SUSTAINING READINESS:

EXPERT INSIGHTS ON PANDEMIC PREPAREDNESS

ABBOTT
PANDEMIC
DEFENSE
COALITION

September 2024

OVERVIEW

Throughout the COVID pandemic, epidemiologists provided their expertise on everything from the latest viral variant to whether to go to the gym. As we navigate a post-COVID world, that guidance is still vital. How should we think about the risks of changes in known viruses? How should we respond when a new virus is spotted? And overall, what should the world be doing to stay prepared for the next pandemic threat?

The Abbott Pandemic Defense Coalition reached out to more than 100 experts in virology, epidemiology and infectious disease to find out.

Experts believe we're better prepared to manage outbreaks than before COVID, but challenges remain, including addressing gaps in readiness, ever-evolving pathogens and a changing climate. Overall, the survey underscores to the importance of maintaining a sense of urgency and points to priorities for building a robust and enduring system to manage emerging threats around the world.

Experts' views on global readiness and the risks we face of a new pandemic underscore the need to continue prioritizing pandemic preparedness

90% of experts think we are as well or better prepared for the next pandemic

Q: Compared to before COVID, do you think the world is better prepared, less prepared or about the same?

SEE THE DATA

THREE OUT OF FOUR believe the world could face another global health challenge in the next 5 to 25 years, underscoring the crucial need for readiness.

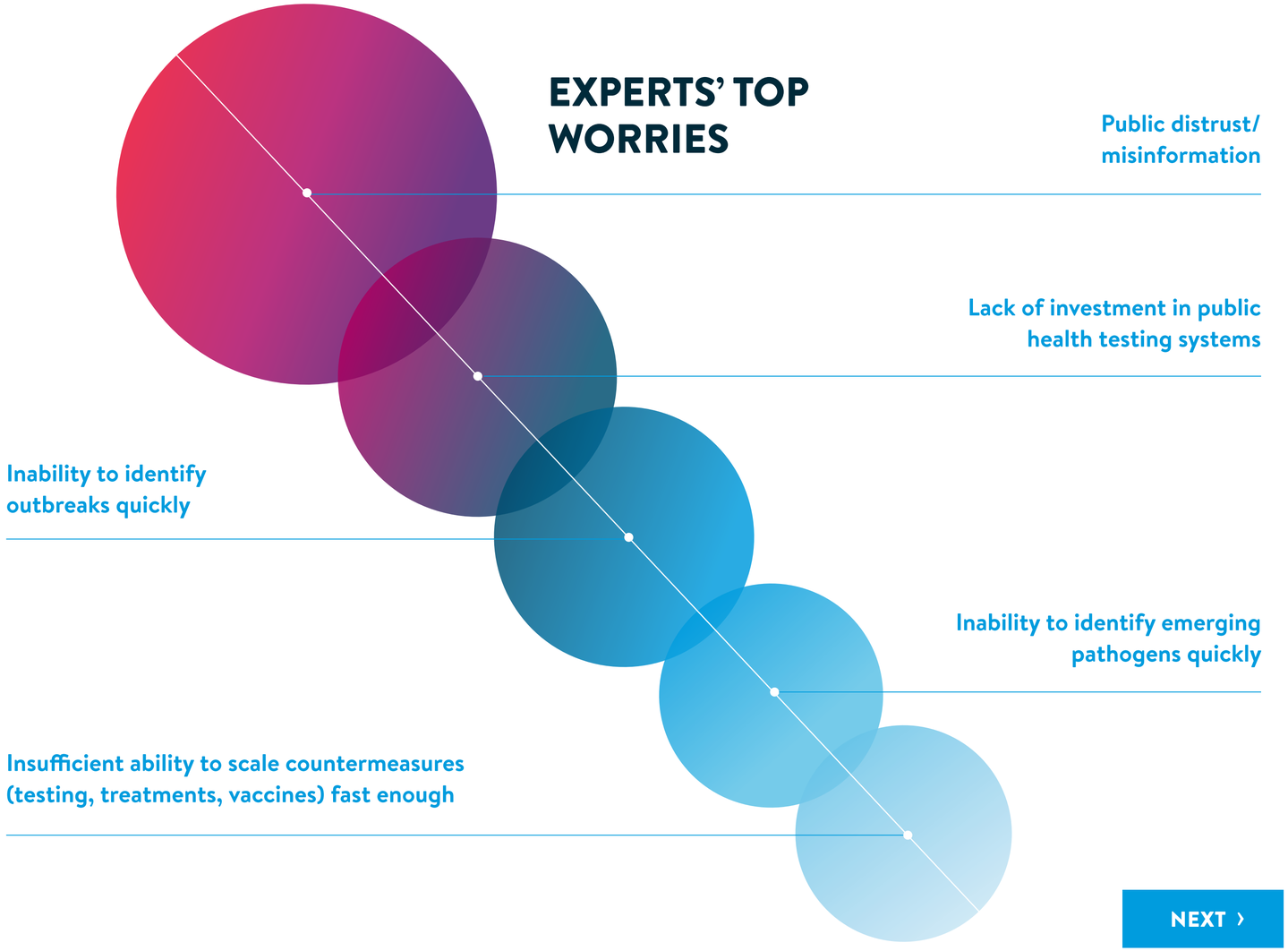
Q: What do you believe is the most likely timeframe in which the world will face another COVID-level pandemic threat?

SEE THE DATA

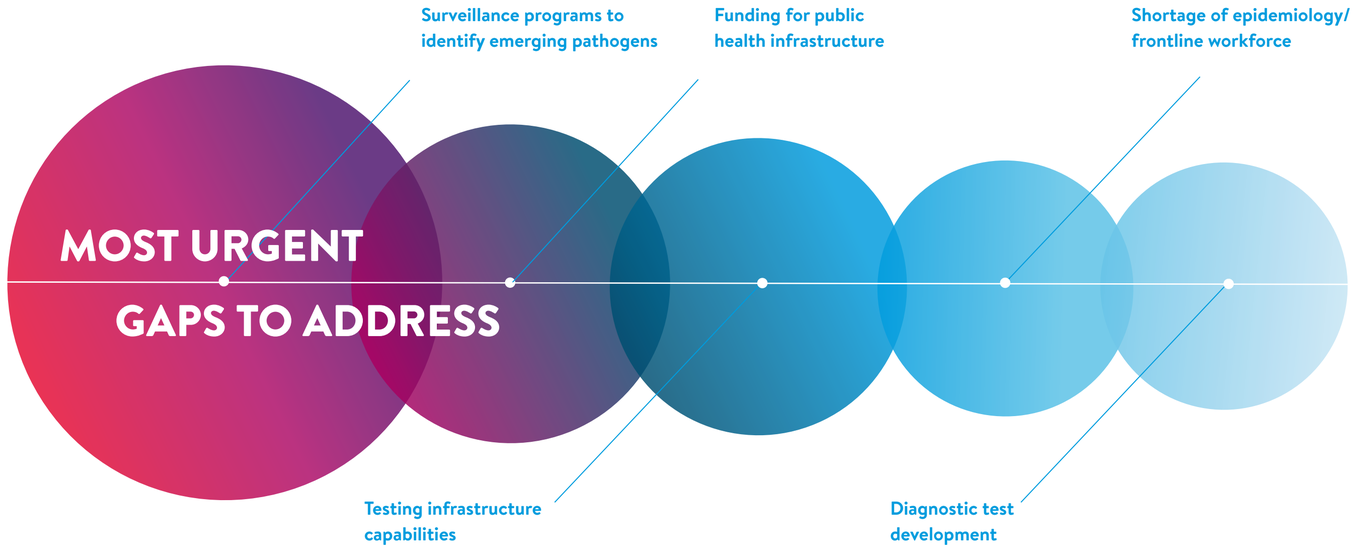
When it comes to maintaining readiness, experts say they are concerned about combatting misinformation, sustaining investment in public health and ensuring surveillance efforts can quickly identify emerging pathogens and outbreaks.

Q: When thinking about the risk for the next global pandemic, which of the following worries you most?

SEE THE DATA



Experts recommend strengthening the surveillance systems, public health workforce and testing capabilities needed to detect, identify and respond to outbreaks.



Q: When thinking about better preparing the world to respond to the next pandemic, which gaps do you believe are the most urgent to address?

SEE THE DATA

SURVEILLANCE

Experts prioritized both active and passive tools for community investment

ACTIVE

- Vector surveillance 23%
- Traveler-based screening 16%

PASSIVE

- Wastewater surveillance 22%
- Hospital EMR* screening 17%

Q: When thinking about disease surveillance, which emerging surveillance tools should communities invest in?

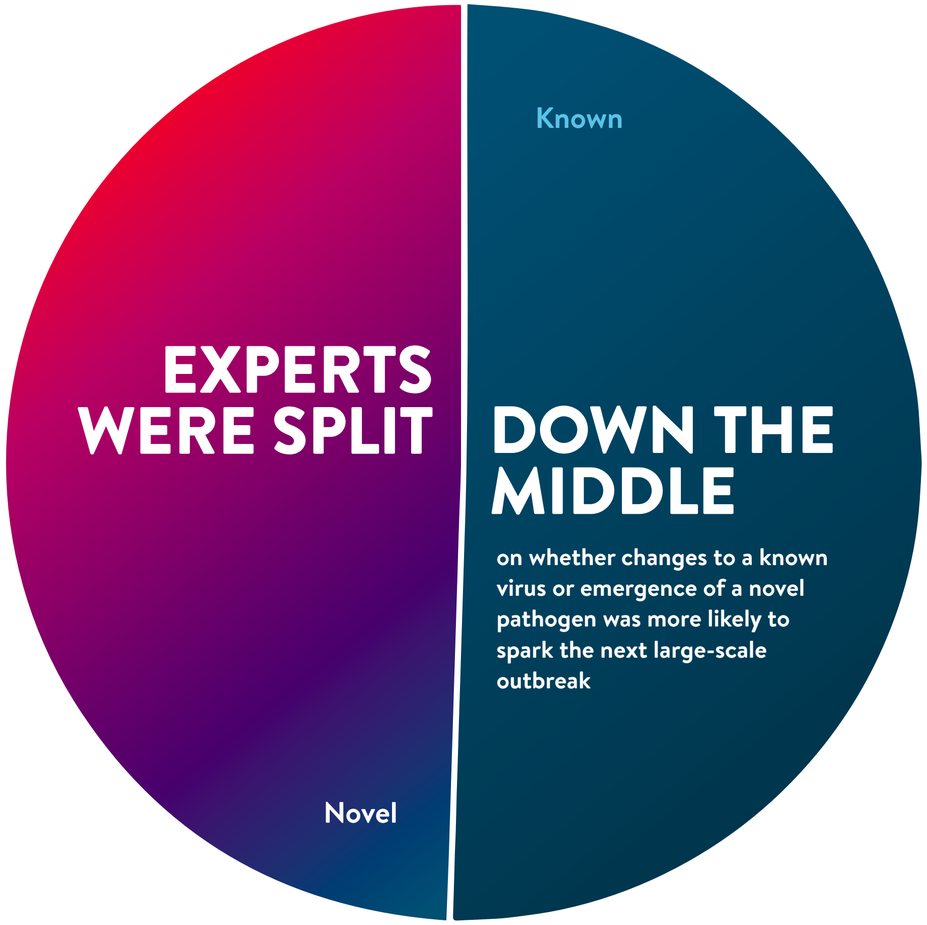
SEE THE DATA

*Hospital Electronic Medical Record (EMR) screening

Understanding the types of pathogens most likely to spark large outbreaks is critical to guide preparedness, response and education efforts.

Q: When thinking about the potential for large-scale outbreaks, which poses a greater threat, novel pathogens or changes in known diseases?

SEE THE DATA



BUT NEARLY ALL AGREED

A VIRAL PATHOGEN IS THE MOST LIKELY TYPE

94%

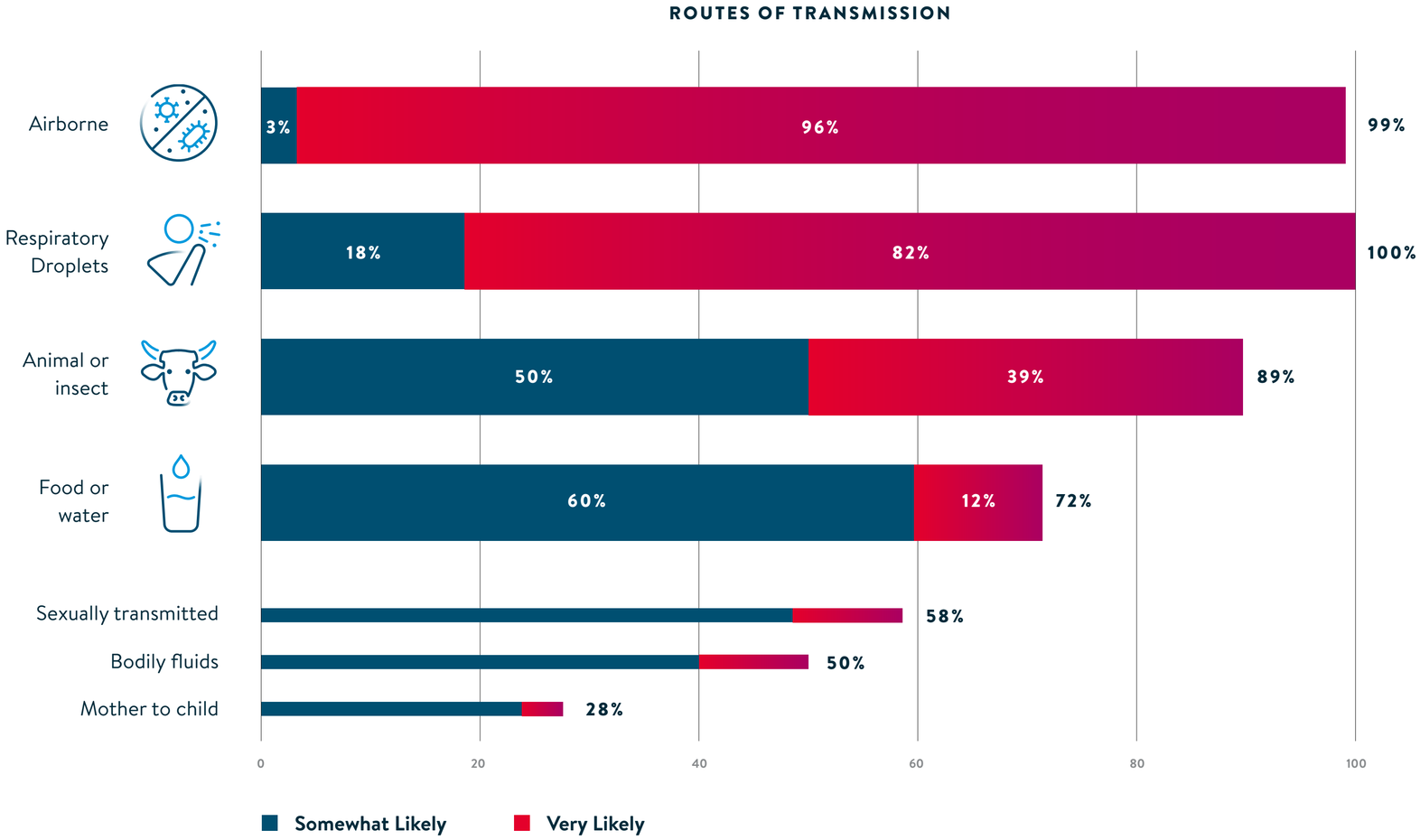
Q: When thinking about novel pathogens with the potential to cause large-scale outbreaks, please rank the most likely source or type.

SEE THE DATA

Evaluating the profile of a pathogen is critical to understanding risk. Experts reinforced the focus on respiratory routes of transmission as the most likely to trigger large-scale outbreaks.

Q: How likely are the following methods for transmitting infectious diseases to spark large-scale outbreaks?

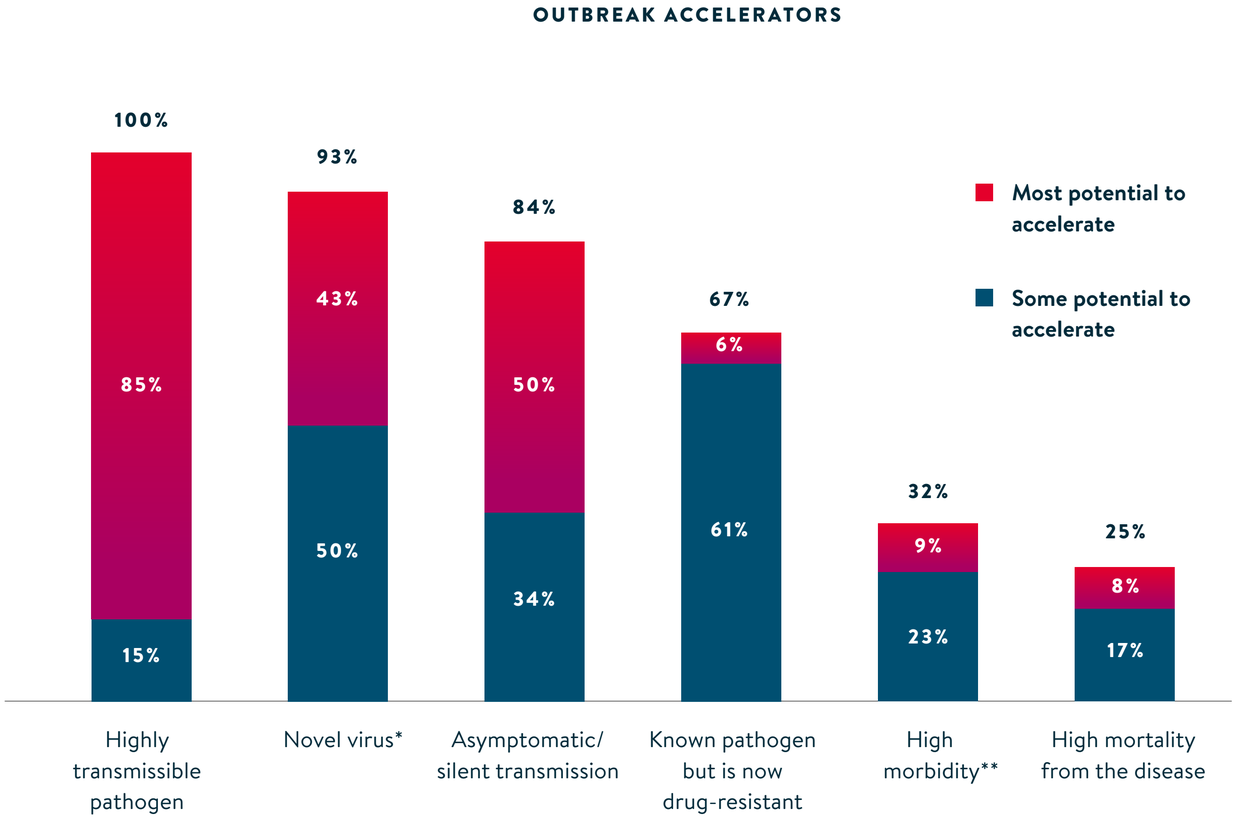
SEE THE DATA



Pathogens optimized for transmissibility were ranked as more likely to accelerate outbreaks.

Q: Please rank the following factors based on their ability to accelerate a local outbreak into an epidemic or pandemic.

SEE THE DATA

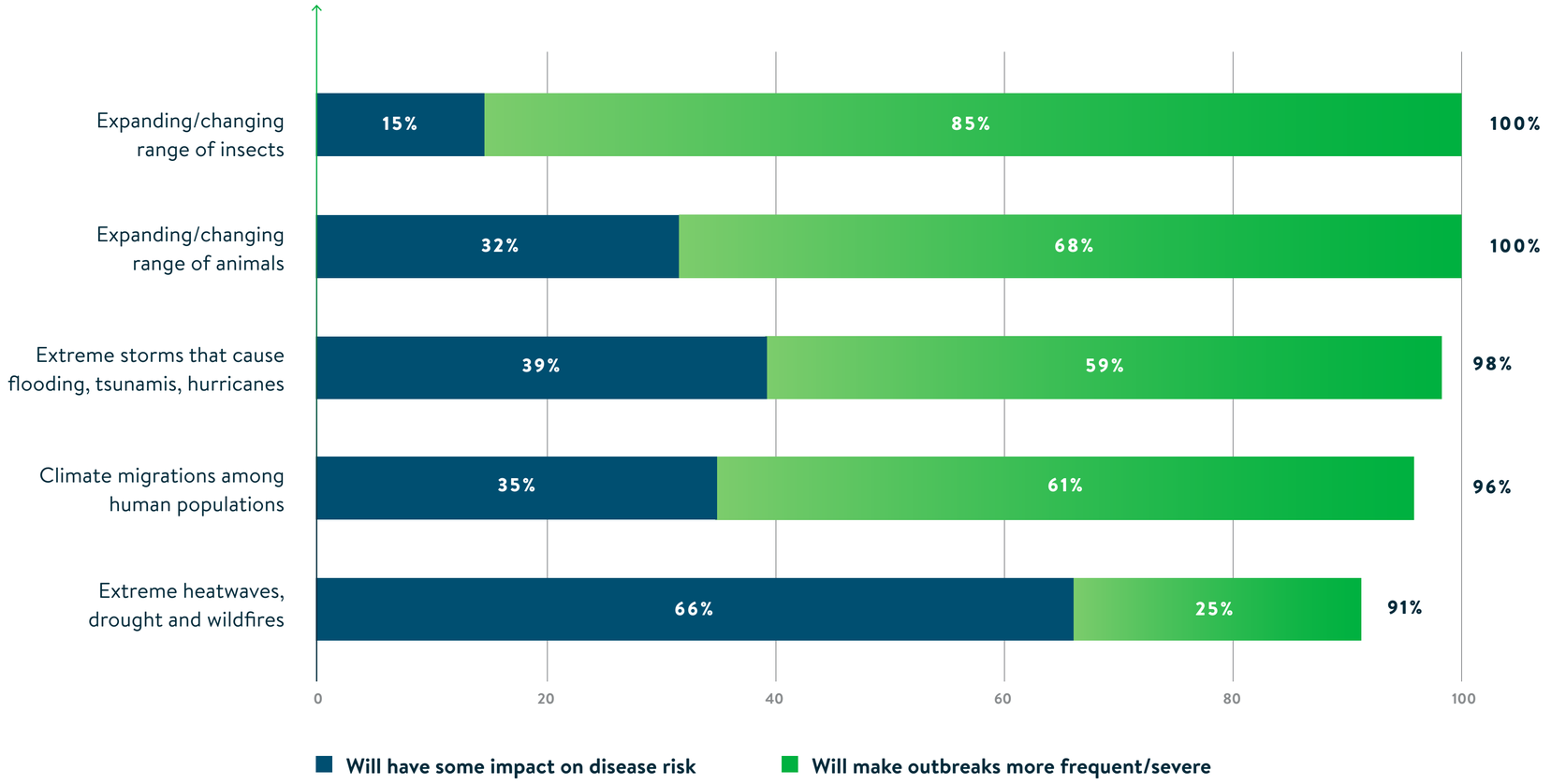


*no countermeasures available (tests, vaccines, treatments)

**from the disease (requiring significant treatment/high levels of healthcare resources)

Understanding how the changing climate impacts disease outbreaks is essential for surveillance and response efforts.

CLIMATE-RELATED ACCELERATORS



Q: How significant do you believe the impact of the following climate-related changes could be on the frequency and severity of infectious disease outbreaks?

SEE THE DATA

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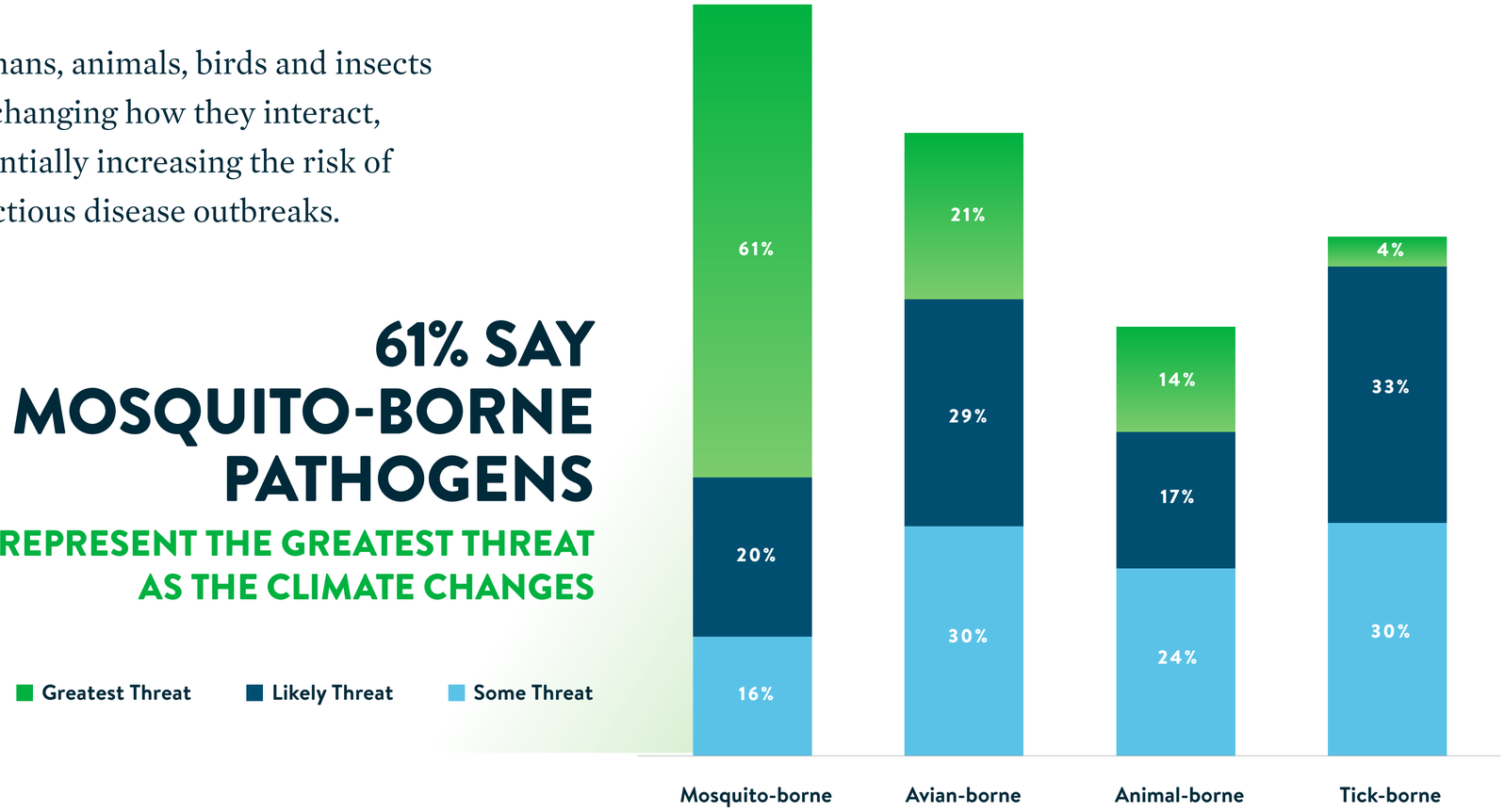
Humans, animals, birds and insects are changing how they interact, potentially increasing the risk of infectious disease outbreaks.

61% SAY MOSQUITO-BORNE PATHOGENS

REPRESENT THE GREATEST THREAT AS THE CLIMATE CHANGES



Respondents agree on the importance of tracking climate impacts

- **92%** Changes in insect range
- **83%** Animal migration changes
- **80%** Human encroachment on animal habitat
- **70%** Predictive models for extreme weather

Q: Rank the following infectious diseases based on the likelihood they will pose a greater threat to human health as the climate changes.

SEE THE DATA

Q: Which climate impacts do you believe are important to track due to their effect on infectious disease outbreaks?

SEE THE DATA

A CALL-TO-ACTION

This picture of the state of pandemic preparedness, from those who understand it best, highlights the optimism of respondents – who overwhelmingly agree we are as well or better prepared to face a pandemic than we were five years ago – alongside their sense of urgency to maintain that footing. The views of the world experts captured here provide guidance to organize action around three central priorities:

THE NEED TO ADDRESS GAPS

Public health systems need surveillance programs to quickly identify new pathogens and outbreaks using the diverse set of tools available. We should continue to protect funding for public health and train the next generation of virus hunters who help identify and respond to outbreaks as well as educate the public on infectious diseases.

KNOW WHAT WE'RE LOOKING FOR

While every outbreak is important to understand, only some have the potential to spark a national, regional or global health concern. Understanding the profile that presents the most risk enables the healthcare community to calibrate efforts to protect public health. As we see viruses in new locations, it's important for the medical community and the general public to know what viruses may be circulating.

UNDERSTAND THE CHANGING ENVIRONMENT

Experts were nearly unanimous in their view that the evolving way humans, animals and insect overlap and interact will change the dynamics of infectious disease outbreaks. Continued research and investments in new technology are needed to help understand how those dynamics are at play locally – old diseases in new regions, acceleration of routes of transmission – to help guide more effective preparation.

METHODOLOGY

The Pandemic Preparedness Expert Survey was commissioned by the members of the Abbott Pandemic Defense Coalition to understand the views of the epidemiologists and disease surveillance experts on the current state of pandemic preparedness.

Invitations to participate in the online survey were distributed to more than 400 experts at Coalition member institutions, the Centers for Research in Emerging Infectious Diseases (CREID) Network, the Global Virus Network (GVN), the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), as well as other academic research institutions. 103 experts fully completed the survey. The survey was conducted April - June, 2024 and participation was voluntary and anonymous.

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SPECIAL ACKNOWLEDGMENTS

The Abbott Pandemic Defense Coalition wishes to thank the following organizations and their members for their collaboration and support of this survey.

CREID Centers for Research in Emerging Infectious Diseases

GVN GLOBAL VIRUS NETWORK

TEPHINET Training Programs in Epidemiology and Public Health Interventions Network

THE TASK FORCE FOR GLOBAL HEALTH

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WHO WE ARE

The Abbott Pandemic Defense Coalition is a first of-its-kind* industry-led network of 22 scientific and public health organizations that works to identify, track and respond to emerging viral threats — to help prevent future pandemics while impacting existing ones.

The coalition has infectious disease experts on the ground worldwide, who use the latest tests and technology to detect new viruses and understand how current ones are changing so we can stay one step ahead of the next viral threat.

OUR FOCUS

- Identifying and monitoring new pathogens and analyzing how viruses are evolving
- Developing diagnostic tests quickly using samples from initial cases and deploying those tests, when needed
- Generating and sharing sequencing data to discover if a virus is a known or unknown pathogen
- Training the next generation of epidemiologists and virus hunters to be prepared for the next pandemic threat
- Conducting surveillance to determine how many people are affected by a virus and where it has spread, as well as its potential risk factors

*The Abbott Pandemic Defense Coalition is the first company-led global scientific and public health network dedicated to helping prevent and diminish future pandemic threats.

OUR MEMBERS

The Abbott Pandemic Defense Coalition connects organizations around the world that contribute to global health, scientific research and pandemic preparedness. No matter their individual specializations, each partner plays a vital role in staying ahead of infectious disease outbreaks.

AFRICA

Ain Shams University

CAIRO, EGYPT

This research center is recognized for its scientific research on national and international health.

Centre for Epidemic Response and Innovation (CERI)

STELLENBOSCH, SOUTH AFRICA

CERI uses its expertise in genomics to identify new variants of pathogens and advance basic and translational science to improve public health in Africa.

Institut de Recherche en Santé, de Surveillance Epidémiologique et de Formation (IRESSEF)

DAKAR, SENEGAL

Through its world-renowned health research, IRESSEF works to support public health policies to make healthcare more accessible to African populations.

Rwanda Biomedical Center

KIGALI, RWANDA

Rwanda Biomedical Centre is the nation's central health implementation agency. The Center partners with the UW Global Health Institute to monitor infectious diseases circulating in the African great lakes region where there is a high degree of population movement. The team leverages a strong national surveillance infrastructure and technical expertise in sequencing to investigate potential outbreaks.

Uganda Virus Research Institute (UVRI)

ENTEBBE, UGANDA

UVRI conducts health research related to human infections and diseases, empowers partnerships and communication, and serves as an education and training center.

College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone

FREETOWN, SIERRA LEONE

The first medical school in Sierra Leone, COMAHS focuses on its mission to help produce doctors, nurses, pharmacists, biomedical scientists and laboratory technicians to improve the healthcare delivery system in Sierra Leone.

University of Yaoundé

YAOUNDÉ, CAMEROON

Formed in 1993, this public university provides academic programs and conducts research to support Cameroon and the larger scientific research community.

University of Zimbabwe

HARARE, ZIMBABWE

As a public research institution, the University of Zimbabwe offers academic programs, research and advisory services while building strategic partnerships for innovative research, outreach and business development.

AMERICAS

Colombia-Wisconsin One Health Consortium at the Universidad Nacional de Colombia

MEDELLÍN, COLOMBIA

This partnership between the University of Wisconsin–Madison and the Universidad Nacional de Colombia strengthens scientific capabilities at one of the top laboratories outfitted for genomic technology in the region.

RUSH University Medical Center (RUSH)

CHICAGO, ILLINOIS, USA

Among the leading academic health systems in the United States, RUSH works to discover novel treatments through research and clinical trials.

Stanford University

STANFORD, CALIFORNIA, USA

Stanford University is one of the top universities in the United States. Here, experts examine immune biomarkers for evidence of past infections.

The University of the West Indies

MONA, JAMAICA

The University of the West Indies aims to advance learning, enhance knowledge and foster innovation to help positively transform the Caribbean and the world.

Universidad de Guadalajara

GUADALAJARA, MEXICO

The Universidad de Guadalajara Centro Universitarion de Tlajomulco team partners with the UW Global Health Institute and local hospitals that serve all 125 municipalities of Jalisco as well as neighboring states. The team closely monitors circulating viruses in the local community and through community outreach, implements interventions to reduce disease burden in response to their public health research findings.

Universidad Peruana Cayetano Heredia (UPCH)

LIMA, PERU

A leading research institution in Peru, UPCH is internationally recognized for its work in tropical medicine.

Universidade de São Paulo (USP)

SÃO PAULO, BRAZIL

USP is a world-class university that plays a fundamental role in advancing scientific, technological and social research in Brazil.

Université Quisqueya

PORT-AU-PRINCE, HAITI

Established in 1988, this private education and research institution is the first of its kind in Haiti.

University at Buffalo

BUFFALO, NEW YORK, USA

The experts at the University at Buffalo are known for their work in the pathogenesis, treatment and prevention of infectious diseases. They also conduct training on infectious disease diagnostics.

University of California San Francisco (UCSF)

SAN FRANCISCO, CALIFORNIA, USA

Dedicated to clinical service, research and teaching, UCSF provides services at six affiliated hospitals and its facility at China Basin.

EUROPE AND ASIA

Aga Khan University

KARACHI, PAKISTAN

The hospital is the primary teaching site for Aga Khan University's Faculty of Health Sciences. It provides a wide range of secondary and tertiary care, including the diagnosis of disease and team management of patient care.

Mahidol University

BANGKOK, THAILAND

The university's Siriraj Hospital is the leading medical school in the country, offering the latest medical services support and education while driving innovative infectious disease research.

National Center for Disease Control and Public Health (NCDC)

TBILISI, GEORGIA

NCDC is Georgia's central public health and research institution under the authority of the Ministry of Internally Displaced Persons From the Occupied Territories, Labour, Health and Social Affairs.

Y.R. Gaitonde Centre for AIDS Research and Education (YRGCARE)

CHENNAI, INDIA

Having earned an international reputation for clinical, behavioral and epidemiological research with global partners, YRGCARE provides community services for people living with HIV, AIDS and sexually transmitted infections.

Q Compared to before COVID, do you think the world is better prepared, less prepared or about the same:

ANSWER	%	COUNT
Better prepared to fight pandemics	58.25%	60
About the same	32.04%	33
Less prepared to fight pandemics	9.71%	10
Total	100%	103

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Q What do you believe is the most likely timeframe in which the world will face another COVID-level pandemic threat:

ANSWER	%	COUNT
<5 years	14.56%	15
5-10 years	50.49%	52
11-25 years	25.24%	26
26-50 years	6.80%	7
51-75 years	1.94%	2
76-100 years	0.97%	1
>100 years	0.00%	0
Total	100%	103

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Q When thinking about the risk for the next global pandemic, which of the following worries you most – choose up to 3:

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ANSWER	%	COUNT
Public distrust/misinformation	18.77%	58
Lack of investment in public health testing systems	15.21%	47
Inability to identify outbreaks quickly	12.94%	40
Inability to identify emerging pathogens quickly	12.30%	38
Insufficient ability to scale countermeasures (testing, treatments, vaccines) fast enough	10.36%	32
Complacency on pandemic risk	9.06%	28
Shortage of frontline health workers	6.47%	20
Increased human/animal contact	5.50%	17
Evolution of known pathogens like COVID, SARS, etc	5.18%	16
Developing vaccines fast enough	1.94%	6
Something else	2.27%	7
Total	100%	309

Q: When thinking about better preparing the world to respond to the next pandemic, which gaps do you believe are the most urgent to address? Please rank the following list.

	MORE URGENT TO ADDRESS						SOMEWHAT URGENT TO ADDRESS						LESS URGENT TO ADDRESS										
QUESTION	1		2		3		4		5		6		7		8		9		10		TOTAL		
Shortage of epidemiology/frontline health workforce	7.77%	8	12.62%	13	12.62%	13	21.36%	22	17.48%	18	9.71%	10	8.74%	9	3.88%	4	4.85%	5	0.97%	1	103		
Funding for public health infrastructure	25.24%	26	23.30%	24	10.68%	11	15.53%	16	11.65%	12	6.80%	7	3.88%	4	1.94%	2	0.97%	1	0.00%	0	103		
Surveillance programs to identify emerging pathogens	41.75%	43	24.27%	25	14.56%	15	4.85%	5	5.83%	6	3.88%	4	1.94%	2	0.00%	0	0.97%	1	1.94%	2	103		
Testing infrastructure capabilities	6.80%	7	9.71%	10	19.42%	20	16.50%	17	14.56%	15	11.65%	12	8.74%	9	5.83%	6	6.80%	7	0.00%	0	103		
Diagnostic test development	1.94%	2	8.74%	9	14.56%	15	13.59%	14	16.50%	17	16.50%	17	16.50%	17	10.68%	11	0.97%	1	0.00%	0	103		
Scaling up manufacturing of diagnostic tests	0.97%	1	1.94%	2	5.83%	6	5.83%	6	13.59%	14	21.36%	22	18.45%	19	18.45%	19	13.59%	14	0.00%	0	103		
Access to next-generation sequencing	0.00%	0	8.74%	9	5.83%	6	5.83%	6	3.88%	4	12.62%	13	20.39%	21	19.42%	20	18.45%	19	4.85%	5	103		
Effective networks for scientific information-sharing	5.83%	6	5.83%	6	11.65%	12	9.71%	10	6.80%	7	6.80%	7	12.62%	13	27.18%	28	12.62%	13	0.97%	1	103		
Use of big data for surveillance analysis	1.94%	2	2.91%	3	4.85%	5	5.83%	6	8.74%	9	10.68%	11	7.77%	8	12.62%	13	39.81%	41	4.85%	5	103		
Something else	7.77%	8	1.94%	2	0.00%	0	0.97%	1	0.97%	1	0.00%	0	0.97%	1	0.00%	0	0.97%	1	86.41%	89	103		

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Q: When thinking about disease surveillance, which emerging surveillance tools should communities invest in – choose up to 3:

ANSWER	%	COUNT
Vector surveillance	22.98%	71
Wastewater surveillance	21.68%	67
Hospital electronic medical record (EMR) screenings	16.50%	51
Traveler-based surveillance at airports, ports of entry or other areas of transit	16.18%	50
Mortuary surveillance	7.77%	24
Opt-out screening programs	5.83%	18
Something else	5.18%	16
Social media surveillance	3.88%	12
Total	100%	309

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Q: When thinking about the potential for large-scale outbreaks, which poses a greater threat, novel pathogens or changes in known diseases?

#	ANSWER	%	COUNT
1	Changes in known diseases/pathogens	50.49%	52
2	Novel pathogens	49.51%	51
	Total	100%	103

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Q: When thinking about novel pathogens with the potential to cause large-scale outbreaks, please rank the most likely source or type.

QUESTION	1		2		3		4		TOTAL
Viral infection	94.17%	97	3.88%	4	0.97%	1	0.97%	1	103
Bacterial infection (including antimicrobial resistance)	5.83%	6	81.55%	84	11.65%	12	0.97%	1	103
Fungal infection	0.00%	0	8.74%	9	56.31%	58	34.95%	36	103
Parasitic infection	0.00%	0	5.83%	6	31.07%	32	63.11%	65	103

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Q: How likely are the following methods for transmitting infectious diseases to spark large-scale outbreaks?

QUESTION	VERY LIKELY		SOMEWHAT LIKELY		NOT VERY LIKELY		NOT SURE		COUNT
Airborne transmission	96.12%	99	2.91%	3	0.97%	1	0.00%	0	103
Respiratory (droplet) transmission	81.55%	84	18.45%	19	0.00%	0	0.00%	0	103
Foodborne or waterborne (oral) transmission	11.76%	12	59.80%	61	28.43%	29	0.00%	0	103
Blood or body fluids transmission	9.71%	10	39.81%	41	50.49%	52	0.00%	0	102
Animal or insect transmission (tick, mosquito, bird)	38.83%	40	50.49%	52	10.68%	11	0.00%	0	103
Sexually transmitted diseases	9.71%	10	47.57%	49	42.72%	44	0.00%	0	103
Mother to child transmission	3.88%	4	24.27%	25	69.90%	72	1.94%	2	103
Something else	37.50%	3	12.50%	1	0.00%	0	50.00%	4	8

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Q: Please rank the following factors based on their ability to accelerate a local outbreak into an epidemic or pandemic, with 1 having the most potential to accelerate and 6 having the least potential to accelerate:

	MOST POTENTIAL TO ACCELERATE				SOME POTENTIAL TO ACCELERATE				LEAST POTENTIAL TO ACCELERATE				
QUESTION	1		2		3		4		5		6		TOTAL
Highly transmissible pathogen	45.63%	47	39.81%	41	10.68%	11	3.88%	4	0.00%	0	0.00%	0	103
Asymptomatic/silent transmission	19.42%	20	30.10%	31	26.21%	27	7.77%	8	11.65%	12	4.85%	5	103
Novel virus/no countermeasures available (tests, vaccines, treatments)	25.24%	26	17.48%	18	34.95%	36	15.53%	16	4.85%	5	1.94%	2	103
Known pathogen but is now drug-resistant	1.94%	2	3.88%	4	9.71%	10	51.46%	53	15.53%	16	17.48%	18	103
High morbidity from the disease (requiring significant treatment/high levels of healthcare resources)	2.91%	3	5.83%	6	10.68%	11	12.62%	13	57.28%	59	10.68%	11	103
High mortality from the disease	4.85%	5	2.91%	3	7.77%	8	8.74%	9	10.68%	11	65.05%	67	103

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Q: How significant do you believe the impact of the following climate-related changes could be on the frequency and severity of infectious disease outbreaks?

QUESTION	WILL MAKE OUTBREAKS MORE FREQUENT/SEVERE		WILL HAVE SOME IMPACT ON DISEASE RISK		WILL NOT IMPACT DISEASE RISK		TOTAL
Extreme storms that cause flooding, tsunamis, hurricanes	59.22%	61	38.83%	40	1.94%	2	103
Extreme heatwaves, drought and wildfires	25.24%	26	66.02%	68	8.74%	9	103
Expanding/changing range of insects	85.44%	88	14.56%	15	0.00%	0	103
Expanding/changing range of animals	67.96%	70	32.04%	33	0.00%	0	103
Climate migrations among human populations	61.17%	63	34.95%	36	3.88%	4	103

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Q: Rank the following infectious diseases based on the likelihood they will pose a greater threat to human health as the climate changes. 1 posing the greatest threat and 4 posing the lowest threat.

QUESTION	1		2		3		4		TOTAL
Tick-borne pathogens	3.88%	4	33.01%	34	30.10%	31	33.01%	34	103
Mosquito-borne pathogens	61.17%	63	20.39%	21	15.53%	16	2.91%	3	103
Avian pathogens	21.36%	22	29.13%	30	30.10%	31	19.42%	20	103
Animal pathogens	13.59%	14	17.48%	18	24.27%	25	44.66%	46	103

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Q: Which climate impacts do you believe are important to track due to their effect on infectious disease outbreaks?

ANSWER	COUNT	% OF SURVEY RESPONDENTS
Insect range	95	92%
Animal location/migration changes	85	83%
Human encroachment on animal habitat	82	80%
Predictive models for extreme weather events (floods, heat waves)	72	70%
Something else	9	9%
Total	343	343

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