).

Figure 10. Percentage of U.S. adults who self-reported low household preparedness if a disease outbreak occurred within the next 12 months, by demographic characteristics



*NOTE: Estimates represent the percentages of adults who responded 1-3 on 10-point Likert scale questions assessing the extent to which their household would be prepared if an outbreak of similar severity to COVID-19 occurred during the next 12 months (1 represented “very unprepared” and 10 represented “very prepared”). *NHPI = Native Hawaiian or Other Pacific Islander. AIAN = American Indian or Alaska Native. Other races can include respondents who reported multiple races. Due to small numbers of respondents within each of these race categories, we were unable to draw conclusions for these individual groups, and we combined categories for analysis.*



CONCLUSION

We observed higher levels of preparedness among adults who perceived that risks for a future outbreak are high, compared to those perceiving low risk. Significant portions of the adult population perceived a high risk for an outbreak to occur somewhere in the U.S. over the next year, while similar proportions of adults perceived low risk. These differences in risk perceptions among U.S. adults may also have implications for future outbreak-related policies which are dependent upon public support.

The CDC, state and local health departments, as well as doctors and health systems, were highly preferred as sources of reliable information on how to cope with outbreaks by at least half of U.S. adults. However, there appears to still be room for improvement in the use of these sources, as they are rarely used by approximately 1 in 8 adults. We observed an inverse relationship between formal education level and use of these sources, suggesting a need for health education and risk communication resources to reach people who have less than a high school education.

These survey results indicate moderate-to-high levels of outbreak preparedness among the majority of U.S. households, as indicated by self-reported levels of preparedness and ability to follow federal guidelines. In addition, the majority of U.S. adults said they believe that vaccinations are important to prepare for disease outbreaks, and that they would be willing to be vaccinated if recommended by health authorities. Despite these results, we identified areas in which there is room for improvement in outbreak preparedness. Even though most U.S. households would be moderately or highly prepared, a small percentage of adults reported that their households would be unprepared. One of the areas in which adults were least prepared was in the ability to isolate sick family members if needed, as one in five adults reported being unable to isolate a sick household member in their own household. Also, we identified a large knowledge gap (among ~20% of adults) regarding how to use or install high efficiency air filters. We identified disparities in overall levels of household preparedness according to age, race, ethnicity, income, and education. Specifically, adults who were younger, of Black or African American race, Hispanic ethnicity, with less than a high school education, or with annual household incomes <\$35,000 reported being the least prepared. Identification of these disparities and gaps in preparedness present opportunities for public health agencies and other local leaders to prioritize current and future efforts to improve outbreak preparedness.



DEFINITIONS

Race:

We categorized survey responses for race as White alone, Black or African American alone, Asian alone, or NHPI/AIAN/Other Races. This latter group included adults who identified as Native Hawaiian or Pacific Islander race, American Indian or Alaskan Native, two or more races, or a different race; due to small numbers of respondents within each of these race categories, we were unable to draw conclusions for these individual groups, and we combined these categories for analysis.

Ethnicity:

Hispanic respondents included those who self-identified as being of Hispanic, Latino, or of Spanish origin. Hispanic and non-Hispanic categories could include any race.

DATA SOURCES AND METHODS:

In May 2023, Heluna Health conducted a representative panel survey of adults living in the United States. We collected a total of 4,543 surveys, to which post-stratification weights were applied so that sample demographics would match the distribution of the national population. Weights were based on population characteristics collected for age group, sex, race, Hispanic ethnicity, household income, and rural zip code status. These population characteristics were drawn from the 2021 American Community Survey 1-year estimates, except for household income, which was drawn from the Census Bureau's 2022 Annual Social and Economic Supplement from the Current Population Survey. After excluding 45 records based on quality criteria, a total of 4,498 records were included in this study.

For survey questions that were asked on a 1-10 point Likert scale, we categorized responses for analysis as follows: 1-3 (low), 4-7 (moderate), and 8-10 (high). We compared percentages of respondents within "low" categories by demographic characteristics including sex, age, race, ethnicity, education, and income. We constructed 95% confidence intervals, which were used to estimate population parameters and to identify differences in estimates across demographic groups. We used weighted multivariable linear regression models to examine the relationship between perceptions of risk and household preparedness.

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