# WASHOE COUNTY HEALTH DISTRICT
## ENHANCING QUALITY OF LIFE

**Public Health**
Prevent. Promote. Protect.

# Washoe County District Board of Health Meeting Notice and Agenda

## FY22-24 STRATEGIC PLANNING MEETING

**\*\*This meeting will be streamed live in Commission Chambers\*\***

**Members**
Oscar Delgado, Chair
Robert Lucey, Vice Chair
Michael D. Brown
Kristopher Dahir
Dr. Reka Danko
Dr. John Novak
Dr. John Klacking

**Thursday, November 18, 2021**
**1:00 p.m.**

**Washoe County Commission Chambers, Building A**
**1001 East Ninth Street**
**Reno, NV**
**or via zoom at** https://zoom.us/j/97650445987
**Phone: 1-669-900-6833 - Meeting ID:  976 5044 5987**
(please be sure to keep your devices on mute and do not place the meeting on hold)

**\*\*Per AB 253 [NRS 241.020] any public wishing to attend and
participate at a physical location may do so at the
Washoe County Commission Chambers 1001 E. 9th Street, Reno Nevada 89512\*\***

**1:00 p.m.**

1. **Roll Call and Determination of Quorum.**

2. **Pledge of Allegiance.**

3. **Introductions, Meeting Outcomes, Discussion Flow, Ground Rules, History of Strategic Plan Development, and Recap Core Purpose and Strategic Direction**.
   Presented by: Chair Delgado and Kevin Dick and facilitated by Erica Olsen with OnStrategy

4. **Strategic Planning Priorities and Goals Presentation and Discussion: Topics presented under this agenda item will include:**

   - The Health District Mission Statement, Values Statement and Vision
     Presented by: Erica Olsen with OnStrategy
   - Community Health Trends
     Presented by: Heather Kerwin
   - Public Health Trends
     Presented by: Kevin Dick
   - The Health District Strategic Priorities and Goals for the next 18 months including:
     - Priority #1 Healthy Lives
       Presented by: Lisa Lottritz and Kevin Dick
     - Priority #2 Healthy Environment
       Presented by: Francisco Vega and Erin Dixon
     - Priority #3 Local Culture of Health
       Presented by: Scott Oxarart, Nancy Diao and Joelle Gutman Dodson

o Priority #4 Impactful Partnerships
  Presented by: Francisco Vega, Lisa Lottritz, Nancy Diao, Kevin Dick
o Priority #5 Organizational Capacity
  Presented by: Kevin Dick
o Priority #6 Financial Stability
  Presented by: Kevin Dick

5. **Strategic Planning Financial Presentation and Discussion: The purpose of the Strategic Planning Retreat is to discuss the strategic priorities and goals of the Washoe County Health District. The Strategic Plan will influence the finances of the Health District. Topics presented under this agenda item will include:**

   - The Health District Current Financial Position and Trends
     Presented by: Anna Heenan
   - Strategic Plan Budget Implications
     Presented by: Anna Heenan and Joelle Gutman-Dodson

6. **Board discussion and possible direction regarding Strategic Priorities, and Goals and FY23 Budget: The board will discuss and possibly provide direction to staff regarding development of final drafts of the Strategic Plan and/or Budget for approval at a future meeting of the Board. (FOR POSSIBLE ACTION)**
   **Topics of discussion under this agenda item will include:**
   Staff Representative: Kevin Dick and facilitated by Erica Olsen with OnStrategy

   - Are priorities and goals as presented in items 4 and 5 above appropriate or is there Board direction for adjustments
   - Identify areas most critical for investment by the Health District

7. **Board Comment.**
   District Board of Health Member's announcements, reports and updates, request for information or topics for future agendas. (No discussion among Board Members will take place on the item)

8. **Public Comment.**
   Action may not be taken on any matter raised during this public comment period until the matter is specifically listed on an agenda as an action item.

   <span style="color:red">Members of the public wishing to attend via zoom can provide public comment by logging into the ZOOM meeting via link above. All public comment is limited to <u>three minutes per person</u>.</span>

   NOTE: The zoom option will require a computer with audio and video capabilities.

**ADJOURNMENT. (FOR POSSIBLE ACTION)**

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**Possible Changes to Agenda Order and Timing:** Items on the agenda may be taken out of order, combined with other items, withdrawn from the agenda, moved to the agenda of another later meeting; moved to or from the Consent section, or they may be voted on in a block. Items with a specific time designation will not be heard prior to the stated time, but may be heard later. Items listed in the Consent section of the agenda are voted on as a block and will not be read or considered separately unless withdrawn from the Consent agenda.

**Special Accommodations:** The District Board of Health Meetings are accessible to the disabled. Disabled members of the public who require special accommodations or assistance at the meeting are requested to notify Administrative Health Services in writing at the Washoe County Health District, 1001 E. 9th Street, Building B, Reno, NV 89512, or by calling 775.328.2416, 24 hours prior to the meeting.

**Public Comment:** During the "Public Comment" items, anyone may speak pertaining to any matter either on or off the agenda, to include items to be heard on consent, by filling out a "Request to Speak" form and/or submit comments for the record to the Recording Secretary. For the remainder of the agenda, public comment will only be heard during items that are marked FOR POSSIBLE ACTION. All public comment should be addressed to the Board of Health and not an individual member. The Board asks that your comments are expressed in a courteous manner. Any public comment for hearing items will be heard before action is taken on the item and must be about the specific item being considered by the Board. Public comment and presentations for individual agenda items are limited as follows: fifteen minutes each for staff and applicant presentations, five minutes for a speaker representing a group, and three minutes for individual speakers unless extended by questions from the Board or by action of the Chair. Reasonable efforts will be made to hear all public comment during the meeting.

All public comment is limited to three minutes per person. Unused time may not be reserved by the speaker nor allocated to another speaker.

Members of the public that wish to attend via zoom may make public comment by submitting an email comment to svaldespin@washoecounty.gov before the scheduled meeting, which includes the name of the commenter and the agenda item number for which the comment is submitted.

**Response to Public Comment:** The Board of Health can deliberate or take action only if a matter has been listed on an agenda properly posted prior to the meeting. During the public comment period, speakers may address matters listed or not listed on the published agenda. The *Open Meeting Law* does not expressly prohibit responses to public comments by the Board of Health. However, responses from the Board members to unlisted public comment topics could become deliberation on a matter without notice to the public. On the advice of legal counsel and to ensure the public has notice of all matters the Board of Health will consider, Board members may choose not to respond to public comments, except to correct factual inaccuracies, ask for Health District staff action or to ask that a matter be listed on a future agenda. The Board of Health may do this either during the public comment item or during the following item: "Board Comments – District Board of Health Member's announcements, reports and updates, request for information or topics for future agendas. (No discussion among Board Members will take place on the item)"

**Posting of Agenda; Location of Website:**
Pursuant to NRS 241.020, Notice of this meeting was posted at the following locations:

Washoe County Health District, 1001 E. 9th St., Reno, NV
Reno City Hall, 1 E. 1st St., Reno, NV
Sparks City Hall, 431 Prater Way, Sparks, NV
Washoe County Administration Building, 1001 E. 9th St, Reno, NV
Downtown Reno Library, 301 S. Center St., Reno, NV

Washoe County Health District Website https://www.washoecounty.gov/health
State of Nevada Website: https://notice.nv.gov

**How to Get Copies of Agenda and Support Materials:** Supporting materials are available to the public at the Washoe County Health District located at 1001 E. 9th Street, in Reno, Nevada. Ms. Susy Valdespin, Administrative Secretary to the District Board of Health is the person designated by the Washoe County District Board of Health to respond to requests for supporting materials. Ms. Valdespin is located at the Washoe County Health District and may be reached by telephone at (775) 328-2415 or by email at svaldespin@washoecounty.gov. Supporting materials are also available at the Washoe County Health District Website https://www.washoecounty.gov/health pursuant to the requirements of NRS 241.020.

# FY22-24 Strategic Plan Refresh

November 18, 2021

1

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# Agenda Item 3

2

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# Opening Remarks

Councilman Oscar Delgado – District Board of Health Chair

Kevin Dick – District Health Officer

3

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# Retreat Outcomes

- Update on emerging issues & community trends
- Refresh the FY22-24 Strategic Plan based on community trends and emerging issues
- DBOH input on overall strategic direction and FY23 Budget Direction (including one-time projects and ongoing investments)

4

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## Discussion Flow

| | |
|---|---|
| 5 mins<br>*Chair + DHO + Erica* | Welcome & Setting the Stage |
| 30 min<br>*EPHP + DHO* | Community Health Trends & Public Health Trends |
| 90 mins<br>*WCHD Leadership Team* | Refresh the WCHD Strategic Priorities<br>• #1: Healthy Lives<br>• #2: Healthy Environment<br>• #3: Culture of Health<br>• #4: Impactful Partnerships<br>• #5: Organizational Capacity<br>• #6: Financial Stability |
| 20 mins<br>*Group Discussion* | FY23 Budget<br>• #6: Financial Position, Trends and Budget Implications |
| 20 mins<br>*Group Discussion* | Strategic Direction<br>• Input from DBOH on contents of Strategic Plan and budget development |

5

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# How We Planned This Cycle

1. Refresh, not an overhaul.
2. Built from the "middle" out.
3. Gathered Board direction as critical inputs.
4. Integrated strategic plan, Division work plans and workforce development plan.
5. Setup for periodic scorecard reporting as part of performance management system.

6

## Ground Rules

- Refining not creating
- Contributions from all are encouraged, while listening for Board direction is paramount
- Share the mic
- Stick with the topic
- Focus on the critical few

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## Agenda Item 4

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## Community Health Trends

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## Community Health Trends

- Needs identified in prior community health assessments have not shifted in the post-pandemic landscape
- Global pandemic has magnified systemic issues which already existed
- In the U.S., the pandemic proved the nation's inability to prevent detrimental health outcomes among the most marginalized populations

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## Maslow's Hierarchy of Needs



**Self-actualization**
desire to become the most that one can be

**Esteem**
respect, self-esteem, status, recognition, strength, freedom

**Love and belonging**
friendship, intimacy, family, sense of connection

**Safety needs**
personal security, employment, resources, health, property

**Physiological needs**
air, water, food, shelter, sleep, clothing, reproduction

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**2018-2020 Community Health Improvement Plan &
2019 Nevada Department of Public and Behavioral Health
Needs Assessment**



1. Housing
2. Behavioral health
3. Nutrition/physical activity

1. Behavioral health
2. Housing/poverty
3. Access to healthcare
4. Preventive behaviors (nutrition/physical activity)
5. Education
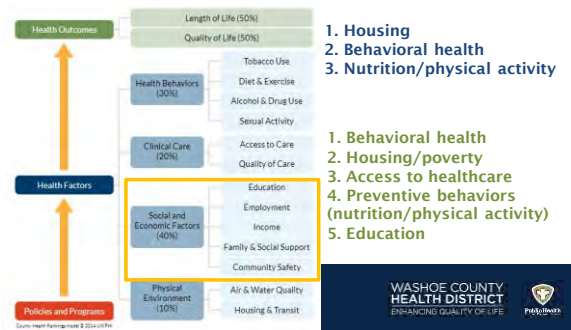
## Primary Prevention is Key
Improve Physical Activity, Nutrition, Reduce Tobacco and Alcohol Use



Rate of Death by Cause, Washoe County, 2020
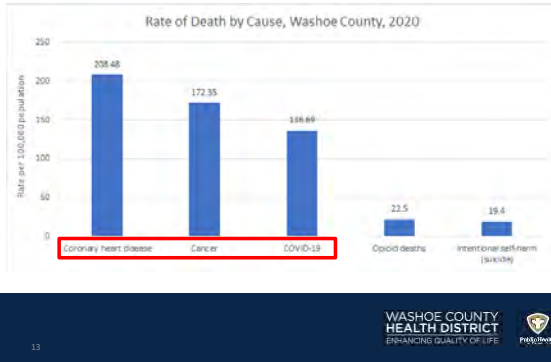
13

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## Vaccination as means to prevent infectious diseases, is BEST.
Easier to promote vaccine and provide for free than it is to change health outcomes linked to poor nutrition, lack of physical activity, tobacco, and alcohol consumption.



Death #895
Female in 40's passed away at RRMC.
Unvaccinated, History of morbid obesity, diabetes, and hypertension
Variant not confirmed.

Death #896
Male in 70's passed away at RRMC.
Unvaccinated, History of Hypertension and GERD.
Variant not confirmed.

Death #897
Male in 60's passed away at RRMC.
Unvaccinated, History of asthma and hypotension.
Variant not confirmed.

Death #898
Male in 40's passed away at the VA
Unvaccinated, History of chronic kidney disease.
Variant not confirmed.

Death #899
Male in 50's passed away at the VA
Unvaccinated, History of hypertension and asthma
Variant not confirmed

14

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# Impacts of the COVID-19 Pandemic

- Nearly all systems, organizations, or global entities impacted or disrupted by the pandemic
- Financial impacts in the United States
  - **Prior to the pandemic**, >50% of personal bankruptcy due to medical costs
  - Medical costs due to long-COVID or hospitalization
- Health systems and staff are disproportionately impacted
  - **Prior to the pandemic**, burnout was occurring at alarming rates of 35%–54% among nurses and physicians[1]
  - April 2021 - survey >25,000 public health professionals 53% reported at least one mental health condition past two weeks, PTSD (36.8%), depression (32%), anxiety (30%), or suicidal ideation (8.4%)[2]
- Data impacted across most health conditions, because the staff who measure data in public health are statisticians and epidemiologists – redirected towards the COVID-19 efforts nationwide and locally

1 National Academies of Sciences, Engineering, and Medicine. (2019). *Taking action against clinician burnout: A systems approach to professional well-being.* Washington, DC: The National Academies Press. https://doi.org/10.17226/25521
2 Bryant-Genevier J, Rao CY, Lopes-Cardozo B, et al. Symptoms of Depression, Anxiety, Post-Traumatic Stress Disorder, and Suicidal Ideation Among State, Tribal, Local, and Territorial Public Health Workers During the COVID-19 Pandemic — United States, March–April 2021. MMWR Morb Mortal Wkly Rep 2021;70:947–952. DOI: http://dx.doi.org/10.15585/mmwr.mm7026e1

15

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# How to Rebuild Public Health Systems

- Constant improvement to increase proportion of the population with basic needs being met
- Rebuild infrastructure and systems by incorporating "Health in all Policies"
- Evaluate systems and address gaps in a manner that promotes health equity

16

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# Health Equity

The focus of health equity is to reduce or remove barriers to access the foundational elements necessary for achieving the highest possible health outcomes including affordable housing, healthy food, quality education, and a safe, healthy environment.[1,2,3]

1 The Centers for Disease Control and Prevention. Health Equity. Accessed August 2021 https://www.cdc.gov/chronicdisease/healthequity/index.htm
2 Robert Wood Johnson Foundation. Achieving Health Equity. Accessed August 2021 https://www.rwjf.org/en/library/features/achieving-health-equity.html
3 American Public Health Association. Health Equity. Accessed August 2021 https://www.apha.org/topics-and-issues/health-equity

17

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# Public Health Trends

18

# Public Health Trends

**1. Increased public health challenges include climate change disasters, pandemics and increasing population health challenges.**

"The nation remains vulnerable to myriad threats, including from another dangerous infectious disease, a widespread natural disaster, or a potential bioterrorist attack, each of which could impact almost every sector of the economy, disrupt social connections, and have significant long-lasting health impacts." **Bipartisan Policy Center - Positioning America's Public Health System for the Next Pandemic, June 2021**

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19

19

# Public Health Trends

**2. Increasing demands for data requested by policymakers and the public**

"These data integrity challenges affected the ability of local officials to make decisions about re-openings, demonstrating the need for interoperable platforms for public health and reaffirming the urgency of ongoing collaborations to create a "data superhighway" for public health. Importantly, these deficiencies are not due to a lack of will among local and state health departments, but to a dearth of resources to support building such systems." **National Academy of Medicine – COVID-19 Impact Assessment: Lessons Learned and Compelling Needs, April 7, 2021**

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20

20

# Public Health Trends

**3. Disparate health outcomes resulting from income levels, education status and neighborhood**

"COVID-19 magnified America's underlying racial and socioeconomic inequities in population health. The disparities are especially stark for Blacks, Latinx, American Indian/Alaska Natives, and Native Hawaiians and Pacific Islanders who have experienced substantially higher rates of COVID-19 infection, hospitalization, and mortality compared to white Americans." **National Academy of Medicine – COVID-19 Impact Assessment: Lessons Learned and Compelling Needs, April 7, 2021**

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21

21

# Public Health Trends

**4. Needed transformation in public health funding**

"First, funding levels have historically been inadequate to support the delivery of the Essential public health services, let alone prepare for emergency situations. Second, many funding streams for public health are "categorical", or restricted to specific priority areas (e.g., HIV, tobacco control), which leaves little flexibility for spending to support core foundational capabilities or to support surge needs in times of crisis." **National Academy of Medicine – COVID-19 Impact Assessment: Lessons Learned and Compelling Needs, April 7, 2021**

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22

22

# Public Health Trends

**5. Insufficient workforce to meet basic public health needs.**

"State and local governmental public health departments need an 80% increase in their workforce to provide a minimum set of public health services to the nation."
**de Beaumont Foundation and Public Health National Center for Innovation – Staffing Up, Workforce Levels Needed to Provide Basic Public Health Services for All Americans, October 2021**

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23

23

# Strategic Themes

Organizational & Workforce Capacity

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Communications

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Technology

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Health Equity

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24

24

## Refresh the WCHD Strategic Priorities

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## Strategic Priorities

1. **Healthy Lives**: Improve the health of our community by empowering individuals to live healthier lives.

2. **Healthy Environment:** Create a healthier environment that allows people to safely enjoy everything Washoe County has to offer.

3. **Local Culture of Health:** Lead a transformation in our community's awareness, understanding, and appreciation of health resulting in direct action.

4. **Impactful Partnerships:** Extend our impact by leveraging partnerships to make meaningful progress on health issues.

5. **Organizational Capacity:** Strengthen our workforce and increase operational capacity to support a growing population.

6. **Financial Stability**: Enable the Health District to make long-term commitments in areas that will positively impact the community's health by growing reliable sources of income.

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## Priority Flow

- **Strategic Priority** – Areas of strategic focus across the District.
- **Community Indicators** – Show our current status as a community on key health indicators. WCHD can influence but not fully control.
- **Goals** – What we want to accomplish.
- **Initiatives** – How we will do it. Examples of the work.
- **Performance Outcomes** – Examples of outcomes WCHD has ability to move. Become part of a scorecard.

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## Priority One

### Healthy Lives

Improve the health of our community by empowering individuals to live healthier lives.

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## Community Indicators

| Community Indicators | Result | Current |
|---|---|---|
| % of overweight adolescents | 13.70% | 2019 |
| % of obese adolescents | 11.90% | 2019 |
| % of overweight adults | 35.40% | 2020 |
| % of obese adults | 29.30% | 2020 |
| % of adults who are current smokers | 15.93% | 2020 |
| % of youth who currently smoke cigarettes | 4.50% | 2019 |
| Teen ages 15-19 years old birth rates per 100,000 | 15.4 | 2020 |
| % of newly reported hepatitis C cases with confirmatory test results | 82% | 2020 |
| Child immunization rates (children 19-35 months receiving childhood vaccination series) | 67.9% | 2020 |
| % of adults ages 18-64 with health insurance | 82.70% | 2020 |
| % of Washoe County residents with a usual primary care provider | 71.19% | 2020 |
| % of e-cigarette use among youth | 28.30% | 2019 |
| Percentage of population defined as food insecure | 11.00% | 2019 |
| COVID cases per 100,000 | 225.9 | 10/7/21 |
| % of population ages 12 and over fully vaccinated for COVID | 63.82% | 10/7/21 |

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## Healthy Lives

**District Goal 1.1: Promote healthy behaviors to reduce chronic disease.**

- Proactively prevent disease utilizing effective health education strategies.

**Highlighted Initiatives...**

- Continued state funding to focus on vaping prevention
- Providing breastfeeding support to WIC clients

# Healthy Lives

**District Goal 1.2: Promote preventive health services that are proven to improve health outcomes in the community.**

- Act as a safety net by providing accessible health services when/where community members otherwise may not have access.
- Reduce the spread of disease through proactive surveillance, monitoring and intervention.

**Highlighted Initiatives...**

- Increased outreach to provide (non-COVID) immunizations in the community
- Re-engaging with community partners to provide off-site sexual health testing
- Flexible clinic access through same day and walk-in appointments
- Monitoring and investigation of 70+ communicable diseases

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31

31

# Healthy Lives

**District Goal 1.3: Improve access to health care so people of all means receive the health care services they need.**

- Assist clients with access to health insurance.
- Build a bridge between communities, clients and services with community health workers.

**Highlighted Initiatives...**

- Regularly scheduled health insurance navigation assistance
- Three new Community Health Workers to build bridges between CCHS services and underserviced communities and neighborhoods (CDC Health Disparity grant)

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32

32

# Healthy Lives

**District Goal 1.4: Prevent and reduce the spread of COVID-19 in Washoe County.**

- Reduce the spread of COVID-19 through proactive surveillance, monitoring and intervention.
- Increase COVID-19 vaccination capacity across Washoe County including among high risk and underserved populations.
- Increase confidence in vaccines among targeted racial and ethnic groups and individuals with disabilities through outreach and access to accurate information.
- Provide the public with accurate, actionable and timely information about COVID-19.
- Maintain infrastructure and organizational capacity necessary to respond to the COVID pandemic.
- Maintain a consistent level of customer service to the community.

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33

33

# Healthy Lives

**District Goal 1.4: Prevent and reduce the spread of COVID-19 in Washoe County.**

**Highlighted Initiatives...**

- Continue COVID disease investigation
- Support community vaccine providers
- Increase outreach and advertising to Hispanic community
- Continue dashboards, media briefings and social media strategies
- Maintain a core team to manage response as long as is needed
- Focus on a timely response to community members to book appointments, receive results, get access to information, obtain immunization records

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34

34

# Healthy Lives Performance Outcomes

Examples for scorecard...

% of population reached with vaping prevention messages

% rate of breastfeeding among WIC clients

# of immunizations delivered

# of sexual health education/outreach activities

% increase in access to sexual health services

% of communicable disease cases investigated on time by disease

% of clients completing TB treatment

Regular updates of COVID dashboard

# of COVID outreach events/activities to underserved communities

# of COVID media stories

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35

35

# Priority One

## Healthy Lives

Questions or comments on this priority?

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36

36

## Priority Two

### Healthy Environments

Create a healthier environment that allows people to safely enjoy everything Washoe County has to offer.

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## Community Indicators

| Community Indicators | Result | Current |
|---|---|---|
| NAAQS for Ozone | 0.072 ppm | 2020 |
| NAAQS for PM2.5 | 39 ug/m3 | 2020 |
| Washoe County total municipal solid waste | 247,453 | 2019 |
| Washoe County recycling rates | 33% | 2019 |
| Reduce the duration of GI outbreaks in schools. | 17 days | 2020 |

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## Healthy Environments

**District Goal 2.1: Protect people from negative environmental impacts.**

- Monitor ambient air to assess attainment status of the ozone and PM2.5 NAAQS. (Monitoring)
- Evaluate effectiveness of regulations and programs governing ozone precursor and PM2.5 emissions. (Planning)
- Reduce Ozone Precursor Emissions from the Transportation Sector. (Planning)
- Evaluate Permitting of Ozone and PM2.5 Stationary Sources. (Permitting)
- Inspect sources of ozone and PM2.5 emissions to determine compliance with state, county and federal regulations. (Compliance)

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## Healthy Environments

**District Goal 2.1: Protect people from negative environmental impacts.**

**Highlighted Initiatives...**
- Capture and report accurate air quality data
- Increase outreach to stakeholders/more community meetings
- Review existing regulations for effectiveness
- Pilot a repair and replace program for older vehicles
- Complete an emissions inventory of stationary sources

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## Healthy Environments

**District Goal 2.1: Protect people from negative environmental impacts.**

- Assure waste is disposed of properly.
- Reduce negative environmental health impacts associated with land development.

**Highlighted Initiatives...**
- Continue collaboration with KTMB
- Improve technology and processes for handling waste complaints
- Improve technology and processes for development reviews
- Update SOPs and create minimum training standards for inspectors

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## Healthy Environments

**District Goal 2.2: Keep people safe where they live, work and play.**

- Improve safety of residents through education, inspections and enforcement.
- Reduce the spread of vector-borne disease.
- Review building plans in advance to assure new facilities meet health standards.

**Highlighted Initiatives...**
- Continue successful risk-based food inspection program
  - Risk-based inspection schedules
  - Outreach and education
  - Staff training and evaluation
- Provide arial mosquito (larvicide) treatments
- Adapt institution inspections to incorporate more risk-based features
- Implement a new injury prevention health education program
- Increase plan review efficiencies to ensure 95% of plans meet jurisdictional deadlines
  - Technology

## Healthy Environments Performance Outcomes

Examples for scorecard...

Air quality data capture rate

# of stakeholder outreach activities

# of regulations assessed and improved

% of plan reviews that meet jurisdiction timeframes

% and total number of various inspections completed

# of arial mosquito treatments

% of residents reached with mosquito treatment communication

% of animal bites promptly investigated

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## Priority Two

## Healthy Environment

Questions or comments on this priority?

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## Priority Three

## Local Culture of Health

Lead a transformation in our community's awareness, understanding and appreciation of health resulting in direct action.

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## Local Culture of Health

**District Goal 3.1: Ensure community access to actionable public health information via website, media and social media.**

- Update public-facing digital presence on website and social media.
- Position the Health District to be the trusted, reputable source of public health information for our community.

**Highlighted Initiatives...**

- Increased social media presence – new staff member and social media contractor (CDC Health Disparity grant)
- Continued progress on website refresh
- Branding project to position WCHD and distinct from WC
- Increased Hispanic outreach events and communications (CDC grant)

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## Local Culture of Health

**District Goal 3.2: Inform the community of important community health trends by capturing and communicating health data.**

- Increase data integrity and data standardization.
- Consistently share timely public health data and trends with the community.
- Produce original public health research that advances public health knowledge.
- Build the capacity of the health district to process data.

**Highlighted Initiatives...**

- Create and improve standardized platforms to capture disease spread
- Produce timely reports of disease trends to be made available to the public
- Conduct original research and expand research datasets
- Share accessible public health data
- Create and strengthen a statistics unit

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## Local Culture of Health

**District Goal 3.3: Drive better health outcomes in Washoe County through improved public health systems and policies.**

- Advocate for state and local policies that positively impact public health.
- Build, support and participate in coalitions to advance improved public health policies.

**Highlighted Initiatives...**

- Identify priorities and share with DBOH
- Participate in public health coalitions working toward improved systems and policies.
- Continue focus on smoke-free policies

## Local Culture of Health
## Performance Outcomes

Examples for scorecard...

- # of likes and follows on social media
- # of visits to targeted web pages
- # of outreach events/activities targeted at Hispanic community
- % of birth and death certificates turned around within 96 hours
- # of peer-reviewed articles published
- # of accessible public health data reports released
- # of legislative successes where WCHD actively participated
- # of new smoke free policies

49

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## Priority Three

## Local Culture of Health

Questions or comments on this priority?

50

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## Priority Four

## Impactful Partnerships

Extend our impact by leveraging partnerships to make meaningful progress on health issues

51

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## Community Indicators

| Community Indicators | Result | Current |
|---|---|---|
| % of high school students who attempt suicide | 9.90% | 2019 |
| % of high school students who ever took a prescription pain medicine without a doctor's prescription or differently than prescribed | 17.60% | 2019 |
| % of high school students who currently drink alcohol (past 30 days) | 26.70% | 2019 |
| Prevalence of diabetes | 6.70% | 2020 |
| Coronary heart disease mortality rate (per 100,000) | awaiting latest data | |
| Cancer mortality rate | awaiting latest data | |
| Medical emergency 911 calls received per 100,000 population | 14,352 | 2020 |
| Opioid-related deaths in Washoe County per 100,000 population | awaiting latest data | |
| Rate of death due to suicide among persons aged 65 years and older per 100,000 | awaiting latest data | |

52

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## Impactful Partnerships

**District Goal 4.1: Reduce risk and improve health outcomes for children in Washoe County.**

- Lend support in childcare and educational settings to reduce outbreaks.
- Provide quality and timely air quality data for students and WCSD staff.

**Highlighted Initiatives...**

- Provide GI outbreak prevention, tools, data, and support to schools and day cares.
- Install air quality sensors in schools in historically underserved neighborhoods

53

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## Impactful Partnerships

**District Goal 4.2: Support and promote behavioral health.**

- Improve outcomes for residents who are experiencing a behavioral health crisis.
- Reduce isolation for seniors who are experiencing loneliness.

**Highlighted Initiatives...**

- Facilitate a community-wide behavioral health crisis response system improvement planning process.
- Continue to work with community partners to implement the Robert Wood Johnson BUILD grant targeting isolated seniors.

54

# Impactful Partnerships

**District Goal 4.3: Empower families and organizations to improve physical activity and nutrition.**

- Increase community participation in physical activity and nutrition programs.

**Highlighted Initiatives...**

- Increase the number of 5210 Washoe sites
- Work with corner stores to offer more nutritious food.
- Partner with UNR to continue the Wolf Pack Coaches Challenge in 40 school classrooms.

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# Impactful Partnerships

**District Goal 4.4: Enhance the regional emergency medical services system.**

- Provide EMS oversight to enhance system performance.

**Highlighted Initiatives...**

- Continue partnership with EMS providers to improve EMS response through the EMS Joint Advisory Committee with regular reporting to the Emergency Medical Services Advisory Board
- Continue to provide oversight of the REMSA franchise agreement

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# Impactful Partnerships

**District Goal 4.5: Engage the community in public health improvement.**

- Engage the community in assessing community health needs.
- Engage the community in planning for community health improvement with a focus on disparate health outcomes.
- Facilitate community engagement in public health improvement initiatives designed to improve health outcomes and/or reduce health disparities.

**Highlighted Initiatives...**

- Produce the next Community Health Needs Assessment Process by Spring 2022
- Produce the next Community Health Improvement Plan by Summer 2022
- Build a community organizing program including a Community Advisory Board and neighborhood-based initiatives (CDC Health Disparities grant)

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# Impactful Partnerships

**District Goal 4.6: Improve the ability of the community to respond to health emergencies.**

- Improve public health emergency preparedness.
- Improve hospital emergency preparedness.

**Highlighted Initiatives...**

- Continue to maintain and update emergency response plans, and facilitate exercises
- Train IHCC members on the use of WebEOC

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# Impactful Partnerships

**District Goal 4.7: Partner with academia to advance public health goals.**

- Maintain Academic Health Department with the University of Nevada, Reno.

**Highlighted Initiatives...**

- Maintain AHD Joint Advisory Committee with UNR
- Participate in UNR graduate advisory committees
- Increase research capabilities through shared resources
- Increase internship opportunities for students in all public health disciplines
- Increase collaboration on publication opportunities
- Initiate a joint course on real-world public health applications

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# Impactful Partnerships
# Performance Outcomes

Examples for scorecard...

Duration of GI outbreaks in educational settings

# of air quality sensors placed in schools

# of participants in food and nutrition initiatives

# of partners participating in the CHNA and CHIP

# of individuals who provide input to the CHNA and CHIP

% increase in participation in emergency preparedness activities

# of academic-public health collaborations with UNR

## Priority Four

### Impactful Partnerships

Questions, comments on this priority?

61

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## Priority Five

### Organizational Capacity

Strengthen our workforce and increase operational capacity to support a growing population.

62

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## Community Indicators

| Community Indicators | Result | Current |
|---|---|---|
| Washoe County population | 480,965 | 2021 |
| Washoe County annual % population growth | 1.13% | 2020 to 2021 |
| Staff per 100,000 population | 36.54 | FY2022 |

63

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## Organizational Capacity

**District Goal 5.1: Attract and retain a talented public health workforce to meet the needs of Washoe County.**

- Create a positive and productive work environment.
- Focus on building staff expertise.
- Maintain and build staff resiliency.

**Highlighted Initiatives...**

- Implement consistent flex, hybrid and remote work policies
- Increase opportunities for training, professional development, mentoring and coaching
- Improve internal communications
- Provide opportunities to work across Divisions
- Provide access to wellness and mental health resources

64

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## Organizational Capacity

**District Goal 5.2: Meet and exceed national public health best practice standards.**

- Maintain National Public Health Accreditation.

**Highlighted Initiatives...**

- Complete, update or maintain PHAB requirements including Strategic Plan, Workforce Development, Performance Management System, CHNA, CHIP, Quality Improvement Projects, Branding Strategy and Emergency Operations Plan

65

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## Organizational Capacity

**District Goal 5.3: Invest in expanded Health District capacity and targeted services to meet the needs of a growing and diverse community.**

- Increase workforce capacity.
- Increase organizational capacity to address health equity and reduce disparate health outcomes.
- Recruit, retain and train a workforce that meets the diverse needs of our community.

**Highlighted Initiatives...**

- Assess employee workload and identify needed investments to maintain/increase capacity
- Review span of control and make space for professional development, project management and cross divisional work
- Complete a health equity-based organizational assessment and identify targeted strategies to reduce health disparities. (CDC Health Disparity grant)
- Solve for facility capacity issues through remote/hybrid work, shared offices, hoteling and seeking additional space.

66

# Organizational Capacity

**District Goal 5.4: Maximize and expand facilities to meet the needs of staff and clients.**

- Maximize existing facilities to address shortage of workstations.
- Identify opportunities for facility expansion.

**Highlighted Initiatives...**

- Solve for current facility capacity issues through remote/hybrid work policies, shared offices and hoteling
- Seek opportunities to expand facilities through ARPA or other sources

# Organizational Capacity

**District Goal 5.5: Leverage technology to improve services, increase effectiveness and efficiency, and provide access to higher quality data.**

- Increase access to self-service platforms and systems.
- Improve data tracking and information sharing.
- Assure technology needs are addressed by a health district technology resource or County Technology Services.

**Highlighted Initiatives...**

- Accela, ACA, Patagonia enhancements
- .Gov Phase II
- Vonage phone rollout
- Granicus for DBOH meetings
- Work to improve tech support

# Organizational Capacity
## Performance Outcomes

Examples for scorecard...

- % of employee departures (minus retirements)
- % of employees who recommend WCHD as a good place to work
- % of employees who report feeling competent on core competencies
- # of staff participating in professional development opportunities
- # of staff participating in leadership development opportunities
- Maintaining accreditation
- % increase of facility capacity available

# Priority Five

## Organizational Capacity

Questions or comments on this priority?

# Priority Six

## Financial Stability

Enable the Health District to make long-term commitments in areas that will positively impact the community's health by growing reliable sources of income.

# Community Indicators

| Community Indicators | Result | Current |
|---|---|---|
| % state funding support | 1.70% | FY2021 |
| Budget per capita | $53.97 | FY2022 |

## Financial Stability

**District Goal 6.1: Update the WCHDs financial model to align with the needs of the community.**

- Increase dedicated public health funding support to Washoe County.
- Capture grant and federal relief resources to meet public health goals.
- Maximize revenue generated from cost recovery.
- Provide the DBOH the information necessary to provide financial oversight.

**Highlighted Initiatives...**
- Continue to advocate for increased, reliable source of public health funding
- Review capacity to apply for and manage growing level of grant and recovery funds
- Focus on appropriate cost recovery through fees and insurance reimbursement
- Be good stewards of resources, reporting to DBOH and following board policy

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73

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## Priority Six

## Financial Stability

Questions or comments on this priority and the financial information provided?

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74

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# Agenda Item 5

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75

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## Current Financial Position

- **FY21 ended with a $15.3 million fund balance, 47.3% of expenditures**
  - ➢ $10.6 million was required to open FY22
  - ➢ $1.1 million needed for augmentation to the restricted funds (Tire and Pollution Control funds) and prior year encumbrances

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76

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## Current Financial Position

- **FY22 Estimated Year End**
  - ➢ Revenues of $40.8 million are trending up $1.3 million or 3.3% over FY21
    - ✓ Grant funding of $22.0 million up $1.5 million or 7.2%
    - ✓ Licenses & permits of $4.0 million are up $178,279 or 4.7%
    - ✓ Charges for Services of $2.5 million are slightly down by $14,442 or 0.6%
    - ✓ Other revenues sources of $2.8 million are down $345,027 or 10.9%
    - ✓ County General Funds stays flat at $9.5 million

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77

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## Current Financial Position

- **FY22 Estimated Year End**
  - ➢ Expenditures of $40.5 million are trending up $8.2 million or 25.3% compared to FY21
    - ✓ Salaries & Benefits of $22.2 million up $2.9 million or 14.9% due to COLAs, insurance increase and additional staff for the COVID-19 response
    - ✓ Professional Services and contracted help of $11.6 million up $5.1 million or 79.2% mainly due to the additional support required for the COVID-19 response
    - ✓ County central service billings of $1.7 million up $143,415 or 9.3%
    - ✓ Other expenditures of $5.0 million have a slight increase of $23,735 or 0.5% over FY21

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78

## Current Financial Position

- FY 23 – projected to have $1.2 million available for one-time and ongoing expenditures for above the base requests

79

## FY23 Budget  Discussion

- **Continue to fund the current programs**

- **Proposed ongoing investment beginning in FY23 - $1.2 million**
  - ➤ Span of control issues for Supervisors projected to require additional staff – both supervisors and support staff positions, estimated at $400,000
  - ➤ Positions to address workload and population growth to provide required services and allow capacity for workforce development, estimated at $425,000
  - ➤ Reclassifications for staff working outside their current classification, estimated at $75,000
  - ➤ Additional on-going costs required for operating, maintaining, and reserves for replacement for the vehicles going into our fleet, estimated at $50,000
  - ➤ Additional one-time expenditures for fleet purchases, workforce development, data analytics, and computer set up for additional positions, estimated at $250,000

80

## FY23 Budget
## Discussion and Direction

- **Additional above base expenditures of $300,000 beginning FY24 and continuing through FY26 are projected to bring the fund balance down to 10.5% by FY26, addressing the current fund balance that exceeds the policy level of 10% – 17%**

- **In February, bring to the Board the FY23 budget for consideration and approval**

81

## ARPA update

**Washoe County Manager's Office Approved Requests:**
- $600,000 Lobby Remodel
- $490,000 Mobile Vaccination Clinic/Command Post*
- $300,000 TS Consultation for ACCELA*
- $150,000 PrEP/HIV/STD Funding

* Considered Urgent Projects

82

## ARPA Update

**WCHD priority needs submitted to the State**

**Infrastructure needs:**
- Washoe County Health District Building
- TB Clinic

**Other:**
- Repair and Replace Pilot Program Funding
- Electric Vehicle Fleet
- Small Vector Drone

83

## Current Financial Position, Trends and Budget Implications

Questions or comments on this priority and the financial information provided?

84

**Agenda Item 6**

DBOH Strategic Plan and Budget Direction

**WRAP UP**

# 2022 - 2024 DRAFT Strategic Plan

**Vision Statement:** To protect and enhance the well-being and quality of life for all in Washoe County

**Values Statement:** To protect and enhance the well-being and quality of life for all in Washoe County

    **Trustworthiness:** appropriate allocation of resources, spend prudently, stewardship

    **Professionalism:** ethics, education, accountability

    **Partner-Collaborate:** be flexible, adapt, be accessible, be proactive, innovate and create

**Strategic Direction:** Leaders in a unified community making measurable improvements in the health of its people and environment.

## Strategic Priority 1: HEALTHY LIVES: Improve the health of our community by empowering individuals to live healthier lives.

**District Goal: 1.1 Promote healthy behaviors to reduce chronic disease.**

Division Goal: 1.1.1 Proactively prevent disease utilizing effective health education strategies.

**District Goal: 1.2 Promote preventive health services that are proven to improve health outcomes in the community.**

Division Goal: 1.2.1 Act as a safety net by providing accessible health services when/where community members otherwise may not have access.

Division Goal: 1.2.2 Reduce the spread of disease through proactive surveillance, monitoring and intervention.

**District Goal: 1.3 Improve access to health care so people of all means receive the health care services they need.**

Division Goal: 1.3.1 Assist clients with access to health insurance.

Division Goal: 1.3.2 Build a bridge between communities, clients and services with community health workers.

**District Goal: 1.4 Prevent and reduce the spread of COVID-19 in Washoe County**

Division Goal: 1.4.1 Reduce the spread of COVID-19 through proactive surveillance, monitoring and intervention.

Division Goal: 1.4.2 Increase COVID-19 vaccination capacity across Washoe County including among high risk and underserved populations.

Division Goal: 1.4.3 Increase confidence in vaccines among targeted racial and ethnic groups and individuals with disabilities through outreach and access to accurate information.

Division Goal: 1.4.4 Provide the public with accurate, actionable and timely information about COVID-19

Division Goal: 1.4.5 Maintain infrastructure and organizational capacity necessary to respond to the COVID pandemic.

Division Goal: 1.4.6 Maintain a consistent level of customer service to the community.

**Strategic Priority 2: HEALTHY ENVIRONMENT: Create a healthier environment that allows people to safely enjoy everything Washoe County has to offer.**

**District Goal: 2.1 Protect people from negative environmental impacts.**

Division Goal: 2.1.1 Monitor ambient air to assess attainment status of the ozone and PM2.5 NAAQS (Monitoring)

Division Goal: 2.1.2 Evaluate effectiveness of regulations and programs governing ozone precursor and PM2.5 emissions (Planning)

Division Goal: 2.1.3 Reduce Ozone Precursor Emissions from the Transportation Sector (Planning)

Division Goal: 2.1.4 Evaluate Permitting of Ozone and PM2.5 Stationary Sources (Permitting)

Division Goal: 2.1.5 Inspect sources of ozone and PM2.5 emissions to determine compliance with state, county and federal regulations (Compliance)

Division Goal: 2.1.5 Assure waste is disposed of properly.

Division Goal: 2.1.6 Reduce negative environmental health impacts associated with land development.

**District Goal: 2.2 Keep people safe where they live, work and play.**

Division Goal: 2.2.1 Improve safety of residents through education, inspections and enforcement.

Division Goal: 2.2.2 Reduce the spread of vector-borne disease.

Division Goal: 2.2.3 Review building plans in advance to assure new facilities meet health standards.

**Strategic Priority 3: LOCAL CULTURE OF HEALTH: Lead a transformation in our community's awareness, understanding and appreciation of health resulting in direct action.**

**District Goal 3.1 Ensure community access to actionable public health information via website, media and social media**

Division Goal 3.1.1: Update public-facing digital presence on website and social media

Division Goal: 3.1.2 Position the Health District to be the trusted, reputable source of public health information for our community.

**District Goal 3.2 Inform the community of important community health trends by capturing and communicating health data.**

Division Goal 3.2.1: Increase data integrity and data standardization.

Division Goal 3.2.2: Produce original public health research advances public health knowledge.

Division Goal 3.2.3: Regularly share timely public health data and trends with the community.

Division Goal 3.2.4: Build the capacity of the health district to process data.

**District Goal 3.3: Drive better health outcomes in Washoe County through improved public health systems and policies.**

Division Goal 3.3.1:  Advocate for state and local policies that positively impact public health.

Division Goal 3.3.2: Build, support and participate in coalitions to advance improved public health policies.

**Strategic Priority 4: IMPACTFUL PARTNERSHIPS: Extend our impact by leveraging partnerships to make meaningful progress on health issues.**

**District Goal: 4.1 Reduce risk and improve health outcomes for children in Washoe County**

Division Goal: 4.1.1 Lend support in childcare and educational settings to reduce outbreaks

Division Goal: 4.1.2 Provide quality and timely air quality data for students and WCSD staff

**District Goal: 4.2 Support and promote behavioral health**

Division Goal: 4.2.1 Improve outcomes for residents who are experiencing a behavioral health crisis.

Division Goal: 4.2.1 Reduce isolation for seniors who are experiencing loneliness.

**District Goal: 4.3 Empower families and organizations to improve physical activity and nutrition.**

Division Goal: 4.3.1 Increase community participation in physical activity and nutrition programs.

**District Goal: 4.4 Enhance the regional emergency medical services system.**

Division Goal: 4.4.1 Provide EMS oversight to enhance system performance.

**District Goal: 4.5 Engage the community in public health improvement**

Division Goal: 4.5.1 Engage the community in assessing community health needs.

Division Goal: 4.5.2 Engage the community in planning for community health improvement with a focus on disparate health outcomes.

Division Goal 4.5.3: Facilitate community engagement in public health improvement initiatives designed to improve health outcomes and/or reduce health disparities.

**District Goal: 4.6 Improve the ability of the community to respond to health emergencies.**

Division Goal 4.6.1: Improve public health emergency preparedness.

Division Goal 4.6.1: Improve hospital emergency preparedness.

**District Goal: 4.7 Partner with academia to advance public health goals.**

Division Goal 4.7.1: Maintain Academic Health Department with the University of Nevada, Reno

**Strategic Priority 5: ORGANIZATIONAL CAPACITY: Strengthen our workforce and increase operational capacity to support a growing population.**

**District Goal: 5.1 Attract and retain a talented public health workforce to meet the needs of Washoe County.**

Division Goal: 5.1.1 Create a positive and productive work environment.

Division Goal: 5.1.2 Focus on building staff expertise.

Division Goal: 5.1.3 Maintain and build staff resiliency.

**Current 5.2 Meet and exceed national public health best practice standards.**

Division Goal: 5.2.1 Maintain National Public Health Accreditation

**District Goal: 5.3 Invest in expanded Health District capacity and targeted services to meet the needs of a growing and diverse community.**

Division Goal: 5.3.1 Increase workforce capacity.

Division Goal: 5.3.2 Increase organizational capacity to address health equity and reduce disparate health outcomes.

Division Goal: 5.3.3 Recruit, retain and train a workforce that meets the diverse needs of our community.

**New 5.4 Maximize and expand facilities to meet the needs of staff and clients.**

Division Goal: 5.4.1 Maximize existing facilities to address shortage of work stations.

Division Goal: 5.4.2 Identify opportunities for facility expansion

**New 5.5 Leverage technology to improve services, increase effectiveness and efficiency, and provide access to higher quality data.**

Division Goal: 5.5.1 Increase access to self-service platforms and systems.

Division Goal: 5.5.2 Improve data tracking and information sharing.

Division Goal: 5.5.3 Assure technology needs are addressed by a health district technology resource or County Technology Services.

**Strategic Priority 6: FINANCIAL STABILITY: Enable the Health District to make long-term commitments in areas that will positively impact the community's health by growing reliable sources of income.**

**District Goal 6.1 Update the WCHDs financial model to align with the needs of the community.**

Division Goal 6.1.1 Increase dedicated public health funding support to Washoe County.

Division Goal 6.1.2 Capture grant and federal relief resources to meet public health goals.

Division Goal 6.1.3 Maximize revenue generated from cost recovery.

Division Goal 6.1.4 Provide the DBOH the information necessary to provide financial oversight.

**Key for Division Ownership**

| | |
|---|---|
| CCHS | |
| AQM | |
| EHS | |
| EPHP | |
| AHS | |
| ODHO | |
| ICS | |

# WCHD INPUT SUMMARY

BLUE = Board Input   Orange = Division Retreats

## PRIORITY #1 HEALTHY LIVES & PRIORITY #2 HEALTH ENVIRONMENT

### CHNA- really provides a framework for where we should focus.

- Tough to look at things holistically - while still in a pandemic. CHNA - we did that, but needs to be updated

### Re-focus on public health - COVID overshadowed everything else we do

- Covid is important, but also facing mental health issues, vaccinations are becoming politically charged - encourage all to take proper care for all public health
- Re-establish ourselves in terms of who we are and what we mean to the community
- There are segments of our community that are more impacted than others in terms of COVID. It would be interesting to see that in context of the other areas we focus on
- Reel the scope back in to what public health is and push stuff back to the jurisdictions

### Work to be an agency that improves each groups/all groups that we serve.

Sometimes we are a regulatory agency - apply force when needed - the goal is to assist those that we are trying to serve (like make restaurants a safer place, etc.) - do our regulatory duties quickly, efficiently, fairly and without bias.
- Look at our staffing to ensure that our team matches the community that we serve
- Focus on all departments of the organization

### Mobile van

Available for vaccinations, clinics, etc.

## PRIORITY #3 LOCAL CULTURE OF HEALTH

### Establish a Community Repair Committee (hospitals, nonprofits, etc.)
How do we repair together? We have created a one-way communication, we are not hearing what people need. We are not stronger as a community because we went through this, we are more fractioned because of how things got handed down - pull people together relationally.

### Community to better understand how the HD works.

### One size does not fit all for external, public communication

- Consider both centralized and decentralized approach to public and partner communication.

OnStrategy

- Most divisions mentioned the issue of community lack of trust and a desire to be the trusted source for public information.
- Consider which programs need dedicated social media outreach due to how clients consume information.
- Everyone asked for more communications support.

## Lack of clear information, self-service and easily navigated website is impacting program effectiveness

- Most divisions identified potential solutions for citizen self-service – if website was more usable.
- Access to information is required to promote health equity and necessary to promote trust and transparency
- Huge opportunity to promote the invaluable data and community leadership within the District – via forward facing, clear, easily accessed site(s)

## PRIORITY #4 PARTNERSHIPS

No feedback in this area.

## PRIORITY #5 ORGANIZATIONAL CAPACITY

### Revisit the Board composition and improve the Board-DHO structure.

Not structured very well, challenged the decision-making process and the governance of the Board. Board meetings need to be about policy and direction.

### Continue work with staff training, teamwork, make our team the best on the planet.

### Continue innovative, creative, and dynamic workforce development

- Immediate need for technology training to self-serve solutions (Teams, virtual meetings, inventory mgmt., etc.)
- Continue cross-training that was present in the past 12 months (opportunity to jump into positions outside of role)
- Need to think about "pre-hiring" to strengthen retention
- More mentoring – learning outside of "class"

### Make flexible work (, telecommuting full-time or hybrid, schedules) permanent

- Policies requested to make flexible work that become more common during COVID permanent, fair, and districtwide
- Make remote or hybrid work an option, with an understanding that managing performance will put pressure on supervisors to manage differently
- Consider the idea of flexible time, not just remote work
- More meeting rooms are needed to accommodate this possibility (plus there is a need for more spaces to meet)!

## Implement less hierarchical and more flexible ways of working together

- Formalize intra-divisional, cross-divisional (maybe cross-county) collaboration – staff loved it!!
- Everyone loved the opportunity to work out of silos – all silos
- Promote pulling perspectives and opinions from all levels of the organization – less hierarchical

## Address capacity where it is stretched - grants and technology deployment functions - as well as establish cross-divisional teams for activities across the District

*Specifically, opportunities are:*

- Grant writing and grant management
- Technology implementation  and deployment, including Project Managers
- Social media team
- Fiscal team?
- Health equity team?

## Lack of capacity at middle management is a roadblock

- Several divisions communicated capacity challenges and quality of service being impacted because span of control by supervisors is too large
- Difficult to implement professional training, cross-functional projects or project management without any cushion in bandwidth of managers.

## PRIORITY #6 FINANCIAL CAPACITY

### Keep more of a financial reserve

Work more with County and Cities partners (had good reserve at beginning of pandemic)

### Employees want to learn more about the budget/budget process

Understanding budget process by supervisors would help the fiscal team and organization overall manage budgets

## LEARNINGS FROM THE PANDEMIC

*Just Board Input*

### Positives - Major shifts & heavy lifts:

- Stood up a lot of great efforts
- Staff made huge strides - tests, vaccinations, etc. Great job.
- Accreditation really helped us, better place to start learning from.
- We, like everyone else, had no idea how to do a pandemic
- Organizational changes ahead of time, did this in advance of the pandemic. BUT we were not ready for a pandemic.
- A lot of great people in WCHD. People stepped up into places, did the job and an amazing job.
- Very proud of what our Health District has done and is doing.
- Could not have done it without the volunteers and the National Guard.
- Took what we already had in preparedness - we had designed our own pods, etc. Learned how flexible we can be.
- Our organization was as prepared as anyone could be for unforeseen circumstances
- Able to respond immediately and efficiently, even with all the changing science/government reccommendation
- Results - We have the highest vaccine rate in the state, but we could be a lot higher
- Proud of our department throughout the process.

## Opportunities/Challenges:

- Communication needs/gaps; learned that if people don't trust what you are saying, it's a challenge
- Find a way to educatie and share - it's important
- Learned how important it is that we work together - we tried, but it did not always happen
- Hard with what was coming from the State and communicated from DHO
- Learned how to do work virtually, and do our job differently, think outside the box and be creative
- For many small businesses, especially Hispanic, there is not enough clarity around how to do business during the pandemic - we don't understand how to be compliant.
- We could have looked at pandemic preparedness earlier, but we've been tackling many other health issues.
- Other aspects of the health deparetmentwork did take a backseat; really could not have changed this
- Emergencies need a different approach when they are long lasting - at some point it became the new normal and we need to put the systems in place that were set up to run the different areas of the community

## STOP DOINGS

*Just Division Retreat Input*

## Our Work and Services

- Build out the foundation before adding rooms. How are we best and efficiently delivering against our mandates?
- Some mandates are unenforceable (weekly motels, animal enforcement – go to Code Enforcement)
- Better due diligence on grant requirements and the actual benefit
- Letting nonprofits provide services where they can and should

## Being More Efficient and Consistent

- District Health Officer able to accept grant awards (capped?) instead of going to the Board
- Do better planning to reduce program changes frequently

- Stop purchasing tech at the last minute
- Clearer roles for multi-divisional projects
- For PHAB requirements, review of after-action reviews/improvement plans by other divisions, not just PHP

## Where and How We Work

- Signage in the lobby – do we need so many signs regarding the same thing?
- Being notified if we are being bumped from meeting rooms
- Do we have to keep records as physical files?
- Stop viewing divisions in terms of financial contribution created

# Positioning America's Public Health System for the Next Pandemic

June 2021

# AUTHORS

**Tom Daschle**

Co-Chair
Former Senate Majority Leader
Co-Founder, BPC

**Bill Frist, M.D.**

Co-Chair
Former Senate Majority Leader
Senior Fellow, BPC

**Gail Wilensky, Ph.D.**

Co-Chair
Senior Fellow, Project Hope
Former Administrator, Health Care
Financing Administration (now CMS)

**Sheila Burke**

Fellow, BPC
Chair, Government Affairs and
Public Policy, Baker Donelson
Berman & Berkowitz

**James Capretta**

Resident Fellow, Milton Friedman
Chair, American Enterprise Institute

**Dan Crippen, Ph.D.**

Former Director, Congressional
Budget Office

**Margaret Hamburg, M.D.**

Former Commissioner, Food
and Drug Administration

**Chris Jennings**

Fellow, BPC
Former White House Health
Care Advisor, Clinton and Obama
Administrations
Founder and President,
Jennings Policy Strategies

**Risa Lavizzo-Mourey, M.D.**

PIK Professor of Health Equity
and Health Policy, University of
Pennsylvania
Former CEO and President Emerita,
Robert Wood Johnson Foundation

**William Roper, M.D.**

Professor, UNC Schools of Medicine
and Public Health
Former Director, Centers for
Disease Control and Prevention

**Mark Smith, M.D.**

Clinical Professor of Medicine,
University of California San
Francisco
Former Founding President and CEO,
California Health Care Foundation

**Leana Wen, M.D.**

Visiting Professor of Health
Policy and Management, George
Washington University
Former Health Commissioner,
City of Baltimore

## HEALTH PROJECT

Under the leadership of former Senate Majority Leaders Tom Daschle and Bill Frist, M.D., the Bipartisan Policy Center's Health Project develops bipartisan policy recommendations that will improve health care quality, lower costs, and enhance coverage and delivery. The project focuses on coverage and access to care, delivery system reform, cost containment, chronic and long-term care, and rural and behavioral health.

## ACKNOWLEDGMENTS

## DISCLAIMER

# Table of Contents

# Executive Summary

The COVID-19 pandemic has made clear that the nation's safety, health, and economic prosperity are dependent on a robust public health system.

Federal public health agencies and state and local public health departments have long been severely underfunded. They have lacked the workforce and modern data systems to support surveillance, contact tracing, testing, guidance on mitigation measures, administration of vaccines, and clear communication that is needed to stop infectious diseases from spreading across the country. In the beginning of the current pandemic, the federal government did not provide effective testing kits or clear and timely guidance to states, localities, tribes, and territories on COVID-19 mitigation measures, resulting in a delayed and fragmented national response. In addition, many Americans have chronic underlying health conditions such as obesity and heart disease, leaving them more likely to develop severe illness from the virus that causes COVID-19. Public health agencies and departments lack the resources to support prevention programs that might have reduced the prevalence of these conditions. Further, there are long-standing racial and socioeconomic inequities with respect to health and health care access.

Had these shortcomings not existed, the United States death toll might have been smaller. It is also true that if vaccine development had been delayed further, the death toll would have been higher. As of the end of May 2021, the U.S. has the highest mortality numbers in the world, with more than 592,000 deaths from COVID-19.[1] Communities of color disproportionately represent these deaths. Tens of thousands more Americans are living with the persistent and debilitating symptoms from COVID-19, including brain fog, headaches, and shortness of breath.

Halfway into 2021, the United States is on better footing. There has been a whole-of-government response to the pandemic along with clearer federal guidance issued to public health departments. Congress has appropriated additional resources to the public health sector, which is engaged in a historic national vaccination effort. As of the end of May, more than half of adults received at least one dose of a COVID-19 vaccine and deaths are at the lowest level in 11 months. The economy is recovering, and Americans are expecting a return to a more normal life.

But even as the pandemic is easing, the United States must prepare for possible additional waves of disease from this pandemic, potentially caused by new virus variants, as well as plan for future public health emergencies.

The nation remains vulnerable to myriad threats, including from another dangerous infectious disease, a widespread natural disaster, or a potential bioterrorist attack, each of which could impact almost every sector of the economy, disrupt social connections, and have significant long-lasting health impacts. Equipping the public health system with an adequate and prepared workforce, data systems, and medical countermeasures will enable the country to better withstand not only a pandemic, but any number of other public health emergencies.

Shoring up the system will take years of consistent effort by public health officials and policymakers. In the past 20 years, the nation has responded to every public health crisis with temporary funding measures that have not provided state and local public health departments with the people and the information technology tools needed to build enduring programs which address Americans' poor health and adequately prepare for a future emergency. This moment must be different. There is heightened appreciation for the critical role of public health. A May 2021 survey from the Harvard Opinion Research Program and the Robert Wood Johnson Foundation found that over 70% of adults "favor substantially increasing federal spending on improving the nation's public health programs," and the same proportion believe public health agency activities are very or extremely important to the nation's health.[2]

Since August 2020, the Bipartisan Policy Center's Future of Health Care Initiative leaders have been developing and supporting recommendations to improve the resilience of the nation's health care and public health systems to address the threat of COVID-19 and beyond. In January 2021, the Future of Health Care leaders released a report outlining high-priority immediate actions that the administration and Congress should take in combating COVID-19. In this report, the leaders have developed additional recommendations to ensure that the public health system, specifically, not only continues to respond to COVID-19, but that it is well-prepared to respond to and mitigate the consequences of a future pandemic.

Our recommendations focus on three areas: 1) creating clarity and accountability in federal leadership and operations during a pandemic; 2) improving public health information technology and data systems; and 3) committing the United States to more and consistent funding of public health to prepare for inevitable public health crises.

**There are 10 overarching recommendations in this report:**

1. **Clarify and strengthen federal operational roles and responsibilities during a federal response to a pandemic.**

To improve the nation's federal response to emergency events such as a pandemic, the White House and Congress should clearly define roles, responsibilities, and authorities for all relevant governmental entities. Because

only the White House has the authority to direct federal departments to work with one another and coordinate their efforts, the president should appoint a White House Deputy National Security Advisor for Pandemic and Biothreats Preparedness to provide leadership to prepare and respond to national public health emergencies and conduct joint pandemic planning efforts including exercises to refine roles and responsibilities. White House leadership and coordination of agency preparedness should be supplemented by congressional evaluations of roles and responsibilities to ensure federal entities have the necessary authorities and resources to execute emergency pandemic response efforts.

2. **Incentivize states to participate in a coordinated response to national public health threats.**

The patchwork of state responses to COVID-19 raises salient concerns about barriers to a coordinated national response during public health emergencies. States and localities have the flexibility to appropriately tailor public health activities to their community needs. However, it is still vital for states and localities to follow federal evidence-based guidelines for disease mitigation during a pandemic. Congress and the executive branch should create incentives to encourage states and localities to follow these guidelines and best practices. These incentives could involve additional financial resources beyond core funding, such as providing supplemental public health funds, to enhance a state's pandemic response.

3. **Establish a National Board on Pandemic Preparedness to provide oversight and ensure the United States is equipped to respond to future public health threats.**

There is no congressionally chartered oversight mechanism for evaluating the state of America's pandemic preparedness system, which is reliant on the capacity, capabilities, and coordination of federal, state, and local agencies. This lack of oversight leaves the nation vulnerable to a suboptimal response to public health emergencies and future pandemics. To ensure the United States is equipped to respond, Congress should create an independent National Board on Pandemic Preparedness that will establish a set of metrics and benchmarks for evaluation of federal and state pandemic preparedness capacity and capability; gauge how the nation is faring against these metrics; and develop an annual report to Congress on the state of pandemic preparedness with specific recommendations. The Board will be supported by independent career staff in a new Office of Pandemic Preparedness located in the executive branch.

4. **Establish federal data collection and reporting standards to improve consistent collection of core public health data across data systems, with a prioritized focus on race and ethnicity data.**

The Office of the National Coordinator for Health Information Technology (ONC) recently established a Public Health Data Systems Task Force that should consider defining a "core public health dataset," developing additional standards for data collection, and developing a plan for implementing those standards, including linking them to funding mechanisms. Core public health data should include information for public health surveillance and response, such as demographic information, electronic laboratory data, travel health data, genomic sequencing data, and electronic vital records data. The health disparities in the COVID-19 pandemic have revealed the urgent need to set standards around race, ethnicity, and other demographic data, and should be treated as a priority. To ensure accountability, Congress should require the Department of Health and Human Services (HHS) to submit a report on current streams of funding, activities, and program requirements related to data collection and standardization.

5. **Improve data sharing and interoperability by establishing integrated platforms for detection and surveillance of public health threats, clarifying privacy standards during public health emergencies, and encouraging data exchange between clinical and public health organizations.**

The U.S. public health system relies on an outdated, patchwork data system that does not allow data to flow freely between public health, clinical and other entities. To improve early detection of public health threats, the CDC should establish an integrated infectious disease surveillance system that would strengthen surveillance efforts currently conducted by multiple data systems and agencies. This system could be modeled like the CDC's existing influenza surveillance system and be expanded to detect other novel pathogens. To improve situational awareness during public health emergencies, Congress should direct the HHS secretary to ask the National Academy of Medicine (NAM) to propose a design for a national interoperable data platform to improve access to health data and other relevant data needs during ongoing public health emergencies. Considering the volume and type of data sharing required during public health emergencies, patient privacy and security must be prioritized. Finally, as the United States updates electronic health record (EHR) standards, a priority should be made to include public health data, and to facilitate data sharing between health systems and public health officials.

6. **Build upon data collection and sharing efforts during COVID-19 to strengthen vaccination data systems for use during future infectious disease pandemics.**

The CDC recently issued guidance that fully vaccinated individuals can resume certain activities, but—despite demand from private businesses—there is not currently a reliable system in place to identify who has been fully vaccinated. Several private companies are working on platforms that an individual could use to digitally access their vaccination information. The federal government has a key role to play in promoting the development of a vaccination credential system by ensuring that credentials protect privacy and are synchronized, secure, and high quality. In addition, HHS should build on technology it is using to collect states' COVID-19 immunization tracking data to inform national response efforts and improve interoperability between states and enhance states' collection of demographic data, such as race and ethnicity.

7. **Assess existing federal funding of pandemic preparedness and response activities for opportunities to increase coordination and efficiency and improve equity. For programs deemed highest priority to prevent, detect, and address infectious disease threats, create a permanent budget designation named Biodefense Interagency Operations outside annual 302(a) allocations, and should they be established by future legislation, outside overall budget limitations.**

Congress should form a Joint Select Committee including members representing the relevant authorizing and appropriating committees to evaluate existing federal funding, identify mission-critical investments, and produce legislative recommendations with stakeholder feedback on how interagency funding can be better coordinated and optimized. Those programs deemed mission critical would receive a Biodefense Interagency Operations (BIO) exemption, allowing them to be exempt from budget caps, including any future discretionary spending limits set after the expiration of Budget Control Act of 2011 limits in fiscal year 2021, and federal departments and agencies should be allowed to independently request the BIO exemption for their programs to ensure the country remains vigilant and primed for pandemic threats.

8. **Allocate funding to the Public Health Emergency Fund for use immediately following a Public Health Emergency declaration and use it as the primary vehicle for supplemental appropriations funding.**

To enable the federal government to rapidly deploy funding as a stopgap measure in a public health emergency until Congress can pass emergency supplemental appropriations, Congress should add funding to the Public Health Emergency Fund and consider passing future supplemental appropriations through the fund in future emergencies. When the pandemic began, there were

zero dollars in the fund, requiring the HHS secretary to draw upon the transfer of funds from other executive programs to pay for emergency response, arguably adding to the initially disorganized response to COVID-19.

9. **Allocate $4.5 billion in permanent annual mandatory funding to a new Public Health Infrastructure Account to support state, local, tribal, and territorial foundational public health capabilities.**

To enable state and local health departments to develop the minimal, cross-cutting capabilities that are needed to support their delivery of public health programs, the federal government should build on investments made by the administration through the American Rescue Plan. Congressional appropriations committees would still appropriate this money annually, but the money would not be subject to Committee 302(b) allocations. The HHS secretary would award the appropriated money in grants to accredited jurisdictions based on population size, level of health disparities, level of health risk and chronic disease burden in the community, and public health governance structure to bolster foundational public health programs. Part of the funding would be tied to the set of metrics and benchmarks created by the National Board on Pandemic Preparedness for evaluation of federal, state, and local pandemic preparedness capacity and capability.

10. **Reform and increase annual funding to the existing Prevention and Public Health Fund from its current level of about $900 million to $4 billion to bolster inadequately supported public health programs and meet local needs.**

Congress should direct funds from the Prevention and Public Health Fund, created under the Affordable Care Act, to state and local health departments to support public health programs, and the Preventive Health and Health Services Block Grants that gives health departments "the flexibility to solve problems unique to their residents, while still being held accountable for demonstrating the local, state and national impact of the investments." Public health programs include chronic disease prevention and communicable disease control programs that aim to improve community health.[3] Statutory language should be added to the law to prevent Congress from using the Prevention Fund to offset other activities as Congress has done since 2014. Research shows investment in prevention reduces long-term illnesses in a population. With a healthier population, the United States will be less vulnerable to an infectious disease outbreak, and individuals will live longer with a higher quality of life.

The $7.6 billion called for in Recommendation Nos. 9 and 10 would be funded by a public health excise tax.

# Introduction

The U.S. public health system is a complex and intricate network of governmental agencies, local boards of health, and private health organizations that collaborate to promote and protect Americans' health. Its foundation includes a mix of 50 state (and the District of Columbia) health departments, 2,794 local governments, 565 federally recognized tribal agencies, and five U.S. territories.[4]

Even prior to the pandemic, the sprawling system of administrative bodies faced challenges from decades of inadequate federal funding.[5] The system's workforce has been stretched, and its data systems antiquated. There continue to be disparities in national health outcomes from chronic diseases and other illnesses, across racial, ethnic, and income groups.

COVID-19 exposed these flaws, underscored by a staggering death toll. As of the end of May 2021, over 592,000 Americans have lost their lives to the SARS-CoV-2 coronavirus that causes COVID-19, with Black and Latino populations making up a disproportionate number of deaths.[6]

The pandemic has begun to recede in the United States, as more than half the adult population has been vaccinated. But progress could be short-lived as new, more contagious strains of SARS-CoV-2 are circulating the globe. In the spring of 2021, a wave of new COVID-19 cases erupted in India and South America, providing more opportunities for the virus to mutate into new strains, spread to the United States, and challenge the effectiveness of current vaccines.

As the United States continues its pandemic fight, it is important for policymakers to examine and absorb the lessons learned from COVID-19. An effective pandemic response requires leaders who rely on scientific advice and data, and adapt as the science evolves, communicate clearly and consistently, debunk health misinformation, and avoid using the crisis for political gain. It requires comprehensive planning and preparation, biomedical advances in vaccine and therapeutic development, a national surveillance and testing strategy, robust contact tracing, clear guidance to the public about the early and sustained use of mitigation measures, and coordination and planning between public health leaders and agencies, health care providers, and medical suppliers. Further, because pathogens do not respect borders, international coordination is essential for sharing information and resources aimed at containing infectious disease outbreaks.

Undergirding a resilient response also requires a modern public health system with intergovernmental coordination and federal oversight, a 21st-century public health data infrastructure, and adequate federal public health funding.

Governance of public health has historically been directed by local authorities, with state, local, tribal, and territorial agencies tailoring their efforts to their communities, but taking direction from federal agencies. Under previously published national pandemic plans, the federal government had been slated to play a critical leadership and coordination role with state and local public health departments in the event of a national public health crisis.[7] However, a White House entity that was designed to coordinate and support the interagency pandemic response was dissolved in 2018.[8]

As COVID-19 was spreading through the country in early 2020, agencies within the HHS such as the CDC, the Food and Drug Administration, and the Office of the Assistant Secretary for Preparedness and Response were not coordinated in their actions and clashed over roles and pandemic guidance.[9] The Trump administration created a White House Coronavirus Task Force to improve collaboration, and deserves credit for recognizing the importance of rapidly producing vaccines to counter SARS-CoV-2 and for its prompt and robust investment toward development and large-scale production. However, beyond vaccine development, the task force did not succeed in unifying the federal response.[10]

In the absence of timely federal guidance, states had to determine how to share data, pay for COVID-19 testing and contact tracing, procure personal protective equipment (PPE), and implement mask mandates and social distancing measures. The consequence was a patchwork of measures, which, in many cases, failed to combat the spreading infection.

In January 2021, a more robust and coordinated federal response was launched that provided additional guidance and support to state and local public health departments. The Biden administration reinstated the White House position that is part of coordinating pandemic response. A White House team is spearheading the nationwide COVID-19 vaccination campaign, managing medical supplies, and improving coordination of the federal response. Questions remain, however, about roles of federal agencies during a pandemic and how the nation should invest public health dollars to prepare for the next public health emergency.

Policymakers will need to strengthen our nation's public health system to respond during a pandemic, as well as consider a broader public health modernization effort to determine the vision, strategy, and implementation of a public health system for the 21st- century. This includes aiming to more clearly define roles, responsibilities, and authorities for all relevant governmental entities during a national crisis and hold them accountable for preparing for the next public health emergency.

In addition, public health departments need a stronger and more integrated data infrastructure to collect information, detect the next potential emergency and guide policy response to outbreaks. Years of underfunding has left public health departments with aging computer systems that do not talk with one another or with health care provider systems.

Over the past few months, centralized federal reporting of hospitalization and vaccination data has improved, but requirements of what needs to be collected and reported, as well as privacy regulations, still vary between states and impact the quality of that data collection. Many state and local public health departments rely on paper documents, phone calls, and faxes to communicate. Many also require manual input of data into systems with limited functionality. Consistency of demographic data collection has been particularly poor. Race and ethnicity data for infections, hospitalizations, and deaths have been missing, or slow to be published, in many states.

In a country that is recognized as one of the global leaders in information technology, the United States should have the ability to build a 21st-century data infrastructure for the public health system to identify which populations and communities may be facing more infections, hospitalizations, and deaths, as well ensure vaccines are getting to communities equitably. The data will enable policymakers to prioritize and allocate resources and address gaps as well as promptly detect novel pathogens and support ongoing disease surveillance.

Further, public health capacity and emergency preparedness need to be adequately and consistently funded for the long term. More than 38,000 jobs disappeared from state and local public health departments between 2008 and 2019.[11] Those losses may become bigger as COVID-19 has led to worker burnout. At least 181 state and local public health leaders in 38 states resigned or retired in 2020.

Without a strong public health workforce, states and localities cannot implement foundational public health programs, like obesity and diabetes reduction, drug addiction prevention, maternal mortality prevention, and discouragement of tobacco and e-cigarette use. These services are critical to fostering a healthy population less at risk for public health emergencies like COVID-19 and more able to live longer, happier lives.

The CDC is the primary funder of state and local public health emergency preparedness activities, but its grant funding has fallen significantly over the last few years.[12] Instead of providing funding for the long term, the nation's response to public health emergencies has been to pour money into the system when there is a crisis and then slash the funding a few years later when the danger has ebbed.

When Ebola emerged in West Africa in 2014 and 2015, Congress appropriated $5.4 billion for the international efforts to fight the outbreak, and in 2016, when the mosquito-borne illness Zika threatened the southern United States, Congress appropriated $1.1 billion.[13,14] But the money was time-limited and could not be used to build up overall preparedness within the nation's public health system.[15]

Over the past year, Congress has begun to address the paucity of funding to public health departments, passing bills that include billions of dollars aimed at bolstering the workforce during the pandemic as well as improving virus surveillance and testing, contact tracing, and developing COVID-19 treatments and vaccines.[16]

In March 2021, Congress passed the American Rescue Act, which allocated close to $100 billion in funding to address current and short-term future public health needs.[17] The Biden administration has committed to spend $7.4 billion of that funding to create a 21st-century public health workforce with the epidemiologists and data analysts that will be needed for prevention and response to the next pandemic.[18] But a portion of the American Rescue Act funding is time-limited and specific to responding to COVID-19, raising concerns that once the pandemic has ended, the nation will repeat the boom-and-bust cycle for pandemic funding.[19]

This report focuses specifically on three critical elements policymakers could address to strengthen the public health system—*intergovernmental roles, responsibilities and accountability, data infrastructure, and public health financing*—so that the United States is better prepared to combat emerging disease threats in the future. By taking critical steps to address these shortfalls, the nation will be in a stronger position to support the long-term health of its citizens and leave it in a better place for inevitable emergencies.

# Recommendations: Intergovernmental Roles and Responsibilities

## Background

The U.S. public health system is a complex network of governmental agencies and private organizations. Public health agencies are led by federal, state, local, territorial, and tribal governments. At each level of government, health agencies possess a varied degree of legal authority to carry out public health activities including disease surveillance, testing, vaccinations, and policy development. Most public health interventions occur at the state and local level, which allows elected and public health officials to tailor efforts to the unique needs of the community. However, this system of governance can create barriers when planning and executing a unified national response during a public health emergency that must be directed by strong federal leadership.

The COVID-19 pandemic created unprecedented challenges and offered important lessons learned for the U.S. public health system. The number of COVID-19 infections, deaths, and hospitalizations in the U.S. indicates an invaluable lesson—resources alone are not enough to protect the nation's health. The U.S. ranked among the top 10 out of 98 countries with respect to preparedness under the voluntary Joint External Evaluation process.[20] Further, in 2019, the Global Health Security Index ranked the U.S. No. 1 out of 195 countries in terms of preparedness.[21] Despite these stellar preparedness rankings, the U.S. continues to lead the world in number of COVID-19 deaths.[22] Thus, cementing the notion that though the United States was prepared in theory and on paper, the country fell short in practice.

The suboptimal U.S. response to COVID-19 is a result of many factors: delayed surveillance and testing; a lack of inventory in the federal Strategic National Stockpile (SNS) and poor distribution of PPE and critical medical material; unclear and varying federal guidance on community mitigation strategies and personal protective measures (e.g., masks) to combat the spread of the virus; and ambiguity at the federal level as to who was in charge during the pandemic.

However, beginning in spring 2021, the country started to see encouraging improvements in COVID-19-related deaths and hospitalizations.[23] This is largely due to the Trump administration recognizing the benefit of COVID-19 vaccines and making an early robust investment toward vaccine development and large-scale production as well as the Biden administration leading the massive logistical effort to distribute and administer vaccinations alongside

the private sector. While these critical steps will protect the country moving forward, it cannot reverse the harm that has already been done. Overall, despite the nation's resources and a previously developed pandemic plan, a two-dimensional readiness effort at the outset of the pandemic was not enough. Exercising pandemic plans prior to an emergency and having a sufficient and trained frontline workforce to respond are important—and clear and consistent federal leadership is a critical enabler.

The federal government plays an essential role in supporting state and local public health departments by providing technical assistance, funding, and guidance in nonemergency and emergency times. HHS leads federal public health activities primarily through its various agencies such as the CDC, the Food and Drug Administration (FDA), and the National Institutes of Health (NIH). In the time of a public health crisis, the secretary of HHS has authority to declare a public health emergency. In 2013, Congress designated HHS as the lead federal department for pandemic response under the Pandemic and All-Hazards Preparedness Act. Under HHS, the Assistant Secretary for Preparedness and Response (ASPR) is the lead coordinator of the aforementioned HHS agencies' preparedness efforts and ensures close collaboration with other federal departments and agencies, especially the U.S. Department of Defense (DoD) and the Federal Emergency Management Agency (FEMA), along with other agencies in the Department of Homeland Security.

The White House plays a critical leadership and coordination role during a public health emergency to ensure a whole-of-government response.

The president can declare a national emergency through several laws, including:

- **Stafford Act**—Authorizes the federal government to provide technical and logistical response assistance and funds traditionally to states, territories, and tribal localities during emergencies through FEMA. Former President Trump declared a national emergency for the COVID-19 pandemic under the Stafford Act on March 13, 2020. This is the first instance in which the Stafford Act was invoked to declare an emergency that covers the entire nation. The act does not supersede other federal authorities.[24,25]

- **National Emergencies Act**—Allows the president to waive federal regulatory requirements. This act grants the Secretary of HHS the ability to waive certain Centers for Medicare and Medicaid program requirements. Former President Trump declared a national emergency under the National Emergencies Act on March 13, 2020 in response to COVID-19.[26]

- **Defense Production Act**—Provides additional presidential authorities including those that can expand the nation's productive capacity and supply through the DOD.[27] Former President Trump first invoked the Defense Production Act in April 2020 to mitigate supply chain issues related to the production of ventilators and N95 face masks.[28]

The HHS secretary can activate additional resources during an emergency through the following Acts:

- **Public Health Service Act**—Allows the secretary to lead all federal public health and medical response to public health emergencies. These authorities include the ability to establish and maintain a Medical Reserve Corps and to declare a public health emergency.[29] Former Secretary Azar declared a public health emergency through the Public Health Service Act on January 31, 2020.

- **Social Security Act**—Permits the secretary to waive or adjust Medicare, Medicaid, the Children's Health Insurance Program, and Health Insurance Portability and Accountability Act of 1996 (HIPAA) requirements. These authorities can be accessed only after a public health emergency has been declared under the Stafford Act or National Emergencies Act and the secretary has declared an emergency under the Public Health Service Act.[30]

When the federal government makes an emergency declaration, a variety of resources may become available to support the response including:

- Mobilizing federal assistance to states through FEMA and other agencies and programs in the form of financial, personal, operational, and technical assistance

- Launching FEMA's National Response Framework, which guides the nation in responding to emergencies

- Distributing stockpiled critical medical supplies from the SNS to jurisdictions as a short-term, stopgap buffer when the immediate supply of these materials may not be available or sufficient

- Temporarily easing federal, state, and local regulatory restrictions

- Activating emergency provisions such as the Social Security Act Section 1135 waivers, which can ease some federal regulatory requirements on healthcare providers

The previous administration was inadequately organized at the outset of the pandemic to coordinate an efficient national pandemic response. Prior to 2018, responsibility for coordinating interagency pandemic response had been assigned to the National Security Council Directorate for Global Health Security and Biodefense at the White House. But in 2018, this position was eliminated under a counterproliferation directorate. This created an erosion of coordinated federal pandemic planning efforts.[31] Despite the clarity provided by the Pandemic and All-Hazards Preparedness Act, HHS and ASPR were not empowered to take on the coordinator roles as intended by Congress, and the U.S. response to the COVID-19 pandemic was often disjointed, without clear delineation of roles at all levels.[32] While the HHS secretary initially served as the point person for the federal government's COVID-19 response, he was soon replaced by the vice president as head of the White House Coronavirus Task Force. In addition, FEMA's initial role was unclear since the president had not

declared a national emergency under the Stafford Act until mid-March 2020. Further, working groups created out of the White House Task Force diluted the role of the ASPR.

The federal disorganization also led to unclear guidance from federal agencies on issues such as data sharing, testing, mask mandates, and the timing and use of community mitigation measures. As a result, states and localities implemented a wide variety of interventions at varying times in the pandemic to mitigate the spread of the virus. The different approaches ultimately created a disparate impact on COVID-19 infection rates, deaths, and hospitalizations across the nation. For example, some jurisdictions, like King County, Washington, acted quickly and implemented key public health measures early, in March 2020, such as recommending that people at high risk for complications for COVID-19 stay home.[33] Early in the pandemic, Vermont launched testing and contact tracing, introduced social distancing measures, such as closing restaurants and dismissing all schools, reduced the size of mass gatherings and implemented a statewide mask mandate.[34] Both Vermont and Washington have had among the lowest number of cases and deaths per capita since the pandemic started. These states were among the first to implement stay-at-home orders when containment was not possible, which helped them avoid large spikes in COVID-10 during the winter months; other states like North Dakota never issued a stay-at-home order.[35] To date, North Dakota has the largest number of cases per capita compared with all other states.[36] Similar states that did not implement community measures early in the pandemic continued to see a high number of COVID-19 cases and death rates.[37] Research indicates that if states had implemented evidence-based nonpharmaceutical measures one to two weeks earlier in their response, a substantial number of cases and deaths could have been prevented.[38]

The overall response has also highlighted, and in some cases exacerbated, existing racial inequities. Compared to non-Hispanic white populations, Native Americans are 3.5 times as likely to be hospitalized with COVID-19; Hispanic populations are 3.0 times as likely, and Black populations are 2.5 times as likely.[39] Variable responses across states, including in the collection and reporting of data stratified by race and ethnicity, may have limited states' ability to identify and respond to these disparities.

States should have the ability to tailor public health interventions to meet their state-specific needs. However, the experience of COVID-19 suggests the need for clear federal government leadership and state incentives to ensure a unified evidence-based response plan during emergency times.

## Approach to Recommendations

The federal government's COVID-19 response effort fell short partially because of unclear roles and responsibilities with limited coordination and oversight. This section offers recommendations to improve intergovernmental roles and responsibilities during a pandemic in three key areas:

1. **Operational response**—The White House, ASPR, FEMA, and CDC must take lessons learned from COVID-19 to optimize their role in responding to future pandemic threats.

2. **Coordinated state operational response**—Although states must tailor their ongoing pandemic response to the local outbreak, jurisdictions should implement evidence-based strategies that align with the goals of a unified national response at the onset of a public health emergency, and particularly at the peak of a pandemic, when all jurisdictions are similarly affected.

3. **Federal pandemic preparedness oversight**—The U.S. needs a permanent independent body to ascertain the status of the nation's pandemic response system to ensure the nation is prepared to respond to future threats.

## Recommendations

### 1. Clarify and strengthen federal operational roles and responsibilities during a federal response to a pandemic.

The COVID-19 pandemic created an unprecedented catastrophic emergency that necessitated an all-hands-on-deck approach at the federal, state, and local levels. To improve the nation's federal response to emergency events such as a pandemic, the White House should clearly define roles, responsibilities, and authorities for all relevant governmental entities. In order to execute an effective national pandemic response, federal agencies must have detailed operational plans that describe their respective roles and responsibilities, and conduct agency and interagency exercises to improve readiness. The White House has the authority and is positioned to direct federal agency preparedness and response efforts during a public health emergency.

As a part of strengthening federal leadership during public health emergencies such as pandemics, the president should appoint a White House Deputy National Security Advisor for Pandemic and Biothreats Preparedness, who is supported by the National Security Council staff. Currently the HHS secretary is tasked with implementing the nation's plans for mitigating biothreats including infectious diseases. The secretary delegates significant responsibilities to ASPR including identifying and tracking spending for all federal biodefense programs. However, this structure gives the unrealistic charge to one federal department on an equivalent organizational level to direct other similarly positioned federal departments to act, which has contributed to delays in executing the National Biodefense Strategy. An effective cross-agency

response requires a structure that calls on leadership and authority at the level of the White House. The White House is in the right position to appoint a Deputy National Security Advisor that will coordinate, direct, and hold federal departments and agencies accountable for all biodefense preparedness and operational response efforts, including stockpiling efforts by the SNS.

A key role of the Deputy National Security Advisor would be to convene relevant federal agencies for regular pre-pandemic interagency planning meetings. The Deputy National Security Advisor should task the agencies with collaborative pandemic planning efforts, including recommendations for agencies to develop or update pandemic planning guidance, as necessary, and testing those plans in regularly scheduled exercises. When guidance is updated, it should be clearly communicated to state and local governments so that they can include the most recent information in their pandemic planning. A role similar to the Deputy National Security Advisor for Pandemic and Biothreats Preparedness has received support from the Bipartisan Commission on Biodefense.[40]

To further promote cross-agency collaboration, the Deputy National Security Advisor should reinstate the Emergency Preparedness Grant Coordination effort as established by the Pandemic and All-Hazards Preparedness Reauthorization Act of 2013. In this effort, five agencies—ASPR, FEMA, CDC, Health Resources and Services Administration (HRSA), and the National Highway Traffic Safety Administration (NHSTA)—signed an Interagency Memorandum of Understanding (MOU) to formalize their commitment to health emergency preparedness grant coordination.[41] The Deputy National Security Advisor should require those five agencies renew their commitment to harmonize and coordinate their federal grant programs and activities with jurisdictions and execute a new MOU.

White House leadership and coordination of agency preparedness should be supplemented by congressional evaluations of roles and responsibilities to ensure federal entities have the necessary resources to execute emergency response efforts. To strengthen FEMA's response efforts during a large-scale nationwide pandemic and promote federal coordination, Congress should direct a review of FEMA's existing role, capacity, and authorities. On March 13, 2020, former President Trump declared an emergency under the Stafford Act, which activated FEMA into a lead role in the COVID-19 response. FEMA's expertise is largely with natural disasters, and for those events, routinely coordinates multi-agency responses to a wide variety of emergencies including those involving medical and health care responses through its system of Emergency Support Functions. However, during an infectious disease threat like COVID-19, FEMA's role was not clearly defined to meet the response needs. FEMA's resources were also exceedingly stretched, as it played a coordinating role in the federal response while preparing for the upcoming hurricane season.[42]

Congress should also perform a detailed evaluation of ASPR's capacities and capabilities during a public health threat. ASPR serves a primary function in

supporting the nation's operational response to public health threats as the primary advisor to the HHS secretary on issues related to federal public health preparedness and response for public health emergencies. In addition, ASPR currently holds operational responsibilities for the development of medical countermeasures and coordinating the federal response to public health threats. One of these responsibilities includes coordinating Emergency Support Function (ESF) #8—Public Health and Medical Services.[43] ESF #8 plays a critical part in supporting the nation's response to pandemic threats. It provides additional assistance to state, local, and tribal governments in functional areas such as public health surveillance, medical equipment and supplies, and public health and medical information. Indeed, the catastrophic nature of the pandemic overwhelmed HHS and ASPR, thus compromising the agencies' ability to effectively manage and disperse ESF #8 resources. To that end, Congress should conduct a review of the applicability and utility of ESF #8 as it relates to pandemic threats and other large-scale public health emergencies. Consistent with current statute, the secretary of HHS and Congress should also assess, modify, and strengthen—where determined necessary—ASPR's roles, responsibilities, and capabilities related to leading HHS responses to public health emergencies, including ASPR's relationships with the relevant HHS agencies and partners outside HHS. The HHS secretary should task ASPR with developing a process for regularly engaging with subject matter experts, Congress, nonfederal, and nongovernmental stakeholders to determine standards and protocols for SNS stockpiling and product release during public health emergencies. The Government Accountability Office (GAO) proposed a similar policy recommendation in a January 2021 report.[44]

The CDC plays a critical role in monitoring an outbreak, developing and disseminating guidance and tools for public health emergency planning and preparedness, detecting and characterizing health threats, and informing and supporting the nation's response to public health emergencies. To strengthen and improve the CDC's response efforts for future pandemic threats, the HHS secretary should direct the CDC to analyze the agency's management and response to COVID-19 and identify areas of improvement. The study should result in clear recommendations for corrective actions based on its findings. In its evaluation, the CDC should specifically examine the use of in-house manufacturing practices related to COVID-19 testing kit development, which ultimately lead to contaminated kits and nationwide testing delays, as well as the process for determining public guidance on the use of masks to reduce the spread of an infectious disease. The CDC should also reassess the decision-making process for issuing timely mitigation guidance and protocols for data sharing, and develop disease surveillance indicators, such as case definitions, during a national emergency. At the outset of any pandemic, scientific knowledge and evidence about the behavior of biothreats is consistently evolving. As such, the CDC should allow for flexibility that errs on the side of caution in defining surveillance indicators to improve disease detection and clinical care and mitigate potential spread of novel infectious diseases.

With the guidance from the White House Deputy National Security Advisor for Pandemic and Biothreats Preparedness, ASPR and CDC should clearly define their respective operational roles and responsibilities during public health emergencies and conduct joint pandemic planning efforts including annual exercises to refine these roles and responsibilities.

2. **Incentivize states to participate in a coordinated response to national public health threats.**

The patchwork response to COVID-19 raises salient concerns about barriers to a coordinated national response during public health emergencies. Although federal guidance was issued in March 2020 that advised strict stay-at-home orders to all states and jurisdictions, numerous jurisdictions in the United States granted exceptions and/or were in close proximity to locations with entirely different regulations in place. One study found that some people avoided adhering to public health recommendations in their jurisdiction by traveling to a neighboring jurisdiction.[45] These researchers determined, using county-level COVID-19 data, that increased mobility from high-incidence to low-incidence locations was consistently associated with increased cases in the low-incidence counties.

States and localities have the flexibility to appropriately tailor public health activities to meet their community needs. In the face of public health threats, particularly those related to the spread of infectious diseases, state mitigation efforts must be supplemented by strong federal leadership through consistent and evidence-based guidance and tools. Pandemic planning experts have found that deploying nonpharmaceutical measures early in the outbreak creates the best chance of limiting the spread of a pandemic.[46,47] At the outset of COVID-19, states were left to make decisions around deploying mitigation efforts without clear federal guidance. The COVID-19 pandemic offered valuable lessons that highlight the consequences of unclear and delayed federal guidance that promoted inconsistent state efforts.

To strengthen future responses to national public health threats, Congress and the executive branch should consider creating incentives to encourage states and localities to follow evidence-based guidelines for disease mitigation. Incentives could involve additional financial resources beyond core funding, such as providing supplemental public health funds, to enhance a state's pandemic response. Guidelines should be science-based and free from political interference.

3. **Establish a National Board on Pandemic Preparedness to provide oversight and ensure the United States is equipped to respond to future public health threats.**

The ability to respond effectively to public health threats, including novel infectious diseases, largely rests on the capability and resiliency of the nation's public health emergency response system. The United States must constantly

invest in and improve its public health preparedness system to better prepare for and effectively respond to the next pandemic.

In 2007, Congress charted the National Biodefense Science Board, formerly known as the National Preparedness and Response Science Board. This federal advisory committee periodically provides guidance to ASPR and to the HHS secretary on preparing response efforts for emergencies with health impacts.[48] However, there is no congressionally chartered oversight mechanism for evaluating the state of America's pandemic preparedness system, which is reliant on the capabilities and coordination of federal, state, and local agencies. This lack of oversight leaves the nation vulnerable to a suboptimal response to future pandemics.

To ensure the United States is equipped to respond to future pandemics, Congress should create a National Board on Pandemic Preparedness. Indeed, the U.S. public health preparedness system must respond to public health threats beyond pandemics; however, as demonstrated during COVID-19, pandemic threats can uniquely impact every sector of the economy, interrupt social connections, have profound health impacts, and create long-lasting social and economic effects. It is therefore the task force's belief that an adequate measure of the nation's ability to respond to public health threats must be anchored in pandemic preparedness.

The board's primary purpose is to bolster oversight of the nation's pandemic preparedness infrastructure. To achieve this goal, the board will carry out three main objectives: 1) establish a set of metrics that sets benchmarks for evaluation of federal, state, and local pandemic preparedness capacity and capability; 2) gauge, on an annual basis, how the nation fares against these established metrics; 3) develop an annual report to Congress on the state of pandemic preparedness with specific recommendations to strengthen the nation's pandemic preparedness and response.

The board should consider the following thematic areas while developing the measures:

- Infectious disease preparedness and response planning including nonpharmaceutical and pharmaceutical mitigation measures
- Public health, emergency management, and health care system coordination
- Equity in emergency response planning
- Exercising response plans
- Data infrastructure; standardized data collection and reporting; data sharing processes and protocols; data privacy and security standards
- Real-time surveillance and systems
- Laboratory systems

- Vaccination infrastructure, distribution and uptake

- Biosecurity and biosafety

- Stockpiling and supply chain resiliency

Throughout the metric development process, Congress should require that the board consult with stakeholders including relevant federal agencies, private sector organizations, and subject matter experts. The board should also consider alignment with the World Health Organization's Joint External Evaluation. Metrics may change over time based on the specific threat levels of new infectious diseases. In presenting its annual findings, the board should incorporate a color-coding scale. The three-color scale—green, yellow, red—would represent the nation's overall rating in pandemic preparedness and reflect the sum of the nation's score across each metric. The scale can also be useful in informing policymakers and the public of the state of pandemic preparedness.

An effective national response is partially dependent on state-level preparedness. As such, in addition to developing metrics geared toward evaluating the nation's preparedness levels, Congress should require the board to create state-level measures and core requirements for the purposes of assessing state pandemic plans. States must submit their respective plans to the board annually, and the board will use its established measures and core requirements to determine states' levels of pandemic preparedness. A composite index for comparison of states should be included. Congress should mandate that state pandemic plans meet the measures set by the board and consider financial consequences for noncompliance.

The board will consist of eight members, four of whom serve in the federal government: the secretary of HHS, the secretary of DHS, the secretary of DOD, and the secretary of State. The secretary of HHS will serve as the chair of the board. These secretaries oversee agencies and programs that are critical during pandemic emergencies. The secretaries will also be critical in helping to obtain data from within their respective departments for the board's yearly evaluation. The other four members will be public representatives. These members will be appointed by the president and confirmed by the Senate; they should be nominated by an independent scientific body such as the National Academy of Medicine.

The board will be supported by career staff in a new Office of Pandemic Preparedness located at the GAO. The sole purpose of this office and its staff is to support the board in carrying out its functions, particularly producing the annual report to Congress. The board and the Office of Pandemic Preparedness would have an independent budget and would be financed through a mandatory spending stream. Additionally, the board would receive a small portion of earmarked funding from each of the represented departments—HHS, DHS, DOD, and the Department of State.

# Recommendations: Data Infrastructure

## Background

The COVID-19 pandemic has highlighted the need to strengthen the U.S. public health systems' data infrastructure. High quality data systems are necessary for detecting and monitoring pathogens and guiding the policy response to outbreaks. The response to COVID-19 has been hindered by major gaps in data collection and reporting.

Because states have the greatest authority to mandate and regulate data collection, the quality of federal data is dependent on consistent data submitted by each state. Particular attention has been given to the inconsistent collection of race, ethnicity, and other demographic data. Journalists and academic researchers filled in some of the gaps with their own databases, but collection of pandemic trend data should be the role of the federal government. Over the course of the COVID-19 pandemic, centralized federal reporting of demographics, hospitalizations, and testing data has improved, but there are continued issues with the availability and format of essential data. A recent report from the GAO found that, as of February 2021, information on race and ethnicity is missing for about half of vaccine recipients.[49] Such data is critical to identifying and responding to disparities in disease prevalence, health care access, and policy actions across different populations during a pandemic. This missing data prevents health officials from having a clear understanding of equity issues related to vaccine distribution and vaccine confidence.

There has been a federal funding effort over the past two decades to improve the use of EHRs in health care through the Health Information Technology for Economic and Clinical Health (HITECH) Act,[50] but there has not been the same investment in public health data systems. Many state and local health departments are still using low tech data systems with limited functionality and must resort to using paper documents, phone calls, and fax machines to request and exchange data.[51] Even when EHRs are available, different EHR systems are often not interoperable with each other, creating additional challenges for data reporting between clinicians and public health departments.

Finally, the current public health data infrastructure is highly fragmented. Public health officials draw from a wide range of data types to detect and monitor diseases (Table 1). Data systems across disease categories and levels (local, state, and national) have different requirements, technologies, policies, and privacy laws. Data does not flow freely between public health organizations, and it does not flow between public health systems and private health care

providers. This patchwork data infrastructure leads to both gaps and duplicative work, hindering health officials' ability to collect and share important health data. Additionally, confusing, duplicative, and inefficient processes around data collection and data sharing contribute to increased burden for public health officials and health care providers who are already carrying a heavy workload during the pandemic.[52]

The CDC has been working to fix these gaps through its Data Modernization Initiative (DMI), launched in 2019. The effort takes a comprehensive approach to improving public health data, technology, and workforce capacities.[53] Under this initiative, the CDC strengthened core surveillance systems, released an open data site to foster sharing of data and informatics resources, and provided funding to states to improve interoperability. A full roadmap of activities and expected outcomes can be found on the CDC website.[54]

With the advent of the COVID-19 pandemic, the CDC has led a push under the DMI to increase use of electronic laboratory reporting and electronic case reporting (eCR) in health departments, integrate COVID-19 data from across multiple systems, and expand training programs for data science and informatics.[55] As of May 2021, more than 7,600 health care facilities across the country are sending COVID-19 electronic case reports to public health agencies using eCR, according to the CDC.[56]

The CDC has received an influx of funding to support data modernization efforts over the past year. In both FY2020 and FY2021, Congress appropriated $50 million to the CDC for data modernization.[57] Additionally, the Coronavirus Aid, Relief, and Economic Security (CARES) Act of March 2020 included $500 million for data modernization, and the American Rescue Plan of March 2021 provided an additional $500 million.[58] In FY2020, the CDC used $130 million of CARES Act funding to support "Enhancing CDC Services and Systems for Ongoing Data Modernization," including contracts for cloud migration, enterprise data analysis, and rapid person-based data collection.[59] However, this funding may not be enough for long-term data infrastructure support (see Financing section). To ensure a more interoperable data infrastructure with timely data sharing, current and future funding will have to tie accountability metrics to standards for data reporting, collection, and interoperability.

**Table 1**

| Data Types for Early Detection and Situational Awareness |
|---|
| Emergency room data/Syndromic surveillance |
| Electronic health records/Electronic case reporting |
| Electronic lab reporting |
| Border surveillance |
| Genomic surveillance |
| Vital records |
| Demographic data |
| Notifiable diseases |
| Outbreak forecasting modeling |
| Wastewater surveillance |
| Pharmaceutical data |
| Animal health/zoonotic data |
| Blood bank data |
| Vaccination registries |
| Vaccination production, distribution and supply chain |
| Treatment production, distribution and supply chain |
| Quarantine/isolation data |
| Contract tracing data |
| Hospital capacity and supplies |
| Search and location data from private companies |

## Approach to Recommendations

Given the wide scope of data types used for public health, there is a need for a coordinated effort to ensure that data reporting and collection is not burdensome to clinicians, health care facilities, states, and localities, and that data sharing across levels of government and surveillance systems is accomplished with minimal effort. To this end, the first two recommendations in this section call for a set of cross-cutting policy changes to strengthen public health data collection and exchange, both during public health emergencies and nonemergency times. The first set of changes would ensure more alignment and standardization for data collection and reporting; the second would improve data sharing and interoperability. In addition, a final recommendation builds upon vaccine-related data systems developed during COVID-19, which can be standardized and strengthened to better inform future pandemic responses.

## Recommendations

1. **Establish federal data collection and reporting standards to improve consistent collection of core public health data across data systems, with a prioritized focus on race and ethnicity data.**

*Establishing cross-cutting data collection and reporting standards*

Currently, the quality and type of data collected varies widely across federal programs and states. Standardizing data collection across public health departments, federal agencies, and clinical health care facilities will improve data quality and facilitate data sharing across agencies. By simplifying and clarifying complex data collection processes, data standards can also help reduce the burden on clinicians and public health professionals.

Public health departments may receive data from clinical health care facilities, laboratories, pharmacies, prescription drug monitoring programs, schools, and other sources. Local health department data is usually funneled to state health departments. State health departments and federal health agencies share data bilaterally. Importantly, data collection needs are different at the federal, state, and local level. Any standards must allow for some flexibilities across different levels of government and take into consideration the ability across jurisdictions to meet proposed standards.

Recent efforts through the CDC's DMI have improved electronic standards for data collection related to COVID-19. However, further progress is needed to define core data and standardize data collection across federal programs and diseases. ONC recently established a Public Health Data Systems Task Force to examine policy and technical gaps in data collection and surveillance.[60] This new task force should consider defining a "core public health dataset," developing additional standards for data collection, and developing a plan for implementing those standards, including linking them to funding mechanisms. In these efforts, the task force should engage with the CDC, CMS, state and

local stakeholders, as well as the private and academic sector. A similar recommendation has been made by the GAO and is included in the proposed Health STATISTICS Act of 2021.[61]

"Core public health data" should include essential data that state and local agencies collect and report to the federal level. Any data that is necessary for public health surveillance and response—such as demographic information, electronic laboratory data, travel health data, genomic sequencing data, and electronic vital records data—should be included as core public health data. It will be critical to engage state and local stakeholders in this process to create buy-in, assess limitations, and ensure data needs are appropriately captured. Once core data is clearly defined, standards are needed to inform consistent data collection efforts in state and local public health. There is also a need to ensure clear protocols and processes for data reporting (i.e., who is reporting what data, where, and to whom). Clearer protocols can help reduce duplicative reporting between different public health and clinical organizations. Because legal requirements and infrastructure limitations vary across jurisdictions, such protocols and standards will have to be flexible enough to account for these differences.

Additionally, because efforts around data standardization are spread across multiple different program streams, it can be difficult to track what progress has been made. HHS should submit a report to Congress and the new Office of Pandemic Preparedness on current streams of funding, activities, and program requirements related to data collection and standardization. Congress should provide funding to support these activities.

### *Prioritizing race, ethnicity, and other demographic data*
The health disparities in the COVID-19 pandemic have revealed the urgent need to set standards around race, ethnicity, and other demographic data. Although such standards would be included in the broader process described above, demographic data should be treated as a first priority. Standardization of collection and reporting of demographic data is critical to tracking disparities across different populations during a pandemic and deploying targeted interventions. Additionally, pathogen samples and other collected data must represent individuals from diverse races, geographies, and other demographics. While some progress has been made in demographic data collection throughout the course of the pandemic, many demographic data is still incomplete.[62] The CDC should set national standards to improve the collection and reporting of race, ethnicity, gender, primary language, disability status, occupation, and other demographic data. These demographic data standards should be tied to data collection and reporting standards developed by the Public Health Data Systems Task Force as outlined above. They should also be tied to future funding streams to states and localities to incentivize their use. The CDC should also work with the private sector to ensure that test results and vaccination data, among other data, include complete demographic information.

As recommended in a previous report from the Bipartisan Policy Center, Congress should give the CDC the authority to require race and ethnicity reporting from jurisdictions during public health emergencies.[63] Authority currently falls to states and territories to mandate demographic data collection, which contributes to variable quality of the data. Additionally, the CDC should take steps to ensure that categories used to capture race, ethnicity, and other demographic data are appropriate. The agency should engage with stakeholders to ensure that options included for demographic questions accurately reflect various identities and are sufficiently specific as to capture disparities within certain communities. Finally, some individuals may feel uncomfortable disclosing their demographic information for fear of discrimination. The CDC should acknowledge these concerns and prioritize privacy and transparency in demographic data collection.

## 2. Improve data sharing and interoperability by establishing integrated platforms for detection and surveillance of public health threats, clarifying privacy standards during public health emergencies, and encouraging data exchange between clinical and public health organizations.

*Establishing an integrated infectious disease surveillance system to detect emerging disease threats*

The United States currently uses multiple early warning systems across different federal agencies to detect and monitor novel pathogens. For example, the CDC manages the National Notifiable Disease Surveillance System, the National Syndromic Surveillance Program, the U.S. Outpatient Influenza-like Illness Surveillance Network, and the Global Disease Detection Operations Center, among others. Outside the CDC, the Department of Homeland Security's National Biosurveillance Integration Center and the Department of Defense's National Center for Medical Intelligence play a role in detecting and assessing biological threats. Having multiple systems leads to duplicative data entry and creates additional burden for providers. Currently, data from a single case of salmonella must be reported to seven different CDC data systems, including the Laboratory-based Enteric Disease Surveillance System, the National Notifiable Disease System, and others.[64,65] Given that several different federal agencies and data systems are currently involved in disease surveillance, the United States could benefit from a more comprehensive and streamlined approach.

The CDC should establish an integrated infectious disease surveillance system, which would expand and strengthen surveillance efforts. This system could draw from components of its Influenza Surveillance System, which is uniquely multifaceted and comprehensive. The Influenza Surveillance System includes five different categories of data: virologic data, outpatient illness surveillance, mortality surveillance, hospitalization data, and summaries of geographic spread.[66] This data comes from public health, hospital, and clinical laboratories;

outpatient providers; state vital statistics offices; hospital admissions databases and infection control logs; and state health departments. This system plays an important role in identifying early outbreaks and novel types of influenza viruses. However, the United States does not currently have the same capacity for monitoring other novel viruses. Thus, an integrated surveillance system could strengthen surveillance efforts for other novel pathogens before they begin to spread widely. This system could be used to inform modeling and analytics within the National Center for Epidemic Forecasting and Outbreak Analytics, which the Biden administration is currently designing.[67] The CDC should expand data collection for an integrated surveillance system to capture data from all methods of patient care, including telemedicine visits, home health care, travel health, and blood banks. The system should also capture genomic sequencing data from specimens obtained as part of routine surveillance. It could also potentially integrate search and location data from private companies, like search engines and social media. Table 1 lists data types that are important for early detection and could be included in such a system. It will also be critical for an integrated surveillance system to expand data from global sources; thus, global diplomacy and partnership will play an important role in a successful early warning system.

### Establishing a national consolidated data platform for use during a public health emergency

Once a disease threat has been identified through early detection systems, public health officials, clinicians, and policymakers need up-to-date data to provide situational awareness and to inform the public health response. This data must be easily accessed and shared across state, federal, and private entities in a timely manner. However, current barriers to interoperability can lead to a slow uncoordinated response during public health emergencies.

To establish federal leadership for data modernization efforts across HHS, Congress should direct the HHS secretary to ensure alignment of data modernization efforts across federal agencies and offer high-level strategic direction. The secretary should delegate operational leadership to ONC, working with CMS and CDC. These agencies should partner with state and local public health departments and the private sector to integrate and modernize public health data infrastructure. Along with designating clear operational leadership roles within HHS, the secretary should ensure that the position of chief technical officer at the CDC be filled immediately to assist with data modernization efforts.

To improve interoperability during a public health emergency between levels of government and different data types, the HHS secretary should ask the NAM to convene stakeholders across the private, public, and academic sectors to study how to design a national interoperable data platform to improve access to health data and other relevant data needs during ongoing public health emergencies.

The NAM study should:

- Propose a national platform that would integrate data from emergency rooms, EHRs, laboratories, as well as genomic data, travel health data, and additional data types outlined in Table 1.

- Consider under what circumstances data should be linked, such that genomic, clinical, and epidemiological data are connected to inform the public health response during a public health emergency.

- Consider the specific data needs of state, localities, tribes, and territories, and ensure the proposed data platform is flexible to meet those needs.

- Ensure that the platform supports the use of application programming interfaces (APIs), which is a method that allows for rapid, cost-effective data sharing, and the Fast Healthcare Interoperability Resources (FHIR) standard for formatting data elements. Both APIs and FHIR standards have been required for IT developers in ONC's 21st Century Cures Act Final Rule.[68]

- Include the core public health dataset defined in recommendation 1, and specify how data should be accessible and to whom during a public health emergency, as well as examine issues on governance, security, and privacy.

- Ensure the data platform minimizes repeated data entry and has clear processes defining how and when changes are made.

The study should conclude in one year and propose an actionable model that could be implemented by the HHS secretary through ONC, CDC, and CMS. Interoperability and participation in the proposed platform should be a condition of future funding mechanisms outlined in the Financing section of this report. As part of the implementation, federal leadership should develop a formal implementation plan with stakeholders to provide clarity and to ensure long-term sustainability of the newly developed model.

Lessons could be learned from the Chicago Department of Public Health's successful partnership with Rush Medical Center to create a comprehensive COVID-19 data platform that collects electronic lab reporting and clinical data from the Epic EHR, which includes hospital capacity. This data is displayed through dashboards and can inform both hospitals and COVID-19 response efforts by identifying when hospitals are getting overwhelmed, and whether specific populations are being disproportionately impacted.[69]

### *Issuing clarifying guidance defining privacy and security standards during public health emergencies*

Health information should be shared with public health authorities in a manner that protects patient data but allows public health officials to have the information necessary to respond to emerging and ongoing emergencies or outbreaks. HIPAA regulates how covered entities (e.g., health plans, health care providers, and health care clearinghouses) and their subcontractors use

protected health information (PHI). However, HIPAA does not cover all entities, most notably, digital wellness applications, such as contact tracing, exercise, and mental health apps, and certain patient portals, such as FollowMyHealth®.[70,71] This is especially concerning given that a recent national survey found that over 50% of adults 50–80 years old have set up patient portals. Unprotected data is often used for marketing purposes, and patients may not be aware that their data is no longer protected under HIPAA. This contributes to an overall lack of transparency for consumers around what data is being collected, for what purpose, and for what duration. Moreover, there is a need for consultation and collaboration with communities that will be impacted by data collection.

In December 2020, the HHS Office for Civil Rights (OCR) issued guidance to clarify HIPAA regulations regarding covered entities and whether subcontractors can use health information exchanges (HIEs) to share patient information with public health authorities.[72] The guidance clarified issues around a subcontractor's ability to share patient data, and the minimum necessary data required to fulfill a public health authority's request. This will permit subcontractors to share PHI data with public health authorities during a public health emergency, without explicit permission from the covered entity, as long as the covered entity is notified within 10 days.

HHS should also issue further guidance on how PHI should be shared during a public health emergency and during an emerging threat, prior to a public health emergency declaration; cybersecurity best practices; de-identification of data; and data expiration processes. Given there is health data that is not protected by HIPAA, Congress should consider extending HIPAA protections to other entities collecting health data including, but not limited to, digital health apps and patient portals.

### *Updating ONC's United States Core Data for Interoperability Standards and CMS' Promoting Interoperability Program*

Electronic Case Reporting (eCR) is the automated real-time transmission of EHR case reports from health care systems and providers to public health agencies.[73] This allows state and local public health agencies to automatically receive relevant clinical data, such as data on transmissible diseases, to inform case investigations and follow-up. The United States Core Data for Interoperability (USCDI) outlines a set of standardized data components that health IT developers (e.g., EHR vendors) have to support. These standards set a baseline for data elements that must be shared across systems, including lab results, vital signs, and demographic information. ONC has an established process to continuously update USCDI, and public health stakeholders have continued to engage with ONC to improve interoperability between health systems and public health departments. While Version 1, which was issued in 2020, and the proposed Version 2 both include elements related to electronic laboratory reporting, the standards do not address all of the data needed to track

population-level trends. ONC should continue to work with the CDC—along with the eCR collaborative, states, localities, tribes, and territories—to ensure that USCDI Version 3 prioritizes data elements that would connect EHR data with public health data.[74] The CDC and ONC should co-chair the development of Version 3, with support from the HHS secretary. To ensure the timely inclusion of public health data into USCDI, the HHS secretary should establish a deadline for Version 3.

To encourage eCR among hospitals, CMS should require that eCR be included as one of the standards that providers have to reach in the Promoting Interoperability Program. This program, formerly known as the EHR Incentive Program, is the latest iteration of the effort to spur EHR uptake and interoperability across the health system.[75] Currently, the program includes eCR as one of six measures that eligible hospitals or critical access hospitals can choose to demonstrate active engagement with public health agencies. Requiring eCR could help increase data exchange of clinical data with public health departments.[76] This policy change has recently been advocated for by Pew Charitable Trusts, The Council of State and Territorial Epidemiologists, and the American Medical Informatics Association.[77]

3. **Build upon data collection and sharing efforts during COVID-19 to strengthen vaccination data systems for use during future infectious disease pandemics.**

*Strengthening federal leadership for developing systems to digitize vaccination information*

Widespread vaccination will reduce the number of people who become ill with COVID-19, decrease community disease transmission, and facilitate a safe return to activities during COVID-19 and future pandemics. The CDC has recently issued guidance that advises that those who are fully vaccinated can resume certain activities.[78] Yet there is not currently a reliable system in place to identify who has been fully vaccinated. The federal government should ensure that there is a system that allows for digital verification of vaccination and testing information.

Several private companies are working on platforms that an individual could use to digitally access their vaccination information or COVID-19 test results. Such digital systems may eventually be used by private businesses, such as airlines or restaurants, to check the health status of customers. Currently, New York state is requiring major venues, like theaters and sports arenas, to verify COVID-19 vaccination or health status. Customers may choose to show paper documentation of a test or vaccine, but they can also use Excelsior Pass, a mobile platform developed by IBM for the state.[79] The Excelsior Pass has built-in security measures and does not store any PHI on users' mobile devices. Users can delete passes once they no longer need them.

The Biden administration has stated that the federal government will not issue vaccine passports or collect personally identifiable vaccination information.[80] Yet, particularly in light of the recent change in CDC guidelines, there is demand from private business, cities, and states for systems that allow for digital verification of vaccination and testing information. Individuals, too, may want easy access to their vaccination information so they can resume international travel. The European Union recently announced that Americans with proof of vaccination could now travel to the area.[81] The federal government has a key role to play in promoting the development of a vaccination credential system by ensuring that credentials protect privacy and are synchronized, secure, and high quality. A federally led system would be the best way to promote interoperability and ensure quality and authenticity; such a system would not mandate or track vaccinations but would enable employers and businesses that want to verify vaccination status to easily do so. If not currently feasible, the federal government should, at minimum, develop standards for private sector efforts in this area to prevent fraud and protect privacy.

There are several benefits to promoting strong federal leadership around vaccination credentials. National leadership in this area will be particularly helpful to small businesses that want to reopen cautiously but may have limited resources to spend on vaccination verification processes. Without government support, the onus may fall on business owners and their employees to figure out how to verify health status safely and accurately—and how to pay for verification processes. Federal standards can also help protect against fraud and abuse, similar to the way that Real ID standards improve authenticity.[a] Additionally, federal government involvement in this area will help protect patient privacy. The government can ensure that these digital systems collect only the minimum amount of data necessary and delete the data after it is no longer needed. Finally, government standards can ensure more equitable access so that vaccination verification is not solely available to those with smartphones. If such a framework works well for COVID-19, the federal government could consider applying lessons learned to address future public health crises.

### *Institutionalizing the current COVID-19 vaccination tracking system*

Timely, accurate, and complete pandemic vaccination uptake data is critical to inform vaccine manufacturers and distributors, public health officials, and clinicians. Currently, states manage their own Immunization Information Systems (IIS), which have varying functionalities. Different IISs may collect different types of data, and they are often not interoperable with each other. There was no national real-time system to track administration of pandemic vaccinations before the COVID-19 pandemic started. To manage

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a   Passed by Congress in 2005, the REAL ID Act set minimum standards related to the issuance of identification, such as driver's licenses. (Department of Homeland Security, "Real ID Frequently Asked Questions." Available at: https://www.dhs.gov/real-id/real-id-faqs)

vaccine distribution and track doses administered during COVID-19, HHS has established a new network of databases that expands and builds upon preexisting immunization data systems.[82] This system integrates data from state IISs with other sources, including patient data from pharmacies and shipment data from the federal distributor and private companies. The central platform newly developed by HHS consolidates all of this data to track vaccine manufacturing, allocation, distribution, and administration. The expanded system allows for the collection of far more detailed data and greater transparency around vaccine supply and demand.

While it is an improvement, the current immunization tracking system is not perfect. Due to interoperability issues and state data infrastructure limitations, some states are still relying on paper data or manual data sharing. Some of the new platforms have suffered from technical bugs, and many health care providers have found them hard to use.[83] Additionally, collection of demographic data, such as race and ethnicity, has been variable across states.[84] HHS should evaluate the utility of the newly developed system, including the success of its implementation. In addition, HHS should formalize and strengthen the system for use during future pandemics. Any needed adjustments should be made to ensure that the systems involved are functional, easy to use, and can capture all needed data in as close to real time as possible.

# Recommendations: Public Health Financing

## Background

The country's response to COVID-19 reflects underinvestment in health security specifically, but also more broadly in public health infrastructure and programs. State and local public health departments struggled to deal with public health challenges long before COVID-19. Limited and inconsistent funding of public health has allowed COVID-19 to have a disproportionate impact, in particular in rural areas[85] and on communities of color.[86]

Public health spending makes up a small amount of the total money the U.S. government spends annually on health. CMS reported that for Calendar Year 2019, governmental spending on public health was $97.8 billion, or 2.6% of total national health expenditures of $3.8 trillion.[87] As a percentage of total health expenditures, funding for governmental public health activities has fallen for more than a decade from 3.0% in 2008.[88] Yet from 2008 to 2018, the economy saw annual average growth of 3.3%, and national health care expenditures for disease care saw annual average growth of 4.3%. The decade also saw drops in life expectancy, pervasive health disparities, and increasing mortality rates from major communicable disease emergencies and an opioid crisis.[89] Scholars have criticized the official level of governmental public health spending as an overestimate, and argue that actual government spending is between one-third and two-thirds of that number, or between $35 billion and $64 billion when spending on individual health care services— such as behavioral health—is taken out.[90] Measuring government public health spending has been challenging, and produced different estimates because of "the lack of a universally accepted definition of public health activity, the uncertain boundaries between government public health activity and other governmentally provided personal health care and social services, and the difficulty of matching revenue streams with public health activity expenditures."[91]

The money that goes to state and local public health departments is not only a fraction of the above amount but is inconsistent and limited in how it can be used. Though many of the agencies within HHS and a few others focus on public health, most funds go through the CDC. This is provided on an annual basis through congressional appropriations committees as "discretionary" spending. The appropriators can choose what level they want to provide each year, largely to the CDC, and the CDC then gives grants to states and localities largely tied to specific diseases and categories.[92] Public health departments thus

receive very little money they can use to make the long-term investments to develop much-needed cross-cutting capabilities and are thus caught unprepared during emergencies. That has not fundamentally changed with the response to COVID-19. Unfortunately, the CDC's budget has stayed virtually flat over the last decade after adjusting for inflation, and funding for prevention and public health activities and emergency preparedness and response has dropped sharply, despite the worrying trends stated earlier.

The Affordable Care Act established the Prevention and Public Health Fund as the country's first permanent annual appropriation dedicated to improving the public health system and administered through the CDC. Funding was supposed to increase from $500 million in 2010 to $2 billion annually by 2015. However, Congress hasn't fully funded it since 2012. The money has been used instead to offset other spending.[b] Congress allocated only about $900 million to the fund in FY2020 and has directed the funding through the annual appropriations process since FY2014.[93] From FY2013 to FY2027, the fund is set to have $11.85 billion of its funding cut due to congressional action.[94] Declining state budgets have also diminished public health department capabilities following the 2009 recession. Since 2010, spending for state public health departments has fallen 16% per capita, and spending for local health departments has fallen by 18%.[95] States also differ in making public health funding a priority. Adjusting for population, in 2019, Missouri spent the least, at $7 per person, while the District of Columbia spent the most, at $363 per person, followed by New Mexico, at $140 per person.[96] Authors of a study looking at state-level public health concluded that funding "is not being calibrated to need."[97]

Though the country created numerous federal public health preparedness and response program authorities after 9/11, Hurricane Katrina, and the threat of H5N1 avian influenza, the government was still unable to generate a sufficient coordinated response for COVID-19. In 1983, Congress created the Public Health Emergency Fund for the HHS secretary to use in the event the president declares a public health emergency,[98] but that account had zero dollars in it when the pandemic came to U.S. shores. At the start of COVID-19's spread in the United States, the HHS secretary was able to draw $108 million from the Infectious Disease Rapid Response Reserve Fund, which had been created by Congress in 2018 to "prevent, prepare for, or respond to a declared infectious disease emergency,"[99] and then asked Congress for an additional $1.25 billion in supplemental funding. Until that money was approved, the government had to divert $136 million from other accounts to combat the pandemic.[100,101,102]

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b    The fund "has been raided to support the training of primary care clinicians, avoid cuts to physician reimbursement, finance a small portion of the 21st Century Cures Act, and briefly extend the Children's Health Insurance Program." John Auerbach, "The Promise of and Lessons From the Prevention and Public Health Fund," *American Journal of Public Health* 109, no. 4 (April 1, 2019): pp. 533-534.

In response to the COVID-19 pandemic, Congress did pass five supplemental appropriations measures and the American Rescue Plan outside of regular appropriations, providing almost $400 billion for public health related activities. However, most of the money has gone toward time-limited, COVID-specific purposes, including $178 billion for the Provider Relief Fund; $47.8 billion for COVID-19 testing, contact tracing and mitigation activities; and about $15 billion for COVID-19 vaccines, therapeutics, medical supplies, and products. As of late May, the CDC has awarded only $52 billion of supplemental funding to state, tribal, local, and territorial public health organizations, with $30.2 billion awarded through the Epidemiology and Laboratory Capacity (ELC) Cooperative Agreement for departments to "facilitate capacity for infectious disease control and prevention" and $755 million distributed for emergency response to COVID-19.[103] Though $7.66 billion was provided to HHS to maintain and expand the U.S. public health workforce, the country will have to go further in providing sustained funding that looks beyond the current pandemic to better prepare the country for the future.

History has shown us that sustained investments in health security have been hard to come by. Instead, investments follow a boom-and-bust cycle of "a massive funding response to a crisis, followed by a quick retreat."[104] In FY2020, the country allocated $547 million in the budget for global health security threats, compared to $750 billion for the U.S. military.[105] The Strategic National Stockpile (SNS), too, has suffered from underinvestment, with supplies never being fully replenished following the 2009 H1N1 pandemic.[106] In 2019, although health officials requested $1.5 billion for the SNS, the White House asked Congress to appropriate only $705 million.[107] Insufficient funding has also diminished U.S. capacity to monitor overseas health developments, and only a small proportion of total global development assistance for health has gone toward investments in pandemic preparedness and health systems strengthening, despite the global nature of pandemic threats.[108] The United States has clearly failed to learn lessons of earlier pandemic and simulation exercises, which highlighted critical funding gaps that were expected to hamper a future pandemic response.[109]

As the federal government was caught on its back foot by COVID-19, so too were the states, which had seen their share of funding slashed over the past decade. In FY2018, states spent $860.1 million on all-hazards preparedness and response activities; of that, $741.6 million or 86% came from the federal government. Local health departments reported that a similar percentage of 71% came from the federal government. Federal emergency preparedness support had been falling for years as the following examples demonstrate:

- After adjusting for inflation, funding for the CDC's Public Health Emergency Preparedness Cooperative Program, the "primary source of federal support for state and local public health emergency preparedness and response," decreased by 20% from $847 million in FY2010 to $675 million in FY2020.

- The Hospital Preparedness Program (HPP), a program created after 9/11 and designed to improve medical surge capacity of community and health systems to deal with various public health threats, has experienced a 50% reduction in funding since 2003.[110]

The insufficient funds the federal government provides to states and localities for public health emergency preparedness and response is part of a larger problem in public health more broadly. Public health experts have repeatedly warned policymakers about the dangers of underfunding the public health system and the need for more governance flexibility. In 2012, the Institute of Medicine (IOM) released a report on population and public health, focused on public health financing. The report identified insufficient funding in public health and "dysfunction in how the public health infrastructure is funded, organized, and equipped to use its funding" as the two main issues responsible for the country's poor health outcomes and high health care expenditures.[111] The report advocated giving state and local public health departments greater latitude in how they used federal funds to meet population health goals and incentivizing public health system stakeholders to better coordinate. The Institute also developed a minimum package of public health services, including Foundational Capabilities and basic programs every health department requires, like emergency preparedness and response, as well as management of chronic diseases such as cardiovascular disease and diabetes.

The minimum package, called the Foundational Public Health Services, was defined in such a way that individual elements could have their costs estimated and could help inform public health funding decisions, with the goal that Congress would authorize "a dedicated, stable, and long-term financing structure" to appropriate the necessary money for every community to deliver the minimum package.[112] Lack of investment in these Foundational Capabilities and basic programs (Foundational Areas) are directly associated with health departments' inability to address key challenges of COVID-19 in many cases and poor population health that put the population at higher risk of mortality and morbidity.[113] A seminal study done in 2018 estimated that an additional investment of about $11 billion, or $34.3 per capita, was necessary to close the resource gap and achieve full implementation. Of that $11 billion, $4.5 billion was attributable to Foundational Capabilities and $6.5 billion was attributable to Foundational Areas.[114]

The IOM recognized that building a public health system that would possess Foundational Capabilities and deliver programs in all Foundational Areas required agreed-upon definitions of public health activity across all levels of governments, coupled with a standardized financing accounting system for public health, something sorely missing. Health departments across the country still use highly idiosyncratic financial accounting systems that are not designed for financial and program management, making it difficult to see how particular inputs lead to outcomes or allow for comparisons and accountability.

The 2012 report recommended building a uniform chart of accounts that would complement existing financial account systems. Adoption of such a system would prepare health departments to not only start developing the minimum package of public health services with federal support, but become more efficient and informed in decision-making.[115] In collaboration with state and local health officials, the Public Health National Center for Innovations, and with funding from HHS and the Robert Wood Johnson Foundation, the Public Health Activities & Services Tracking at the University of Washington has piloted and continues to test a Uniform Chart of Accounts with the goal of widespread adoption to increase transparency and accountability for public health investments.[116]

The public has understood the dangers of underinvestment in public health funding as well. A May 2021 survey from the Harvard Opinion Research Program and Robert Wood Johnson Foundation[c] found that over 70% of adults "favor substantially increasing federal spending on improving the nation's public health programs" and the same proportion believes public health agency activities are very or extremely important to the nation's health. Though COVID-19 was unsurprisingly most often chosen as one of the top two health problems currently, public health issues of obesity, heart disease, diabetes, and drug addiction/abuse together were perceived by many as serious challenges.[117]

## Approach to Recommendations

The following recommendations fit into a strategy of enhancing the country's ability to combat pandemics and other public health emergencies and also enabling state, local, territorial, and tribal public health departments to engage in the day-to-day activities to promote health and address disparities through the Foundational Public Health Services framework. They build on promising existing activities, models, and opportunities while introducing necessary funding and structural alignment.

For the federal government to **plan** and **prepare** for similar emergencies in the future:

1) Assess federal funding of pandemic preparedness and response, and exempt essential federal public health functions from all budget restrictions

For the federal government to **provide** immediate, necessary resources to impacted jurisdictions in a transparent, accountable, and flexible manner:

2) Replenish and encourage the use of the Public Health Emergency Fund immediately following the declaration of a public health emergency and as the vehicle for supplemental appropriations addressing the emergency

For state, local, territorial, and tribal public health departments to **perform** the

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necessary functions that support basic public health protections and other key programs and activities:

3) Create a new mandatory fund of $4.5 billion to support foundational state and local public health capabilities, to be administered by appropriators annually to HHS for these purposes

For state, local, territorial, and tribal public health departments to deliver topic-specific programs and activities that **prevent** morbidity and mortality from public health emergencies, reduce disparities across multiple dimensions, and improve quality of life:

4) Reform and increase the funding of the Prevention and Public Health Fund from $900 million to $4 billion to finance Foundational Areas and local needs, including communicable disease control, to improve health and reduce downstream costs of medical care

A public health excise tax would raise at least $7.6 billion to finance the last two recommendations.

## Recommendations

1. **Assess existing federal funding of pandemic preparedness and response activities for opportunities to increase coordination and efficiency and improve equity. For programs deemed highest priority to prevent, detect, and address infectious disease threats, create a permanent budget designation named Biodefense Interagency Operations outside annual 302(a) allocations, and should they be established by future legislation, outside overall budget limitations.**

Though the pandemic has not ended, policymakers and researchers have already identified some of the gaps and shortcomings in the federal response.[118,119] For example, underfunding of the SNS led to severe shortages in PPE early on in the pandemic.[120] Many of the recommendations in the first section build on that work with the goal of supporting the mission-critical functions that only the federal government can take on, but there is still a lack of clarity on how and whether federal funding of emergency preparedness and response across different agencies effectively address biological threats.[121] Federal funding to health departments through Public Health Emergency Preparedness cooperative agreements and the HPP have also dropped sharply.[122]

To this end, Congress should form a Joint Select Committee including members representing the relevant authorizing and appropriating committees to evaluate existing federal funding, identify mission-critical investments, and produce legislative recommendations with stakeholder feedback on how interagency funding can be better coordinated and optimized. The large inflow of short-term, limited funding in COVID-19 supplemental appropriations legislation and the focus of testing, treatment, and vaccination of the most vulnerable

populations further warrants an evaluation of the activities that should be funded in the future in anticipation of future pandemics. Those programs deemed mission-critical would receive the Biodefense Interagency Operations (BIO) exemption, allowing them to be exempt from budget caps, including any possible new discretionary spending limits enacted after their expiration at the end of FY2021. Federal departments and agencies should also be allowed to independently request the BIO exemption for their programs to ensure the country remains vigilant and primed for pandemic threats.

Appropriations Committees in Congress would still provide oversight and accountability in approving exemptions, and subsequently as part of their regular reports. The Congressional Budget Office would be tasked with detailing total federal funding, exempt and nonexempt, directed toward pandemic emergency preparedness and response. The National Board for Pandemic Preparedness recommended in the previous section would report on how funding has advanced federal pandemic preparedness capacity and capability.

In addition to the Public Health Emergency Preparedness cooperative agreements and the HPP, examples of programs, projects, and activities that could potentially be tagged with the BIO exemption include:

- National Center for Epidemic Forecasting and Outbreak Analytics: President Joe Biden issued an executive order the day after his inauguration for his senior staff to develop a plan to create an interagency organization "to modernize global early warning and trigger systems to prevent, detect, and respond to biological threats."[123] Envisioned as the disease forecasting version of the National Weather Service, which itself required decades of investment to develop into its current form, the organization would be able to centralize outbreak modeling and analytics expertise to inform public health policy on a permanent basis.[124] Investments up to now have largely been in the form of conditional, academically oriented grants, and researchers have been challenged by data issues, while the center would enable government and academics to work closely and continually improve science and technology.

- HHS Regional Disaster Health Response System: The Bipartisan Commission on Biodefense recommended in a March 2021 report that Congress authorize and fund, on a multiyear basis, a stratified biodefense hospital system, where hospitals would be categorized based on their capability to treat patients affected by infectious diseases due to bioterrorism and other events. CMS would associate hospital funding with hospitals' ability to meet accreditation standards set for each stratum. Such a system would place patients where they could be treated most efficiently and enable resources to be better allocated to where they are needed.[125]

- SNS: The Stockpile was meant to serve as a backstop to states and health care organizations that had exhausted their medicines and medical supplies during a public health emergency. However, the rigorous federal decision-

making process for determining what to stockpile had diminished over time. The SNS's supply of face masks and N95 respirators had not been replenished since 2009 and was woefully inadequate in providing the PPE and ventilators needed, especially during the early part of the pandemic.[126]

Additional funding in future years could support the attainment of pandemic preparedness metrics set by the national board.

Former CDC Director Tom Frieden and other public health officials have proposed a similar idea, including the requirement that designated programs submit a bypass professional judgment budget annually to Congress explaining the resources needed for public health defense.[127]

2. **Allocate funding to the Public Health Emergency Fund for use immediately following a Public Health Emergency declaration and use it as the primary vehicle for supplemental appropriations funding.**

To enable the federal government to rapidly deploy funding as a stopgap measure in a public health emergency until Congress is able to pass emergency supplemental appropriations, Congress should add significant funding to the Public Health Emergency Fund and consider passing future supplemental appropriations through the fund in future emergencies.

There is currently no money in the existing Public Health Emergency Fund to support a designation of a public health emergency by an HHS secretary. This lack of permanent funding necessitates either the transfer of funds from other programs within the executive branch, to the extent that is possible, or delays in waiting for supplemental funding from Congress. Both of these options have drawbacks and can hamper an emergency response when speed is of the essence.

Though Congress has recently established and maintained the funding of the Infectious Diseases Rapid Response Reserve Fund, that fund is primarily operated by the director of the CDC, not HHS, and has limited authority. The Public Health Emergency Fund is managed by the secretary of HHS and is designed to be used across HHS for a larger range of purposes related to public health emergencies, and contains oversight mechanisms, including a mandated review by GAO.[128] The Infectious Diseases Rapid Response Reserve Fund will be critical in launching the response to future infectious disease pandemic, but would be unable to fund the response to disasters like nuclear accidents, chemical spills, natural disasters, or nonbiologic terrorist attacks.[129] If the Public Health Emergency Fund was not empty at the start of the pandemic, the secretary arguably could have used its funding to better coordinate activities in the agency, spent the money according to criteria much more detailed than the Reserve Fund, and automatically triggered reports from HHS to Congress, as well as a GAO review.[130]

Congresswoman Rosa DeLauro, chair of the House Appropriations Committee, has introduced legislation to allocate a one-time payment of $5 billion to the Public Health Emergency Fund to better prepare the government for future emergencies.[131]

3. **Allocate $4.5 billion in permanent annual mandatory funding to a new Public Health Infrastructure Account to support state, local, tribal, and territorial foundational public health capabilities.**

The funding would enable state and local health departments to develop the minimal cross-cutting skills that are needed to support their delivery of public health programs and leverage the investment made through the American Rescue Plan to hire and train public health workers and encourage innovation. The $4.5 billion would be fully paid for through the public health excise tax explained in detail below, and though it would be transferred into an account through mandatory appropriations, the money must still be appropriated through the annual appropriations process. Funding would start at a lower annual level and then build up to $4.5 billion to enable jurisdictions to absorb increased funding and strengthen accountability. The HHS secretary would award 90% of the appropriated money in grants to jurisdictions based on factors including population size, level of health disparities, and level of health risk and chronic disease burden in the community, and public health governance structure. The remaining 10% would go toward federal technical assistance, research and development projects related to Foundational Capabilities, and oversight.

The grants would expressly go toward developing the following Foundational Capabilities, listed with the roles they could potentially play in addressing key COVID-19 challenges identified by the NAM and BPC:

1. Assessment/Surveillance

   • Organization and execution of COVID-19 tests and contact tracing

2. Emergency Preparedness and Response

   • Development of public reporting mechanisms, emergency protocols responsive to changing conditions, and advancements in testing technology and capacity

3. Policy Development and Support

   • Understanding of scope of legal mandate and authority, and development of infection control policies, including enforcement

4. Communications

   • Combat misinformation and execution of public information campaigns conveying best practices and responding to concerns

5. Community Partnership Development

   • Coordinate across sectors to frequently perform out-of-scope functions, like procuring necessary materials and working with clinical providers

6. Organizational Competencies

   • Proficiently lead and coordinate with other governmental entities, and provide IT, HR, financial, and legal services underlying all functions

7. Accountability/Performance Management

   • Assessment of progress and setbacks on new processes, programs, and interventions while following state and national mandates and guidelines

8. Equity

   • Understanding disparities in the impact of COVID-19 and policies dealing with COVID-19, and reduce them through the use of data, targeted outreach and education, prioritization of resources, and recognition of the intersection of social determinants of health and unique challenges faced by marginalized populations

All jurisdictions (states, territories, and localities) would be able to apply for the grants and must include a preliminary assessment of their existing Foundational Capabilities in their application. As a condition of receiving the grants, jurisdictions have to specify how the funds will advance specific Foundational Capabilities and agree to the following conditions:

• Adopt and use a uniform "chart of accounts" whereby jurisdictions will crosswalk their accounting systems onto a standardized public health financial data tracking system, where expenditures and revenues can be categorized into Foundational Capabilities, Foundational Areas, and local needs.

• Meet interoperability requirements, data collection, and reporting standards to align with the CDC's DMI, pursuant to the recommendations included in the Data Modernization Initiative.

• Receive accreditation aligned with the Foundational Public Health Service framework within five years to demonstrate progress toward attaining these capabilities.

   • The Public Health Accreditation Board has aligned the standards and domains (groups of standards) in its current version of its accreditation standards and measures with the Foundational Capabilities and will work to further align them to the measures level that is used to evaluate whether standards have been met when they update their process — set to take effect in 2022.[132]

- Meet pandemic preparedness benchmarks set by the National Board on Pandemic Preparedness once released, as described in the second recommendation under Intergovernmental Roles and Responsibilities.

- Funds received will supplement—not supplant—existing state and local dollars funding public health infrastructure.

Beyond these, states and territories must also agree to:

- Develop or modify an existing state health improvement plan to explain how the funds will go toward developing Foundational Capabilities with the participation of all local health departments, including localities that have not applied for these grants.

- Develop a dashboard with community and partner engagement to track progress on equity measures.

- Use a portion of the money to test the ability of entities under their jurisdiction to deal with a public health emergency through simulated exercises and drills.

The increase in mandatory funded programs in the last few decades beyond the traditional entitlement programs of Social Security, Medicare and Medicaid have generated pushback from budget and appropriations committees in Congress and external actors concerned about the federal deficit. However, the longstanding underfunding and lack of attention paid to public health, particularly in states and localities, have deepened gaps in the country's ability to address public health challenges and emergencies. A two-step process of mandatory appropriations into a dedicated fund and discretionary appropriations from that fund presents the possibility of stable funding subject to congressional control. The account would follow the model used by Congress for the 21st Century Cures Act[133]:

1) The NIH Innovation Account in the 21st Century Cures Act is set up with specified amount of funding transferred to the account every year that Congress has authorized to be used for NIH Innovation Projects, defined elsewhere in the statute. In the case of the Public Health Infrastructure Account, $4.5 billion would be transferred annually and authorized to be used as CDC grants to jurisdictions for Foundational Capabilities and supporting activities.

2) While the transferred money for the NIH Innovation Account comes from "direct spending savings" through budget offsets including Medicare and Medicaid reductions, funds transferred from the Prevention and Public Health Fund, and stock sales from the Strategic Petroleum Reserve, among other offsets, the money transferred to the Public Health Infrastructure Account comes from revenue generated by the Public Health Excise Tax. In both cases, the transfer is budget neutral and would not raise the federal deficit.

3) In addition to fully offsetting the transferred money, the legislation contains language ensuring that "appropriations from the "Innovation Account" are made at "no cost" to the Appropriations Committee as measured against its [§302(b)] allocation," so that funding for these Innovation Projects do not supplant funding for other programs and are not supplanted themselves. The same instruction applied to the Public Health Infrastructure Account ensures a commitment to critical funding to states and localities to develop these cross-cutting public health capabilities, as appropriators would not have any incentive to reduce funding since doing so would not have an effect on the allocation of money for other programs and agencies.

This model satisfies advocates and authorizing committees on one side who support stable funding, and budget and appropriation committees that wish to retain their authority over appropriations and not relinquish more control over the budget.

Members in both chambers of Congress have introduced legislation calling for the same amount of money but without a dedicated financing source and containing other differences.[134] Almost 260 organizations, including BPC Action, have supported increasing annual funding for CDC, state, local, tribal, and territorial core public health infrastructure by $4.5 billion.[135]

4. **Reform and increase annual funding to the existing Prevention and Public Health Fund from its current level of about $900 million to $4 billion to bolster inadequately supported public health programs and meet local needs**

Congress should reauthorize funds from the Prevention and Public Health Fund to go toward grants to local and state health departments to support Foundational Areas of public health, and toward Preventive Health and Health Services Block Grants, which give health departments "the flexibility to solve problems unique to their residents, while still being held accountable for demonstrating the local, state and national impact of the investments."[136] Health departments that are accredited would have increased flexibility to spend these funds and would be encouraged to provide shared services and collaborate on regional initiatives. The Task Force recommends reforming and increasing the funding for the Prevention and Public Health Fund so it solely supports public health programs delivered by states and localities, is protected from cuts and disruptions from both parties, and is tied to broader-based public health reform.

The Prevention and Public Health Fund was unfortunately used to "support federal priorities that were, at best, loosely tied to public health or prevention" and saw billions in dollars of cuts, largely to offset other legislation items.[137] The ACA gave Congress authority to transfer money from the fund to use for broad, authorized purposes, which Congress has used for the past several years to largely supplant instead of supplement existing programs administered by

the CDC, contrary to its initial purpose of expanding prevention and public health programs without subjecting them to the annual appropriations process. For political and fiscal reasons, Congress has also used money from the fund to offset the cost of other items.[138] This has created a "robbing Peter to pay Paul" dynamic.[139] Statutory language would be added to law to prevent Congress from using the Prevention Fund for purposes not specifically articulated as Congress has been doing since 2014, specifically prohibiting the use of the Prevention and Public Health Fund by Congress or the Administration to offset other costs.[140]

Given existing funding of about $900 million, an increase of $3.1 billion annually, phased in over several years, would be a major investment toward the approximately $6.5 billion gap in resources needed for health departments to deliver the programs in Foundational Areas, and a sound investment in light of a McKinsey report that estimates that poor health costs the country about $3.2 trillion annually from premature deaths and lost productivity.[141] Not only has the poor health of the U.S. population left it more vulnerable to COVID-19, but the resource gaps will worsen due to severe effects of the pandemic on population health in areas like mental health and opioid addiction, and the "damage it has made to progress on other public health priorities."[142] Working together with public and private health care partners, public health departments can also use lessons learned from the fight against COVID-19 in redesigning programs so they address "monumental health care disparities."[143]

The Foundational Areas are:

1.  Communicable Disease Control

2.  Chronic Disease and Injury Prevention

3.  Environmental Public Health

4.  Maternal, Child, and Family Health

5.  Access to and Linkage with Clinical Care

Most of the money in the Prevention and Public Health Fund has been used to combat public health challenges such as diabetes and smoking.[144] But the money has not been enough to fully address America's chronic health issues. COVID-19 told the tale of why this gap was deadly. A study of COVID-19 hospitalizations attributed 30% to obesity, 25% to hypertension, 20.5% to diabetes, and 11.7% to heart failure. Jointly, 63.5% of hospitalizations could be attributed to these four conditions.[145] These results underscore how the poor health in the U.S. population has exacerbated the effects of the pandemic and suggest how effective public health interventions would have limited deaths and serious illnesses from COVID-19. Public health challenges will only continue to grow. Almost half of Americans by 2030 are expected to be obese, and obesity is "associated with increased rates of chronic disease and medical spending… [with] negative consequences for life expectancy.[146] Other challenges include the

increased prevalence of sexually transmitted diseases, the increase in nicotine addiction with the rise of vaping, and the widening health gap between the rich and the poor.[147]

Research has shown that public health investments can both improve health outcomes and reduce health care spending. A 2017 systemic review found a $14 return for every $1 spent on public health interventions in high-income countries.[148] Life expectancy in America increased by 30 years in the 20th century, and public health has been credited as responsible for 25 of those added years.[149] Groups such as Trust for America's Health have recommended restoring and growing the Prevention and Public Health Fund so it would be used to promote public health and prevention.[150]

### *Financing mechanism—Public Health Excise Tax*

The task force believes that a financing mechanism should be identified to fund the $7.6 billion in new annual funding called for in Recommendation Nos. 3 and 4. Taxes on products that have an adverse effect on health not only have the potential to generate substantial amounts of funding but can lead to direct and indirect savings through discouraging behavior that may cause disease. Any revenues raised in addition to what is needed for the Public Health Infrastructure Account and the increase in funding to the Prevention and Public Health Fund could be used to cover losses in state revenue from the implementation of any of the options.

The country has had a long record of levying excise taxes, largely to help finance public goods like highways and airports. According to the Tax Policy Center, "Federal excise tax revenues—collected mostly from sales of motor fuel, airline tickets, tobacco, alcohol, and health-related goods and services—totaled nearly $100 billion in 2019, or 2.9 percent of total federal tax receipts."[151] The following are possible excise tax options to fund new public health appropriations.

The Congressional Budget Office has considered several excise taxes among options for reducing the deficit from 2021 to 2030, and produced the following estimates:[152]

- **Increasing the federal tax on tobacco:** An increase in the federal excise tax on all tobacco products (not including e-cigarettes which are not taxed federally), including cigarettes, cigars, pipe tobacco, and roll-your-own tobacco, by 50%, would generate $3.6 billion annually, and also reduce government expenditures by $80 million annually. Cigarettes are currently taxed on the federal level at $1.01 and from 17 cents to $4.50 on the state level for each pack.

- **Increasing the federal tax on alcohol**: Standardization and increasing the tax on alcoholic beverages to $16 per proof gallon would raise $8.34 billion annually, and $9.56 billion annually if indexed for inflation.

Other options include:

- **New federal tax on nicotine in vaping and other similar purposes:** A tax of $50.33 per 1,810 milligrams of nicotine, as proposed in the Protecting American Lungs Act of 2019, would apply to all nicotine in this category except for approved nicotine replacement therapy and nicotine covered in the federal tobacco tax. This would generate about $1.5 billion annually.[153]

- **New federal tax on sugar-sweetened beverages**: A few localities in the United States have levied soda taxes on sugary drink taxes. The rise in obesity has been linked to excess sugar consumption.[154] A study in 2015 found that a national excise tax of 1 cent per ounce would have positive health effects, save $23.6 billion over 10 years, and generate $12.5 billion in annual revenue.[155] A study in 2020 found that a tax at the same level would raise $80 billion in tax revenues and save $55 billion in national health care costs over 30 years, but a tiered tax (no tax for low sugar levels, 1 cent per ounce for medium sugar levels, and 2 cents per ounce for high sugar levels) would produce approximately double the health gains and savings.[156]

# Conclusion

As the United States continues its recovery from COVID-19, the nation needs to turn its focus to revitalizing the public health system and prepare the country for the next wide-scale public health emergency. BPC's Future of Health Care leaders' recommendations represent a common-sense, bipartisan path toward the goal of preventing a repeat of the economic, social, and health disruptions over the past year and a half. Congress and the White House need to create clarity on federal roles during a pandemic; a stronger mechanism for inter-agency cooperation during an emergency; and should ensure the nation is adequately investing in public health emergency preparedness at the federal, state, and local level. The public health system cannot fulfill emergency responsibilities without high quality data; therefore, policymakers should support the development of 21st-century, interoperable data and technology systems to sufficiently respond to health disasters. COVID-19 has shone a bright light on long-standing disparities in the health outcomes across racial, ethnic, and income groups. Providing long-term investments in the public health system of at least $7.6 billion annually will ensure the system develops Foundational Capabilities to address public health emergencies and can carry out foundational public health functions—such as obesity and diabetes reduction, drug addiction prevention, and discouragement of tobacco and e-cigarette use—to foster a healthier population that is less susceptible to infectious diseases like SARS-CoV-2, the virus that causes COVID-19. BPC's leaders appreciate the significant resources Congress has already provided for these efforts and the executive branch's implementation efforts. These recommendations are the next step to build on the lessons learned from COVID-19, and to position the country to support the long-term health of its citizens.

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# Public Health COVID-19 Impact Assessment: Lessons Learned and Compelling Needs

**Karen DeSalvo, MD, MPH, MSc,** Dell Medical School at The University of Texas at Austin; **Bob Hughes, PhD,** Missouri Foundation for Health; **Mary Bassett, MD, MPH,** Harvard University; **Georges Benjamin, MD,** American Public Health Association; **Michael Fraser, PhD, CAE,** Association of State and Territorial Health Officials; **Sandro Galea, MD, MPH, DrPH,** Boston University School of Public Health;  **J. Nadine Gracia, MD, MSCE,** Trust for America's Health; and **Jeffrey Howard, MD, MBA, MPH,** former Public Health Commissioner, Kentucky

April 7, 2021

> **About the NAM series on Emerging Stronger After COVID-19: Priorities for Health System Transformation**
> This discussion paper is part of the National Academy of Medicine's Emerging Stronger After COVID-19: Priorities for Health System Transformation initiative, which commissioned papers from experts on how 9 key sectors of the health, health care, and biomedical science fields responded to and can be transformed in the wake of the COVID-19 pandemic. The views presented in this discussion paper and others in the series are those of the authors and do not represent formal consensus positions of the NAM, the National Academies of Sciences, Engineering, and Medicine, or the authors' organizations.
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## Introduction

Gains in life expectancy and quality of life over the course of American history can be attributed to forward-looking investments in public health infrastructure [1]. For example, the creation of municipal public health authorities in the 19th century supported improvements in sanitation and reduced the mortality burden from infectious diseases such as typhoid and cholera. Likewise, strategies to promote healthier environments and improve access to clinical services have improved the prevention and management of chronic diseases such as cardiovascular disease and cancer. In addressing each population health challenge, the public health sector has played a multifaceted role, from surveilling the causes and consequences of disease (e.g., the National Notifiable Diseases Surveillance System), to convening stakeholders across sectors to develop coordinated solutions (e.g., historical collaborations with housing authorities), to informing policymakers and the public about best practices (e.g., resources to promote tobacco cessation) [2,3,4].

These interdisciplinary functions are more important than ever due to the complexity and scope of population health challenges in the modern era. For the first time in generations, life expectancy in the United States (U.S.) has begun to decline, with primary driv-

ers including increasing rates of drug overdoses and the growing burden of chronic diseases [5]. In parallel, evidence continues to accumulate about the disparities in health outcomes across racial groups and socioeconomic strata, emphasizing the need for health interventions that address both the medical (e.g., health behaviors, environmental influences) and non-medical (e.g., housing, transportation) drivers of poorer health [6,7].

Yet as the need for robust public health infrastructure has grown, federal investment in public health capabilities has declined, with health departments operating for decades under persistent and widening resource gaps. Chronically inadequate funding, workforce shortages, and outdated infrastructure limit the sector's capacity to address existing population health needs and its flexibility to respond to emergency situations [8]. COVID-19 has newly exposed and further exacerbated these long-standing challenges, while also illuminating the pervasive racial and socioeconomic inequities in health care access, quality, and outcomes in the U.S. While health departments have been foundational to the nation's response to the pandemic (e.g., guidance development, testing and tracing) the sector has experienced numerous challenges with causes both old (e.g., gaps in information technology) and new (e.g., politicization and mistrust of public health leaders and guidance). From the subversion of public health's mandate to the malignment of public health officials to the neglect of public health capabilities, the pandemic has illustrated the need for structural reforms to restore the public health sector's foundational role in American communities.

This discussion paper seeks to examine the public health sector's experience during COVID-19, exploring how legacy systems and policies shaped the sector's capacity to respond, highlighting health departments' key contributions and challenges during the pandemic, and identifying priority areas and policy considerations to enable the sector to be better prepared to meet population health needs in the 21st century.

## The Pre-Pandemic State of Public Health

In America, the functions of public health are inextricably tied to the varied forms of health department governance and operations. While health departments have faced numerous challenges during COVID-19, the roots of these problems—institutional silos, rigid funding streams, ambiguities over authority, and neglected infrastructure and workforce development—long predate the pandemic. Consequently, understanding the

barriers to and lessons from the pandemic's response requires first establishing the public health ecosystem leading into the pandemic. This section outlines the structural and political context for the sector, with a focus on public health's (1) mandate and governance and (2) functions and funding.

**Mandate and Governance**

The Institute of Medicine's (IOM) 1988 report on *The Future of Public Health* defined the mission of public health in the U.S. to be "the fulfillment of society's interest in assuring the conditions in which people can be healthy" [9]. To convert this aspiration into action, the nation has developed a complex system of governance comprised of a diverse set of local, state, territorial, tribal, and federal agencies and authorities, all of whom collaborate to advance the public's health [10,11]. While a comprehensive and inclusive approach to public health governance is needed for the post-pandemic era, the authors represented in this paper will primarily focus on the experiences and perspectives of local and state health departments during COVID-19.

The governance of public health in America is local in origin, with municipal health boards pioneering advances in sanitation and cities and states developing laboratory capacity to support outbreak control. National initiatives for specific public health needs (e.g., tuberculosis control, HIV/AIDS) and the emerging interdependencies between the public sector's health, medical, and social service programs (e.g., partnerships between health departments and state Medicaid programs) increased the federal government's involvement in public health. However, while federal financing mechanisms (e.g., block grants) generally emphasize state responsibility, a national policy environment that prioritizes cost containment limits state health departments' capacity to respond to emerging public health needs [9].

Today, the organization of functions, delivery of services, and availability of resources for public health in the U.S. varies tremendously due to the country's size and the heterogeneity of community needs and demographics. The day-to-day governance and administration of public health is distributed across the 59 recognized state and territorial health departments and an estimated 2,500 local health agencies nationwide [12,13]. While this decentralized model can offer advantages by emphasizing local context, health departments are hindered by the uneven distribution of purviews and foundational public health capabilities. From an operational perspective, state-local gover-

**FIGURE 1 |** Models of Public Health Governance
SOURCE: Adapted from https://astho.org/Research/Data-and-Analysis/State-and-Local-Governance-Classification-Tree/, with permission.

nance structures for public health can generally be described by four models: centralized, decentralized (or home rule), mixed, and shared (see *Figure 1*) [14]. For example, Rhode Island can be considered a "centralized" model as it operates as a unified local and state health agency, while Massachusetts can be described as a "decentralized" model, with decision-making authority largely retained by 351 local health agencies across the state [14,15]. From a resource perspective, funding for public health varies widely across the country. For example, state per capita spending on public health ranged from $7 in Missouri to $140 in New Mexico in 2019 [157].

In parallel with local public health efforts are the national initiatives led by the federal government. These include support for baseline public health functions, facilitation of pre-decisional and deliberative planning processes (including local and state health agencies) to prepare for public health threats, creation of countrywide health priorities (e.g., the Healthy People 2030 goals), support for cross-state collaborations, and resource allocation for public health and health care programs.

While there are many models of governance in public health, it is clear that the system as currently configured—with its origins from a different time with different population health challenges—is not optimally designed to meet the needs of America's communities in the 21st century. Health departments should of course be tailored to the needs of their local constituents. However, while agencies may vary in their form, they should not vary in their basic functions. Significant variation in how health departments make decisions (described above) and what resources are available to them to deliver services to their communities (described below) have contributed to heterogeneous outcomes prior to and during the pandemic.

Policymakers and public health leaders have developed various tools to achieve alignment on the public health mandate and public health governance, from accreditation programs to frameworks outlining the minimum services and capabilities for all health departments [16]. Yet these efforts have struggled to achieve scale; for example, nearly one-third of state health departments and the majority of local health departments have opted out of a national, voluntary accreditation program, in part due to the cost and staffing needs required to complete the accreditation process [17,18]. Consequently, initiatives to promote unified standards without commensurate attention to the chronic funding gaps responsible for variation in foundational public health capabilities run the risk of adding to health departments' reporting burden without resolving their underlying needs. The next section on "Functions and Funding" outlines how such systemic resource shortages for American public health, in tandem with the governance challenges described in this section, created the preconditions for pandemic-era challenges.

**Functions and Funding**
The functions of public health in America are described by the frameworks for "Essential" and "Foundational" public health services. The "Essential" public health services, which were developed in 1994 and updated in 2020, outline the key domains and areas of focus for the public health mission (e.g., investigating health hazards and their root causes), with a focus on equity centering the design and delivery of each service. In 2012, the IOM recommended that experts characterize the skills, capabilities, and services that health departments need to operationalize the goals of the "Essential" public health services framework [20]. To this end, the Public Health Leadership Forum developed

the framework of the "Foundational" public health services, which details the capabilities (e.g., emergency preparedness and response) and program areas (e.g., chronic disease and injury prevention) which all health departments should possess in addition to services tailored to the unique needs of the community which they serve [10,11]. *Figure 2* presents these two frameworks, which together provide health departments with a guide for what their responsibilities are ("Essential" services) and how they can operationalize those responsibilities for their communities ("Foundational" services).

However, local execution of these programs and functions is often limited by constraints imposed by both federal agencies and state and local jurisdictions. First, funding levels have historically been inadequate to support the delivery of the Essential public health services, let alone prepare for emergency situations. Second, many funding streams for public health are "categorical", or restricted to specific priority areas (e.g., HIV, tobacco control), which leaves little flexibility for spending to support core foundational capabilities or to support surge needs in times of crisis [19]. Other funding streams are operated as block grants, but as noted in the IOM's 2012 report, *For the Public's Health,* such models in practice have been vulnerable to funding cuts (e.g., funding for the Preventive Health and Health Services block grant decreased by 35% from 1995 to 2012 ) [20].

Overall funding for foundational capabilities has run dry in the face of long-standing neglect and de-prioritization by both local and national leaders, with the expenditures of public health agencies decreasing by approximately 10% (between 2010 and 2018) and the share of health care spending attributable to public health declining by nearly 17% (between 2002 and 2014) [8,21]. Indeed, rather than valuing prevention, the American system has become increasingly biased in favor of reaction, with per capita spending on public health services equivalent to 1-3% of per capita expenditures on medical care [21]. Chronically deprived of resources, the capabilities of health departments have begun to atrophy over several key domains (see *Figure 3*).

First, the public health workforce is understaffed and unequipped to meet the needs of local communities. Over the past decade, local health departments have eliminated over 56,000 jobs, while state health agencies have lost over 10,000 jobs—a distressing trend considering how population health challenges have grown and multiple public health emergencies (e.g., the opioid epidemic, the Ebola and Zika outbreaks) have occurred over the same time period [8,22]. The workforce that remains does not adequately reflect the population served and lacks formal public health training, with a significant proportion of health department staff on the cusp of either leaving the profession or re-



**FIGURE 2 |** Frameworks for Essential Services and Foundational Capabilities in Public Health
SOURCE: https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html (*left*) and Public Health National Center for Innovations. Foundational public health services in action. PHNCI. https://phnci.org/national-frameworks/fphs. Published November 2018. (*right*) (reprinted with permission).
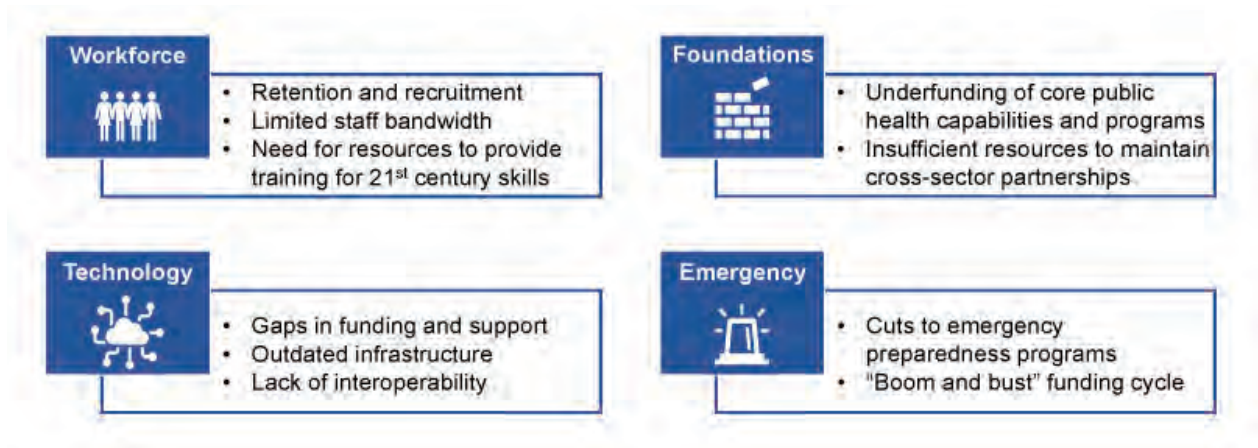
**FIGURE 3 |** Pre-Pandemic Challenge Areas for the Public Health Sector

tiring [23,24,25]. These dire trends may not reflect the full scope of workforce needs, as there is no centralized monitoring system for public health, with the sector relying on periodic point estimates conducted by third party organizations to gauge capacity. Local and state department leaders consequently have limited ability to appropriately benchmark their capacity and articulate community-specific needs. Furthermore, challenges with recruitment and retention—attributed primarily to low pay and the paucity of opportunities for career advancement, with a particular dearth of diversity in leadership positions—raise pressing concerns about the sector's future workforce capacity [26,27]. Yet the workforce challenges are not simply a pipeline problem. Preparing the public health sector for tomorrow requires a workforce that is meaningfully different from years past, both in terms of the diversity of skills that health officials possess (e.g., need for new data science skills, digital capabilities, cultural and linguistic competencies) and the relationships health officials foster with other sectors (e.g., the health care system, the lay public). While regional Public Health Training Centers have helped fill gaps in health department capacity, and the development of new undergraduate and graduate education programs for public health have expanded the cohort of new public health professionals and trainees, additional resources and a national mandate for interdisciplinary training programs are necessary to address 21st century public health challenges.

Second is the increasingly outdated nature of department capabilities, particularly for information technology (IT) infrastructure. Data exchange between public health and health systems remains fragmented, with few departments participating in the CDC's program to develop digital bridges due to lack of funding and

capacity within health departments [28,29]. While the Council of State and Territorial Epidemiologists has developed a roadmap for creating a "data superhighway" for public health, such initiatives to date have lacked the necessary funding and policy support to become reality [30].

Third is support for baseline preventive activities. Many core public health programs have been consistently underfunded (e.g., providing immunizations, diabetes prevention, lead control), with past funding cuts creating the preconditions for present-day population health challenges. For example, inflation-adjusted funding for the prevention of sexually transmitted diseases declined by 40% between 2003 and 2018 even as disease prevalence increased over the same time period (e.g., rates of syphilis and gonorrhea approaching 30-year highs) [31,32]. These gaps in foundational capabilities are magnified during times of crisis, which often require staff to perform "double duty" without a commensurate increase in resources. In many cases, insufficient resources have also hindered health departments' capacity to maintain necessary cross-sector partnerships and linkages (e.g., with the social care sector, with private industry) which are needed to augment health department capacity and support locally tailored solutions.

Fourth is emergency preparedness. The turn of the millennium has witnessed the emergence of multiple pathogens with pandemic potential, including H1N1, SARS, Ebola, and Zika. Yet rather than renewing a commitment to real-time surveillance and surge capacity, funding for the Public Health Emergency Preparedness program declined by $265 million between 2002 and 2020 [33,34]. While states and territories, as well as a few large local jurisdictions, received increased fed-

eral support during previous emergencies, such funding was time-limited and expired at the conclusion of the crisis. This "boom and bust" cycle of public health funding hinders preparedness for future emergencies, as the capacity developed in response to outbreaks is quickly eroded unless sustainable support structures are established. For example, emergency funding during the Zika outbreak equipped health departments to address long-neglected issues such as mosquito control and laboratory testing [35]. The CDC also bolstered local health department capacity by assigning field staffers to outbreak hotspots [36]. However, funding expired after 2017, leading many outbreak control efforts to be rolled back or discontinued [37].

Together, these challenges help to frame the environment in which the public health sector was operating prior to the pandemic. The next section describes how health departments navigated these existing challenges during their response to COVID-19.

## State and Local Public Health Response to COVID-19

While health departments provided key functions (e.g., data reporting, testing clinics, contact tracing) during the pandemic, the challenges they encountered (e.g., barriers to exchanging information, operational siloes, lack of disaggregated data, and insufficient capacity and training) are indicative of fundamental design flaws and a lack of investment in America's public health system. Additionally, the sector's overall response to COVID-19 has been uneven due to inconsistencies in national guidance, the staggered spread of the virus across the country, and differences in state and local health department capacity and authority. This section characterizes health department functions and challenges during the pandemic using the lens of the "Foundational" public health capabilities.

### Health Department Functions

"Foundational" capabilities supporting the public health response to COVID-19 included the following domains:
1. Emergency preparedness and response (e.g., data collection and reporting);
2. Assessment and surveillance (e.g., testing and tracing capacity);
3. Communications (e.g., educating policymakers and the public);
4. Policy development and support (e.g., implementation and enforcement); and
5. Community partnership development (e.g., to address non-medical needs) (see *Table 1*).

### *Emergency Preparedness and Response*

Health departments were the first line of response when the outbreak began, working to control the spread in communities across the country and putting into action their own emergency operations and response plans. These activities included, among other things, developing mechanisms to track and report data on the virus and leveraging their capabilities as Laboratory Response Network reference laboratories to support the development of COVID-19 diagnostics. As the outbreak expanded, the emergency response shifted, with public health playing a key role in the whole-of-government approach.

First, health departments began coordinating with local, state, and federal officials to support emergency planning across a given area. For example, the Northwest Healthcare Response Network was activated in Washington after the first cases were reported in Seattle [38]. Likewise, in Louisiana, the Department of Health and the State Health Officer led briefings with lawmakers and consulted with local emergency managers, enabling the Governor to issue an emergency declaration to activate necessary resources [39].

Second, with the outbreak rapidly evolving, many health departments worked to set up dashboards on their websites to display the latest data on cases, hospitalizations, and deaths. Given the outdated technical infrastructure of many health departments—where the use of fax machines continues to be common—many officials sought to partner with the private sector [40]. For example, Louisiana's health department collaborated with Blue Cross Blue Shield to develop a COVID-19 Outbreak Tracker, while in Washington, the state health department partnered with Microsoft to develop a data dashboard [41,42]. Similarly, the health department and state officials in Michigan forged partnerships with academia to develop data dashboards and to make model-based projections to aid decision-making [43].

Third, health departments supported diagnostic development and the expansion of testing capacity. State and local public health laboratories played a key role in identifying flaws with the CDC's diagnostic test during February 2020 [44]. As the number of COVID-19 cases began to rapidly grow, the federal government provided new flexibilities to state public health laboratories and commercial laboratories to expand the nation's testing capacity [45]. In response, health departments (e.g., Wadsworth Center at the New York State Department of Health) supported the development of new tests, coordinated testing infrastructure (e.g., 16

**TABLE 1 |** Role of Foundational Capabilities for Public Health During the COVID-19 Response

| Foundational Capability | Key Challenges | Response Example |
|---|---|---|
| Emergency Preparedness and Response | Health departments activated emergency protocols, developed public-facing reporting mechanisms, and supported advancements in testing technology and capacity | • Louisiana collaborated with health insurers to develop the state's "COVID-19 Outbreak Tracker"<br>• Seattle and King County (Washington) developed the Seattle Coronavirus Assessment Network |
| Assessment and Surveillance | Health departments had to organize testing and tracing capacity, requiring substantial coordination and workforce development | • Hamilton County (Tennessee) partnered with faith organizations to increase access to testing, while California funded the development of sites in communities of color<br>• Massachusetts created a dedicated caller ID for its contact tracing team to increase response rates |
| Communications | Health departments had to both combat misinformation while updating the community on evolving trends and disseminating the latest data | • Multiple states, including Colorado, Florida, and Ohio created a dedicated COVID-19 call center with 24/7 operations<br>• North Carolina launched the "3 Ws" campaign to communicate public health best practices |
| Policy Development and Support | Health departments had to clarify the scope of their mandate and authority and develop strategies for implementing and enforcing infection control policies | • Many cities, including Charlotte, Kansas City, and San Francisco used civil or criminal penalties for enforcement<br>• Many cities and states conflicted over mask policies, school closures, and social distancing requirements for retail establishments such as restaurants |
| Community Partnership Development | Health departments had to coordinate across sectors and often perform out-of-scope functions (e.g. procurement) | • Washington established a Regional COVID Coordinating Center to organize medical care<br>• Fairfax (Virginia) developed a Medical Isolation Program |

sites led by the Georgia Department of Health), and formed public-private partnerships to support disease surveillance (e.g., the Seattle Coronavirus Assessment Network) [46,47,48].

***Assessment and Surveillance***
Testing and tracing is a core public health capability maintained by departments for both common infectious diseases (e.g., sexually transmitted infections) and epidemics (e.g., Middle East Respiratory Syndrome). However, COVID-19 has carried significant challenges (e.g., the potential for asymptomatic transmission and

"super-spreader" events), and the scale and speed of the outbreak rapidly outpaced the resources of health departments, leading experts to call for a substantial expansion in assessment and surveillance capabilities [49].

For testing, many innovations were not equally accessible to all populations, even though people of color were both more likely to test positive for COVID-19 and to experience severe outcomes from the disease [50]. For example, many of the retail testing sites established by the federal government were not accessible to communities of color [51]. Public health officials attempted

to address inequities in access where possible, despite often lacking authority and resources. In California, the state funded nearly 100 community testing sites located in communities of color [52]. Other health departments sought to meet communities where they were to increase access to testing. For example, Hamilton County in Tennessee partnered with the faith community in Chattanooga to set up free COVID-19 testing sites at predominantly Black churches [53]. Yet despite these efforts, barriers persisted throughout the pandemic due to resource inequities and gaps in federal support for local health departments.

For tracing, health departments hired tens of thousands of new contact tracers during the summer of 2020 [54]. Yet contact tracing efforts struggled, with rates of contact identification and interviews by health departments in the U.S. falling well below those of other countries [55]. Health departments have taken different strategies to improve response rates. For example, with many contact tracing calls either blocked or left unanswered due to the lack of caller identification, the Massachusetts Health Department worked with telecommunications providers to set up a standard "MA COVID Team" tag for each phone number [56]. Contact tracing efforts focused on specific, vulnerable populations have also been promising, such as Boston's biweekly screening program at homeless shelters [57, 58].

However, efforts continued to fall short of expectations due to several challenges. First, state and local health departments lacked the resources they needed to hire and train contact tracers, with funding delayed by legislative gridlock over COVID-19 relief bills. Second, in the rush to scale, many departments relied on "quick fix" solutions for scaling disease investigation capacity (e.g., reliance on call centers) at the expense of recruiting local individuals who possessed tacit knowledge of their communities, limiting the effectiveness of tracing [59]. Third, high rates of infection and prolonged delays in testing in many regions of the country outpaced the rate at which tracing could be performed [60]. Fourth, contact tracing in communities of color—which have been disproportionately affected by COVID-19—was particularly challenging due to low levels of trust generated from historical legacies of injustice.

### Communications
To "inform, educate, and empower" is one of the ten essential services of public health departments in the U.S. [10]. This function has been of paramount importance during the COVID-19 pandemic, which has been accompanied by a "pandemic of misinformation" [61]. Competing policy narratives, the undermining of public health leaders by elected officials, and the dissemination of pseudoscience and conspiracy theories through social media have left Americans understandably confused and ill-informed [62]. Patterns of misinformation and disinformation have distressingly emerged along partisan lines, contributing to the politicization of public health [63,64]. Furthermore, distrust of the health care system has grown among communities of color—who have historically experienced systemic injustices in American health care—due to gaps in the federal response to COVID-19 [65,66].

Local and state health departments have taken a number of steps to keep their local communities informed during the pandemic. For example, numerous state health departments such as those in Colorado, Florida, Minnesota, Ohio, Oklahoma, and many more established dedicated COVID-19 Call Centers to triage incoming questions [67]. In North Carolina, the state's Department of Health and Human Services launched a "Know Your 3 W's" campaign—wear a mask, wait 6 feet apart, and wash your hands—early in the pandemic, and has used consistent messaging on the part of public officials during daily news conferences to encourage uptake [68]. In Seattle and King County, the Department of Health expanded its social media team to increase its digital operations and translated COVID-19 materials into over 30 languages to improve their accessibility [69,70]. Health departments also sought to tailor communications campaigns around the goals of health equity. For example, the Black Arizona COVID-19 Task Force organized frequent virtual sessions and electronic communications with organizations and health care providers serving Black communities [71].

### Policy Development and Support
The federal government's delayed response, misleading statements about the virus's severity, and abandonment of the established pandemic playbook fragmented the emergency response across the U.S. [72,73]. Lacking a unified national strategy and facing conflicting guidance about infection control (e.g., travel restrictions, mask policies), local and state health departments were left to develop and enforce public health guidance on their own. This in turn led to fragmented responses and raised questions about the scope of health department mandates and authorities.

For example, lacking federal guidance, local and state officials led the way in implementing shelter-in-place policies, beginning with counties in California's

Bay Area [74,75]. As the outbreak progressed, counties and cities began to take different strategies for enforcing public health restrictions. For example, some cities such as Kansas City indicated that violations of stay-at-home orders would be subject to civil penalties (e.g., suspension of business operations), while other areas such as Mecklenburg County in North Carolina levied criminal penalties (e.g., misdemeanor) [76,77].

However, public health and law enforcement often collaborated to emphasize that penalties were intended as a last resort. For example, in San Francisco—where noncompliant individuals could be fined or incarcerated—officials emphasized that they were "not interested in using a criminal justice approach for a public health challenge" [78]. Yet when policies were enforced, communities of color were often penalized at a disproportionate rate. For example, 61% of violations of shelter-in-place orders in Hamilton County in Ohio were attributed to Black individuals, even though only 27% of the county's population is Black [79]. The racially skewed application of enforcement policies, coupled with the broader conversations on police brutality following the deaths of George Floyd and Breonna Taylor that occurred in the midst of the pandemic, may deepen historical distrust of the health system within communities of color.

The development and implementation of public health guidance also raised important questions about the scope of health department mandates and federal authorities. An illustrative example is the use of face coverings, which evidence from natural experiments of mask mandates in the U.S. indicate helped avert a substantial number of COVID-19 cases and deaths [81]. The CDC initially recommended against the use of face coverings for COVID-19 before reversing its stance in April 2020; even following that recommendation, the federal government did not provide consistent guidance to promote mask use [82,83,84]. State preemption also created challenges for local implementation; for example, in Texas, the Governor issued a ban on penalties for face coverings after Harris County implemented a mask mandate, while in Nebraska, the Douglas County Health Department withdrew its policy after the state's Attorney General challenged the city's authority for enforcement [85,86,87]. Additionally, the delegation of authority from federal to state to local government also cascaded tension and distrust of health departments, taking a toll on public health officials and politicizing the policy development process.

### Community Partnership Development

The pandemic not only cast a spotlight on America's underinvestment in public health infrastructure at the local, state, and national level, it also highlighted the systemic gaps in population health [88,89]. Consequently, many health departments went beyond their routine responsibilities to meet their community's health and social needs during the pandemic.

For some health departments, this included collaborating with actors across the health care system to coordinate health services and care planning (e.g., isolation procedures, surgery cancellations). For example, the health department of Seattle and King County helped create the Western Washington Regional COVID Coordination Center, which monitored outbreaks in long-term care facilities and coordinated referrals according to hospital capacity [38]. With shortages of medical supplies hindering the pandemic response in many areas, and federal coordination for procurement and distribution lacking, local and state health departments played an active role in coordinating with health systems and the Strategic National Stockpile for materials such as personal protective equipment, medications, and test kits.

Another key challenge for health departments was supporting the ability of vulnerable patients who tested positive to safely self-isolate. Compared to white Americans, people of color are more likely to work jobs that cannot be performed remotely, live in households that are multigenerational, and live in densely populated areas [90,91,92]. In response, the Fairfax County Department of Health in Virginia collaborated with the county's Office to Prevent and End Homelessness and used stimulus funding from the Coronavirus Aid, Relief, and Economic Security (CARES) Act to develop a Medical Isolation Program that repurposed hotel rooms for non-congregate sheltering [93].

Beyond direct infection control, health departments have also adapted to meet other health and social needs of their population. In many counties, local health departments act as both a service coordinator (e.g., for social services) and provider (e.g., for primary and preventive care services), and due to shelter-in-place restrictions, had to adapt their operations to virtual modalities. For example, one regional health department in Kentucky transitioned to virtual visits for its Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) clinics, and was able to increase participation rates by 14% [94].

### Health Department Challenges

Although health departments were critical to the pandemic response, their efforts were too often limited by factors ranging from ambiguity about decision-making authorities to operational fragmentation and outdated technical infrastructure (see *Figure 4*).

### *Clarifying Roles and Lines of Authority*

Effective local public health governance in the U.S has always benefited from strong federal leadership. However, during the COVID-19 pandemic, the federal government largely delegated its responsibilities to governors, with significant consequences for local and state health departments. This created several challenges.

First, the deviation from established federal protocols for public health emergencies and conflicting messages from senior leaders contributed to an atmosphere of confusion and fragmented the response across states. For example, states, and in some cases local jurisdictions, were left to make individual decisions about shelter-in-place orders during March 2020 without federal guidance. Given the variation in local and state health department governance models (see *Figure 1*), the lack of unified decision-making—which has persisted throughout the pandemic—has contributed to variation in the public health sector responses.

Second, local and state health departments struggled to procure supplies and navigate regulations. The federal government changed the rules for the Strategic National Stockpile—originally intended to "supplement state and local supplies during public health emergen-cies"—in the middle of the pandemic without advance notice, shifting the onus for procurement to states [95]. The "bidding war" that resulted between states for personal protective equipment and ventilators created uncertainty for health systems and expanded the scope of health department responsibilities at a time when public health officials were already overburdened [96]. Additionally, some health departments were unfamiliar with many federal regulatory processes, such as emergency use authorizations for COVID-19 diagnostics, and the fragmented approach to test development and reagent procurement generated tremendous pressure on local and state departments.

Third, mixed messaging and shifting public health guidance—particularly around mechanisms of transmission (e.g., aerosols) and protocols for school reopenings—often became a barrier to effective local decision-making due to the presence of contradictory risk messages and misinformation campaigns. These challenges also manifested differently for local and state health departments. For example, nursing homes are regulated across multiple levels of government, occasionally leading to conflict and confusion, as was the case in Indiana where the state and county issued different orders on policies for patient transfers [97]. Likewise, oversight of school reopenings varied significantly. In California, the variability of local responses to school reopenings has led some district leaders to advocate for the state to implement more uniform standards [98]. Future emergency responses would be substantially improved by clarifying lines of author-



**FIGURE 4 |** Key Challenges for Local and State Health Departments During COVID-19

ity in an emergency and improving the consistency of messaging.

### Funding Gaps for Foundational Needs

It is well-known and consistently documented that although the scope of public health responsibility has increased in recent years, the broadened purview has not been accompanied by a commensurate increase in resources, with health departments consistently remaining underfunded [8,12,99]. Previous committees convened by the IOM have repeatedly called for a paradigm shift in public funding [9,20,100]. To help guide the identification and allocation of resources for population health, the Public Health Leadership Forum developed the Foundational Public Health Services framework, which aligns with Public Health Accreditation Board's (PHAB) Standards & Measures [101,102,103]. The severity of existing resource gaps will substantially increase due to the pandemic's potentially long-lasting effects on population health (e.g., mental health) and the damage it has made to progress on other public health priorities (e.g., the opioid crisis) [104,105]. While infectious disease outbreaks—including COVID-19—typically prompt the allocation of supplemental funding, such funds are time-limited, restricted to the outbreak at hand, and generally have not been followed with the long-term commitments needed to strengthen the foundational capabilities of public health departments [34,106].

### Addressing Systemic Health Inequities

COVID-19 magnified America's underlying racial and socioeconomic inequities in population health [88,89]. The disparities are especially stark for Blacks, Latinx, American Indian/Alaska Natives, and Native Hawaiians and Pacific Islanders who have experienced substantially higher rates of COVID-19 infection, hospitalization, and mortality compared to white Americans [50,107,108,109,110]. In addition, the Asian American population—for which COVID-19 data are frequently underreported and often not disaggregated—has experienced an alarming rise in discrimination and xenophobia [111,112].

To address these disparities, many health departments developed cross-cutting functions to address non-medical needs, and states such as Illinois, Louisiana, and Michigan created COVID-19 Health Equity Task Forces to explicitly address the pandemic's disparate impact [113,114,115]. With committed leadership, authentic partnership with communities, dedicated funding, accountability, and multi-sector engagement,

these task forces' recommendations and actions have demonstrated progress on addressing disparities in COVID-19. For example, Chicago's Racial Equity Rapid Response team implemented an informational campaign that increased COVID-19 testing rates by 13%, performed preventative outreach calls to 68,000 patients, and secured $3.1 million in COVID-19 relief funding, which was used to address community needs such as rental assistance [116]. Likewise, the city health department and regional health commission in St. Louis partnered to launch PrepareSTL, which coordinated the distribution of personal protective equipment to underserved communities (e.g., at public housing complexes) and supported the expansion of testing capacity at Federally Qualified Health Centers [117]. However, despite these promising examples, the paucity of resources dedicated to addressing health inequities and the social determinants of health limited the sector's overall capacity for response.

A notable challenge from the outset of the pandemic was the delay in capturing the magnitude of disparities [118]. While the challenges of collecting and exchanging demographic data precede COVID-19, the lack of data on race and ethnicity during the pandemic was especially problematic as it delayed the prioritization and allocation of resources to hard-hit communities. As data accumulated, it became evident that COVID-19 disproportionately affected populations who were the least likely to have access to basic public health resources. For example, the incidence of COVID-19 was 3.5 times higher among American Indian/Alaska Native populations—likely an underestimate given the lack of specificity in demographic data—yet American Indian/Alaska Native populations were often the least likely to access COVID-19 diagnostics or necessary inpatient care, in addition to basic public health resources such as running water [119,120,121,122,123]. It was also well-documented that vulnerable populations who live in congregate settings (e.g., individuals in homeless shelters, justice-involved populations) were particularly susceptible to COVID-19 outbreaks, yet health departments were largely unequipped to perform the necessary surveillance testing and provide resources for rehousing and self-isolation [124,125].

The inequities exposed by COVID-19 are not new. The question is whether the pandemic will provide a sufficient impetus for elected officials to reverse the ongoing decay of public health infrastructure through meaningful, long-term investments in system capacity with dedicated resources and attention for addressing

health inequities and the social determinants of health [126].

There are multiple avenues for change, such as improving public health's analytic capacity to elucidate the root causes of disparities. Furthermore, the Chief Health Strategist model of Public Health 3.0—in which public health leaders "work with all relevant partners so that they can drive initiatives including those that explicitly address 'upstream' social determinants of health"—represents a promising approach to breaking down historical siloes between public health and social care to foster meaningful change [127]. For such interdisciplinary models to succeed, policymakers must address funding and resource gaps to restore health departments' foundational capabilities and make such cross-sector partnerships viable and sustainable.

### *Leadership and Workforce*

Effective crisis management for public health requires clear communication from designated leaders who are empowered to make decisions. Many local and state public health officials have been celebrated during the pandemic for their poise and focus on the facts and evidence. However, as COVID-19 has continued, public health guidance and directives—which are designed using the latest evidence and contextualized to local communities—have become increasingly politicized. Public health officials have become a casualty of the polarized climate, with nearly 200 confirmed firings, resignations, or retirements as of December 2020 [128]. Social media has played a prominent role in the harassment of public health officials, who have received death threats and been subjected to organized protests at their personal residences [129]. Distressingly, some elected officials themselves have encouraged and even participated in these attacks, which not only undermine the pandemic response, but also build on growing public distrust of non-partisan, scientific institutions [130].

The challenges extend to the public health workforce as well, which has expanded substantially during the pandemic. The majority of hires have been for temporary contact tracing positions, requiring departments to dedicate resources to short-term training without filling the long-term need for a workforce with dedicated public health training and the requisite technical, cultural, and linguistic competencies. Contact tracers hired for COVID-19 have also experienced challenges, with reports of harassment on social media [131]. Independently, several departments have had to cross-train existing staff to meet demand for contact tracing,

which can leave little spare capacity to address other core public health duties [132]. Elected leaders need to affirm their support for data-driven decision-making and the non-partisan nature of health departments to ensure their credibility, and must provide sufficient resources to ensure that public health functions are sustainable.

### *Data Sharing and Technology Platforms*

A significant limiting factor for public health departments during COVID-19 has been the use of obsolete technology platforms. Additionally, there continues to be resistance on the part of hospitals to sharing key data that could be relevant during infectious disease outbreaks (e.g., admission, discharge, and transfer data) [133]. Furthermore, even when hospitals or laboratories have been amenable to sharing data for COVID-19, they have only been required to report to the federal Department of Health and Human Services (HHS), and not to local health departments, potentially delaying local decision-making [134].

Technological limitations also mask the disparate impact of the COVID-19 pandemic on people of color, as noted in the preceding subsection on "Addressing Systemic Health Inequities" [135]. Analyses of state and local health departments suggest that more than a third of cases lacked race and ethnicity data due to both incomplete forms from clinical labs and health care sites and outdated digital infrastructure for health departments. Several states continued to report no ethnicity data at all as of September 2020 [136]. While individual health departments have sought to close the information gap, such as the New York City Department of Health and Mental Hygiene's publication of neighborhood-level COVID-19 maps as early as April 2020, the consistent gaps in public health surveillance and lack of technical uniformity have exacerbated the inequities of the pandemic [136,137].

The use of outdated infrastructure, coupled with the lack of integration of new diagnostic technologies (e.g., point of care, home-based) with health departments or the health care system, has also slowed the pandemic response and affected the credibility of health officials. For example, a backlog of over 300,000 test results occurred in California in part due to data glitches [138]. Likewise, in Texas, more than 1 million test results were lost over the summer of 2020 [139]. These data integrity challenges affected the ability of local officials to make decisions about reopenings, demonstrating the need for interoperable platforms for public health and reaffirming the urgency of ongoing collaborations

to create a "data superhighway" for public health [140]. Importantly, these deficiencies are not due to a lack of will among local and state health departments, but to a dearth of resources to support building such systems.

### *Partnerships and Community Engagement*

With the COVID-19 pandemic disrupting aspects of everyday life ranging from education to business operations to health care delivery, effective emergency response requires a broad set of community partnerships. Effective engagement strategies require health departments to convene diverse stakeholder groups, coordinate across historical siloes, and overcome cultural differences and the limited availability of funds.

For example, research indicates that the public health sector has long faced challenges with communicating across sectors [141]. While nearly all local health departments engage in cross-sector partnerships (e.g., with K-12 schools), most engagement is surface level (e.g., information exchange), with notable gaps in collaboration with the media [12]. Additionally, formal collaborations with other health care, community-based, and government partners have declined since 2008, and had not recovered to pre-recession levels prior to the pandemic. Gaps in communication posed challenges for combating misinformation and achieving compliance with COVID-19 restrictions. Partnerships provided a vehicle to support community engagement and secure buy-in. For example, "Challenge Seattle" brought together the Seattle and King County Health Department and business leaders from local companies (e.g., Amazon, Microsoft, and Starbucks) to create a forum for the co-development of best practices (e.g., workplace safety guidelines) and shared decision-making about data reporting and reopening timelines [142]. However, the depth of engagement and cooperation varied across the country and was often hindered when elected officials contradicted public health guidance. For example, states such as Florida and Texas proceeded with lifting restrictions despite failing to meet both local and national criteria for reopening. The experience illustrates the value of tools such as the Public Health Reaching Across Sectors (PHRASES) project to help proactively develop relationships and partnerships for public health [143].

Moving forward, the challenge for health departments will be developing avenues to sustain these partnerships outside of crisis settings, while also determining which infrastructure and programmatic needs would be best met through internal capacity development as opposed to external collaboration.

## Priority Actions and Policy Considerations

Generations of reports from the IOM have stressed the critical importance of public health infrastructure to population health and the need to address longstanding issues ranging from funding shortages to institutional siloes [9,20,100]. COVID-19 has reaffirmed this call to action, demonstrating the centrality of robust public health systems to the health and wellbeing of society. As the U.S. prepares for the post-pandemic era, it will be imperative for policymakers to not only develop mechanisms to improve preparedness for future public health emergencies, but also to address the chronic neglect of foundational public health capabilities in communities across the country. This section outlines the priority actions and policy considerations for the public health sector, with a focus on:

1. Transforming public health funding;
2. Affirming the mandate for public health;
3. Promoting structural alignment across the public health sector;
4. Investing in leadership and workforce development;
5. Modernizing data and IT capabilities; and
6. Supporting partnerships and community engagement.

### Transforming Public Health Funding

While public health has faced many challenges during COVID-19—including outdated infrastructure, a beleaguered workforce, and inequities in access and outcomes—the lasting lesson for policymakers must be a recognition that these structural shortcomings were not caused by the pandemic, but rather already endemic for the sector after decades of chronic neglect and underinvestment in public health. Each of the policy considerations in this section highlights an existing pressure point in the system and a series of priority actions for relieving strain on the sector and preparing public health to meet future challenges. Yet meaningful change within each domain will only be possible if policymakers address the generational gaps in resources for public health, and guide future investments with an explicit focus on health equity.

The funding problem has two dimensions. First, the scale of public health funding has long been inadequate to address the full scope of population health needs, with a particular dearth of targeted resources to address health inequities and the social determinants of health. Second, the organization of public health funding is far too restrictive and lacks the ability to rap-

> ### BOX 1 | Considerations for Transforming Public Health Funding
>
> - Allow for more flexibility in routine and emergency program funding streams to enable jurisdictions at all levels to directly meet the needs for public health surge capacity during times of crisis, in response to evolving epidemiological challenges, or to address the specific needs of vulnerable populations
> - Establish adequate, reliable, flexible and sustainable funding mechanisms to support the foundational capabilities of public health via federal, state, and local mechanisms benchmarked to the populations and communities which a given department serves
> - Invest in the upstream drivers of health, including the social determinants of health, to create more resilient communities with systems to support the full scope of health needs
> - Create adequate, reliable, and sustainable funding sources to support jurisdictions at all levels to participate in established public health accreditation and/or quality improvement processes

idly reallocate funds to address emerging needs and crisis situations. These issues predate the pandemic and are pervasive at each level of the public health system, with COVID-19 providing a stark reminder of the human cost of disinvestments in public health.

Moving forward, policymakers should consider taking several steps to close the funding gaps in public health. For one, leaders at all levels of government—local, state, federal, tribal, and territorial—could consider implementing the recommendations from the IOM's 2012 report to provide funding for a minimum package of public health services (e.g., maternal and child health promotion, mental health and substance abuse), and construct a system for monitoring spending and outcomes to optimize future resource allocations [20]. The Public Health Infrastructure Fund represents a model for how policymakers can organize investments in the foundational capabilities of health departments [144]. Additionally, to better equip health departments to meet their local community needs and have the capacity to adapt during emergency situations, policymakers should consider implementing the recommendations from Public Health 3.0 to develop funding sources that are flexible in nature, as opposed to the current paradigm which emphasizes categorical funding [127].

Most importantly, funding must be dedicated to the explicit purpose of addressing racial and socioeconomic inequities in health. While so-called "braiding and budgeting" strategies have been promising (e.g., "Children's Cabinet" in Maryland), and new population-based payment models can help orient financing towards the social determinants of health (e.g., the California Accountable Communities for Health), truly moving the needle for disparities will require dedicated funding to sustain the many pandemic-era health equity initiatives beyond COVID-19 [127,145]. Priority areas to transform public health funding are summarized in *Box 1*.

**Affirming the Mandate for Public Health**
Closing the funding gap for public health must be accompanied by a focused effort to resolve ambiguities in the scope of jurisdictional authority, which contribute to the uneven nature of public health protection across the nation. In the aftermath of COVID-19, it will be imperative for state and local public health agencies to take the steps needed to achieve accountability to performance standards advanced by established national public health accreditation entities or equivalent state and local quality improvement bodies. Recognizing that public health in the 21st century requires the capacity to manage chronic diseases, address the social determinants of health, advance health equity, and maintain preparedness for global health threats, it will be imperative that the mandate for public health agencies include "Foundational" capabilities such as risk communication and laboratory services for rapid disease detection [11]. To promote accountability, policymakers will need to ensure that any mandate for performance is sufficiently resourced and that health departments receive the necessary support and funding to perform reviews, conduct reporting, and achieve compliance—a key limiting factor for existing accreditation processes.

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**BOX 2 | Considerations for Affirming the Mandate for Public Health**

- Harmonize statutory authorities across jurisdictions
- Allocate resources to fund a mandate for accountability across all jurisdictions for performance via established national public health accreditation entities or equivalent state and local quality improvement bodies within five years
- Require better coordination with and support for tribal governments and territorial health departments

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To enable state and local health departments to execute their public health mandate, policymakers will need to address inconsistencies in statutory authorities and responsibilities across jurisdictional boundaries. For example, the CDC's Public Health Law Program could consider leading a concerted effort to identify model statutory language that could be implemented to foster consistency in authorities [146]. Such steps would improve the public's understanding of expected protections and provide clarity for funding, communications, and resource allocation, particularly during emergency situations. For example, if preparedness is the purview of all local health departments, then funding for such essential services should be directed to local public health agencies rather than to other local authorities. Proactively clarifying the scope of authorities will help to foster shared accountability with core governmental partners while also supporting stronger, clearer linkages across sectors.

Finally, any policy actions to affirm the mandate for public health must be inclusive of all types of agencies, including tribal and territorial health departments, which continue to be inadequately resourced and lack the necessary technical support and political standing needed to promote the health of their communities. While the unique challenges and specific considerations for these departments are beyond the scope of this paper, which is focused on local and state health agencies, it is necessary to acknowledge the historical legacies of systemic neglect and call for improved coordination with and dedicated attention to the needs of these entities.

Priority actions to affirm and clarify the mandate for the public health sector following COVID-19 are summarized in *Box 2.*

**Promoting Structural Alignment Across the Public Health Sector**

To operationalize their public health mandate, local and state departments need to be capable of delivering a standard set of evidence-based services to their communities. This remit is captured in the existing framework for "Essential" public health services that was updated in 2020 [10]. But as COVID-19 has shown, translating rhetoric into reality requires defined competencies and dedicated resources. The Public Health National Center for Innovations' framework for "Foundational" public health services outlines the capabilities which health departments need to develop to deliver on their mission [11]. Additionally, the PHAB accreditation process can help to objectively assess a given department's capacity to deliver the 10 essential services [17].

The challenge will be how to promote structural alignment to ensure that every local, state, tribal, and territorial public health department is equipped with the same basic tools. To be clear, promoting a convergence towards common functionality and standardized competencies does not mean that all departments must look and act exactly alike. The demographic and geographic diversity of America's communities inherently requires health departments to tailor their work to the unique needs of their local population. Rather, a standard set of guiding principles allows departments to collectively streamline their work from the outset, and also promotes excellence as a norm to improve quality and foster accountability across the nation. These steps would enhance the ability of health departments to meet the needs of their local communities and pursue innovation through cross-sector partnerships.

Health departments possess multiple avenues to promote structural alignment to advance the health of their communities. One approach is to develop for-

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**BOX 3 | Considerations for Promoting Structural Alignment Across the Public Health Sector**

- Align the structure and function of health departments to ensure all residents are protected by agencies possessing the foundational capabilities needed to perform the 10 Essential Public Health Services
- Define the ideal size and structure for health departments at the local level to have optimal performance, and reduce redundancy by addressing overlapping jurisdictions
- Transition towards models of shared services across jurisdictions and/or regionalization to improve effectiveness and efficiency

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mal collaboratives in which departments work to coordinate services across jurisdictions and sectors. For example, Allegheny Health Department in Pennsylvania launched "Live Well Allegheny", which aims to coordinate activities for chronic disease prevention (e.g., increasing access to healthy food, promoting partnerships for physical activity) across the 130 municipalities within the county [147]. Likewise, a number of health departments in Massachusetts have engaged in cross-jurisdictional sharing of public health services (e.g., the Central Massachusetts Regional Public Health Alliance, Berkshire Public Health Alliance), with the state's Office of Local and Regional Health providing technical assistance to local officials interested in developing new partnerships [148].

Another model is to pursue functional regionalization, in which health departments collaborate on select initiatives to maximize efficiency. This model can help health departments achieve economies of scale for targeted public health campaigns. For example, Health Kansas City—a public-private partnership to create a culture of health—launched the Tobacco 21 | KC initiative, a regionally coordinated effort for a specific public health goal (promoting smoking cessation) in over a dozen municipalities [127]. Another use case of functional regionalization is enhancing the purchasing power and service sharing across health departments to support emergency preparedness.  For example, the Western Washington Regional COVID-19 Coordination Center helped triage patients according to facility capacity and monitor inventory for personal protective equipment [38]. Likewise, in West Virginia, health departments worked together to coordinate between local pharmacies and long-term care facilities, enabling the state to be an early leader for COVID-19 vaccinations [149].

While the optimal model for a given health department will likely depend on the specific context and needs of the local community which they serve, these examples illustrate how strategic partnerships—coupled with sustainable funding—can better position health departments to deliver on their fundamental mission and address the increasingly complex health problems of the 21st century.

Opportunities to promote structural alignment are summarized in *Box 3.*

**Investing in Leadership and Workforce Development**

Public health workers and leaders have operated under unprecedented strain during the COVID-19 pandemic. The burden on staff was not only due to the scale and scope of the crisis, but also because of negative public sentiment and active interference from elected officials. Given the existing challenges for the public health workforce, which range from the lack of diversity to gaps in recruitment, persistence of uncompetitive salaries, and limited opportunities for professional growth and advancement, systemic reforms to leadership and workforce development are needed to equip health departments with the human capital needed to deliver the public health mission in the 21st century [150,151].

The kind of leadership called for during the pandemic—interdisciplinary expertise, capacity to collaborate across sectors, ability to communicate with policymakers and the public—is characteristic of the model of the Chief Health Strategist proposed in the Public Health 3.0 report [152]. The Chief Health Strategist role, as envisioned, would draw from cross-cutting and diverse partnerships to build collective impact, leverage new sources of data to extract novel insights, and bolster the pipeline for the public health workforce through

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**BOX 4 | Considerations for Investing in Leadership and Workforce Development**

- Adopt the Chief Health Strategist model for health department leadership
- Support the retention and recruitment of diverse public health professionals and leaders who are representative of the community they serve, with updated mechanisms to ensure appropriate compensation and recognition
- Develop programs and resources to support the ongoing professional development of the incumbent and pipeline workforce to meet the population health needs of the 21st century

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connections with non-governmental sectors like private business and academia. Chief Health Strategists will also need to possess the necessary savvy and policy relationships to support robust collaboration with local and state government and clear communication with the lay public to dispel myths and perceived tradeoffs associated with public health actions during public health emergencies. These are vital skillsets for navigating crisis situations.

Several pioneering communities across the country had already begun to experiment with this evolving model of enhanced leadership prior to the pandemic. For example, the Baltimore health department's work to address challenges ranging from the opioid crisis to racial inequities illustrated the value of having public health officials who possess the capacity to mobilize community action to address upstream social determinants that have traditionally been beyond the reach of public health agencies [153]. Likewise, the Boston Public Health Commission has used the Chief Health Strategist model to form collaborations with community organizations, government agencies, and private sector entities across the city. For instance, with the city facing rising income inequality, the department's Chief Health Strategists have led initiatives to form new strategic partnerships related to housing and anti-displacement and inclusive economic growth [154].

Fostering these collaborations is not just an attempt to energize current employees—it is critical to the sustainability of public health as a field. The public health workforce must be significantly expanded and transformed simply to meet its daily needs, let alone build reserves for the next public health crisis. Given that low pay is a leading factor undermining retention, the process of workforce development should begin with providing reasonable salaries to recruit and retain public health talent [155]. Diversifying public health skillsets will require broadening departmental

recruitment. For example, partnerships with academic institutions can help to hone education programs and skillsets for future employment through service learning and internships. Likewise, engaging the business community through business schools, short-term fellowships, and career exchange programs can provide avenues to support leadership development and foster expertise in finance and operations. Furthermore, as the COVID-19 experience has demonstrated, effective public health requires a workforce with capabilities in IT and data, to enable departments to appropriately respond to emerging health concerns and develop the capacity for online engagement with the public. Lastly, with the pandemic highlighting America's longstanding health disparities and the importance of tailoring solutions to the local context, recruitment efforts should prioritize drawing from the communities which health departments serve, with a special emphasis on developing pathways to the profession for individuals from all backgrounds and axes of representation.

Priority actions and policy considerations to support workforce development for public health are summarized in *Box 4.*

### Modernizing Data and IT Capabilities

As outlined in the earlier section on the "State and Local Public Health Response to COVID-19", outdated technological infrastructure slowed the public health response on many occasions, from exchanging laboratory results with health systems to maintaining real-time dashboards for public information. While public-private partnerships enabled departments to fill technical gaps, the COVID-19 experience illustrated the overdue need to invest in health departments' data and IT capabilities.

In its ideal form, a 21st century health department should not only possess the capacity to provide baseline data that is timely and locally relevant, but also

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**BOX 5 | Considerations for Modernizing Data and IT Capabilities**

- Build a 21st century digital infrastructure for public health at the local, state, and federal levels
- Establish national standards to enhance public health IT system interoperability
- Modernize surveillance approaches to include novel signals from data sources such as social media, electronic health records, and crowdsourcing
- Set national standards to ensure that health data is routinely disaggregated by race, ethnicity, and other key sociodemographic characteristics to the community level (as appropriate to ensure anonymity) to identify disproportionate health impacts and outcomes

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be able to scale such efforts in times of crisis. This will require internal expertise as well as ongoing collaborations with academia and the private sector to enable real-time and geographically granular data (e.g., sub-county, neighborhood) to be shared, linked, and synthesized quickly to inform action. For example, the maps developed by the Coronavirus Resource Center at Johns Hopkins University are used globally as a reference point for tracking infection trends. A key area of focus will be ensuring the interoperability of data systems within the public health sector and across the health care system writ large to improve the efficiency of communication and execution. Investments in technical capabilities can also support health departments in their efforts to better identify disparities in health and address the upstream drivers of these disparities. In particular, developing and collecting standardized data elements for race, ethnicity, income, and other key demographic factors (e.g., ZIP Code) is critical to both diagnose and address inequities, as modeled by California's "vulnerability index" for COVID-19 [156].

*Box 5* highlights the policy considerations that would help to enhance the data and IT capabilities of public health agencies moving forward.

**Supporting Partnerships and Community Engagement**

The breadth of functions covered by public health requires partnerships with those outside the sector in the best of times, let alone emergency situations. In the aftermath of COVID-19, local and state public health officials need to build on the cross-sector relationships they have developed during the pandemic and develop sustainable avenues for coordination to address long-term health inequities and population health needs.

Partnership opportunities may manifest differently across each level of public health. For example, local

health departments may benefit from partnerships with multiple sectors, particularly with community-based organizations. Collaborating on community needs assessments provides an opportunity for local health departments to partner with other entities to identify shared challenges and goals for a specific population and geography. Importantly, local collaborations can create a foundation of trust to promote coordination both in foundational areas and during crisis situations. Likewise, state health departments may benefit from forging strategic partnerships at a slightly larger scale, such as coordinating preparedness efforts with local and national governments, academic medical centers, regional hospital associations, and private industry.

This focus on strategic coalition building across all dimensions of public health will not only reinforce the Chief Health Strategist model for public health leadership, but also address long-standing capacity gaps within the sector. For example, health departments should build on the PHRASES project from the de Beaumont Foundation to improve public health communication, as research shows that effective public health communication requires tailoring language to the unique context of different stakeholders (e.g., in business, in education) [141]. Likewise, building on collaborations with academia—which has exponentially increased offerings for public health training programs and provided pandemic support functions including technology development, testing and tracing centers, and vaccine distribution models—can offer added capacity for addressing complex population health challenges. The Academic Health Department model may provide a framework for future collaboration [26]. Additionally, developing mechanisms for outreach, mutual trust, and respect across community sectors can

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**BOX 6 | Considerations for Supporting Partnerships and Community Engagement**

- Establish and maintain regional and/or state-level backbone entities that can be leveraged during crises for shared action
- Cultivate relationships with non-traditional partners including employers, the business sector, and technology
- Identify a new backbone national entity that can support collaboration to achieve unified policy recommendations from all the core components of the public health sector
- Enhance trust and credibility through improved risk communication with public health authorities

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help streamline communication during emergency situations, when the real-time evolution of data can create an environment of misinformation and affect the credibility of health officials.

Beyond supporting communication and outreach, partnerships can also help augment the capacity of health departments to deliver on their public health mission. This requires establishing coordinating structures and identifying leadership organizations. In some cases, public health agencies may take the lead as backbone organizations, while in others, health departments may serve as a convener, with other partners leading the way for ground-level implementation. Under such models, established community entities can play crucial roles as sources of trusted information, helping to disseminate credible guidance and information for the population. Health systems and other care delivery organizations are natural partners in this regard given their role as community pillars and the shift to population health mandates and financing arrangements, as evidenced by the ongoing demonstrations for Accountable Health Communities. Such partnerships will be vital as the public health sector collaborates across government, health systems, and community organizations to scale initiatives to address health inequities.

Policy considerations for supporting partnership development and community engagement are presented in *Box 6.*

## Conclusion

COVID-19 provides a stark reminder of the tremendous social value of robust public health systems and the harrowing consequences for populations when those capabilities are allowed to atrophy through neglect and underinvestment. The public health sector has been critical to America's pandemic response, from leading testing and tracing efforts to monitoring infection rates to coordinating vaccination campaigns to support outbreak control. Through the crisis, health departments have led in spite of the obstacles posed by insufficient resources, inadequate infrastructure, and institutional siloes—challenges which long predate the pandemic. Consequently, enhancing the sector's preparedness for future public health emergencies will require first addressing the structural inadequacies in how American public health is funded and governed, with a dedicated focus on remediating the pervasive and preexisting health inequities which have caused disproportionate outcomes during COVID-19.

In this discussion paper, leaders from the public health sector have sought to share their experiences to date from the pandemic response and propose a series of priority actions for policymakers to consider as the nation charts a roadmap for the post-pandemic era. These include closing funding gaps for foundational capabilities, affirming the mandate for public health, promoting structural alignment, investing in workforce development, modernizing data capabilities, and supporting cross-sector partnerships. Such actions are necessary to ensure that the tragedies of the present become a turning point for the future—a future where the United States is capable of protecting and promoting the health of all people in all communities against the population health challenges of the 21st century.

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**Author Information**

**Karen DeSalvo, MD, MPH, MSc** is adjunct Professor of Medicine and Population Health at Dell Medical School, The University of Texas at Austin and former Acting Assistant Secretary for Health and National Coordinator for Health Information Technology. **Bob Hughes, PhD** is President and CEO at the Missouri Foundation for Health. **Mary Bassett, MD, MPH** is Director of the FXB Center for Health and Human Rights at Harvard University. **Georges Benjamin, MD** is Executive Director of the American Public Health Association. **Michael Fraser, PhD, CAE** is CEO of the Association of State and Territorial Health Officials. **Sandro Galea, MD, MPH, DrPH** is Professor and Dean at Boston University School of Public Health. **J. Nadine Gracia, MD, MSCE** is Executive Vice President and Chief Operating Officer at Trust for America's Health. **Jeffrey Howard, MD, MBA, MPH** is a former White House fellow and former Public Health Commissioner for Kentucky.

## Conflict-of-Interest Disclosures

None to disclose.

## Correspondence

Questions or comments about this paper should be directed to namleadershipconsortium@nas.edu.

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# STAFFING UP
## Workforce Levels Needed to Provide Basic Public Health Services for All Americans

**State and local governmental public health departments need an 80% increase in their workforce to provide a minimum set of public health services to the nation.**

Despite the critical role that state and local governmental public health departments play in ensuring the safety, security, and prosperity of local communities, they have been consistently underfunded.

Budget and staffing cuts have weakened the nation's collective health and increased its vulnerability to emerging infectious disease and unchecked chronic disease. In the past decade, state and local health departments lost 15 percent of their essential staff. These cuts have limited the ability of health departments to plan for and respond to emergencies like the COVID-19 pandemic and to meet the daily needs of their communities.

Americans count on public health departments to prevent disease outbreaks and injury, monitor health status, provide scientific expertise, and respond to crises of increasing magnitude and frequency, and they deserve a public health system that is sufficiently resourced to protect and promote the health of all Americans. Even though funds have been allocated for the response to the pandemic, this short-term investment does not sufficiently address our weakened infrastructure. To advance a thoughtful reinvestment in public health, the de Beaumont Foundation and the Public Health National Center for Innovations conducted a first-of-its-kind analysis to estimate the number of state and local public health department staff needed to deliver basic, everyday services adequately and equitably.

Based on this analysis, state and local health departments need to hire a minimum of 80,000 more full-time equivalent positions (FTEs) — an increase of nearly 80% — to provide adequate infrastructure and a minimum package of public health services. (See Figure 1.) This increase in staffing would provide the infrastructure needed upon which additional staff could be added to provide more comprehensive services to respond to emergencies.

Based on existing shortages, approximately 54,000 of these additional FTEs should be deployed to local health departments and 26,000 to state health departments. (See Figures 2 and 3.)

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While all state and local departments need additional FTEs, the most acute needs are in local health departments that serve fewer than 100,000 people.

Note: The estimates presented in this brief encompass only the minimum number of FTEs needed for the development of infrastructure and provision of minimum services. They do not account for additional FTEs that may be temporarily required to respond to the extensive needs of pandemics or other new challenges.

## Figure 1: New FTEs Needed by Population Served

| | Current FTEs for basic foundational public health services | Total FTEs needed for full implementation | Additional FTEs needed for full implementation | Percentage change needed |
|---|---|---|---|---|
| <25,000 | 4,000 | 13,000 | +9,000 | 230% |
| 25,000-49,999 | 5,500 | 13,000 | +7,500 | 140% |
| 50,000-99,999 | 7,000 | 15,000 | +8,000 | 110% |
| 100,000-199,999 | 8,500 | 14,500 | +6,000 | 70% |
| 200,000-499,999 | 14,000 | 20,000 | +6,000 | 40% |
| 500,000+ | 33,500 | 51,000 | +17,500 | 50% |
| Local Health Departments | 72,500 | 126,500 | +54,000 | 70% |
| State Health Departments | 31,000 | 57,000 | +26,000 | 80% |
| **Total** | **103,500** | **183,500** | **+80,000** | **80%** |

Note: Estimates are rounded to the nearest 500 FTEs and the nearest 10% change.



Figure 2: Current and Needed FTEs for State and Local Health Departments
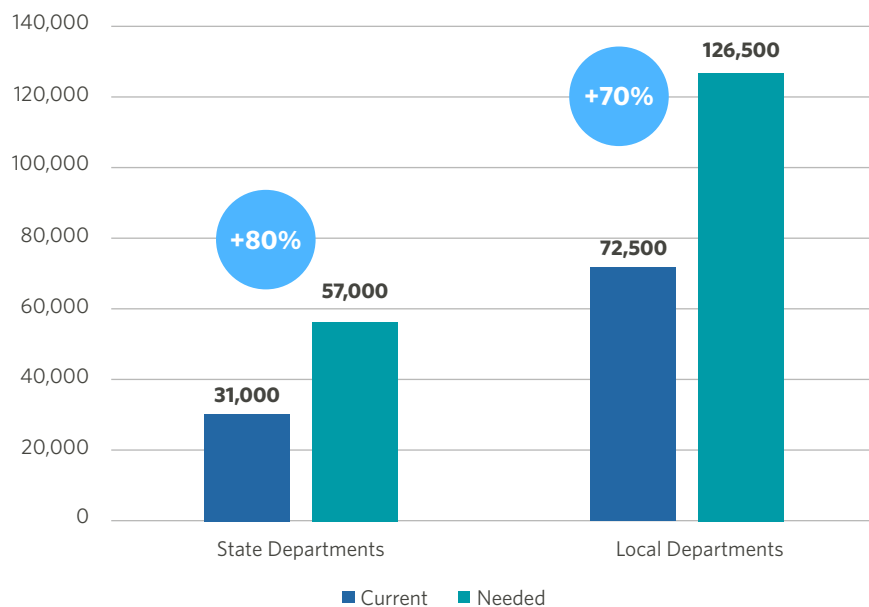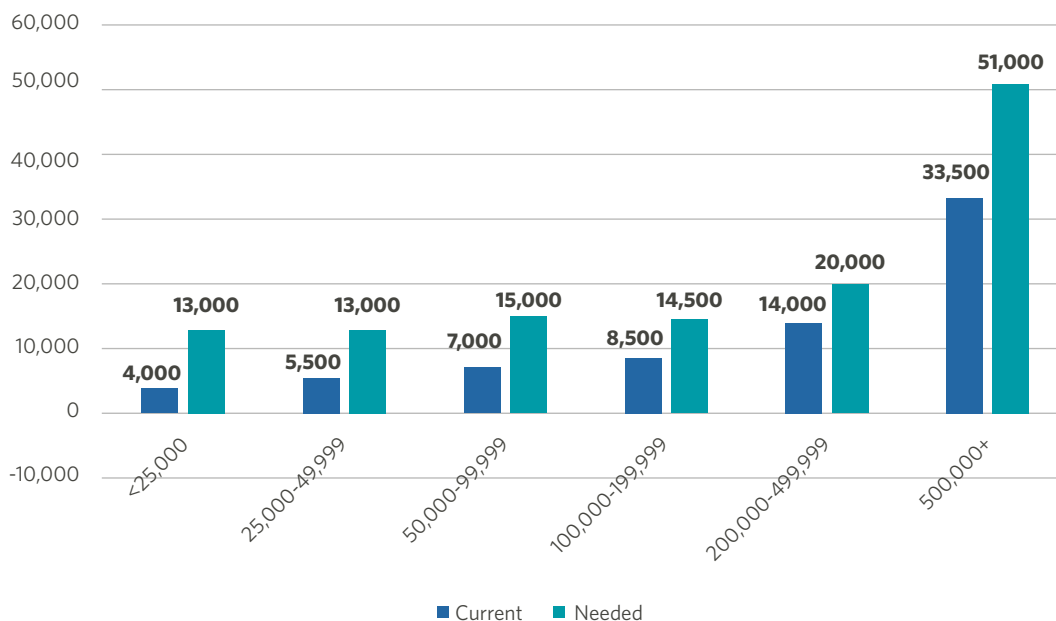
## Figure 3: Number of Foundational FTEs (Current vs. Needed)



The 80,000 FTEs would need to represent differing levels and types of expertise. Of those positions dedicated to infrastructure, one quarter of the needed FTEs should be dedicated to assessment. Among foundational areas, chronic disease and injury prevention are in greatest need of additional FTEs. (See Figure 4.)

## Figure 4: New FTEs Needed by Category

|  | Local | State | Total |
|---|---|---|---|
| **Infrastructure** |  |  |  |
| Assessment | 4,500 | 4,500 | 9,000 |
| All Hazards | 3,000 | 2,000 | 5,000 |
| Other Foundational Capabilities | 17,500 | 8,000 | 25,500 |
| **Foundational Areas** |  |  |  |
| Chronic Disease and Injury | 8,000 | 5,000 | 13,000 |
| Communicable Disease | 4,500 | 1,500 | 6,000 |
| Environmental Health | 7,500 | 2,000 | 9,500 |
| Maternal and Child Health | 5,500 | 1,000 | 6,500 |
| Access/Linkage to Care | 3,500 | 1,000 | 4,500 |
| **Total** | **54,000** | **26,000** | **80,000** |

## PROCESS AND METHODS

The de Beaumont Foundation and the Public Health National Center for Innovations at the Public Health Accreditation Board conducted this analysis, guided by a team of experts in methodology and the public health workforce, a Research Advisory Committee of public health scholars and data experts, and a Steering Committee composed of national leaders in public health policy and practice.

The national estimates were generated from data collected from nearly 170 local health departments in four states (Colorado, Ohio, Oregon, and Washington) and three state health departments. These states underwent extensive exercises to cost out their current implementation of baseline services, understand what full implementation would cost, and identify the gap (i.e., the dollars and staff needed to move from current to full implementation). As a result, these states provided the best available data about what infrastructure health departments need to serve communities.

Researchers extrapolated findings from these 173 health departments to the nation's 2,450 local health departments by creating models for the key activities that all health departments should be able to implement, based primarily on population size.

These estimates are calculated based on data from state and local health departments prior to COVID-19. They are also not representative of workforce needs for U.S. territories and freely associated states or Tribal Nations. To better ascertain workforce needs for these entities, collaboration with them should be undertaken, and data should be collected relevant to their needs and desires around public health service provision.

The estimates represent the minimum number of FTEs needed by state and local health departments to provide basic foundational public health services to all communities represented by the Foundational Public Health Services. As shown in Figure 5, the Foundational Public Health Services consist of:

- Seven "foundational capabilities," which are the cross-cutting skills and capacities needed to support basic public health protections and other programs; and

- Five "foundational areas," which are topic-specific programs aimed at improving the health of the community affected by certain diseases or public health threats.

### Figure 5: The Foundational Capabilities and Areas of Public Health
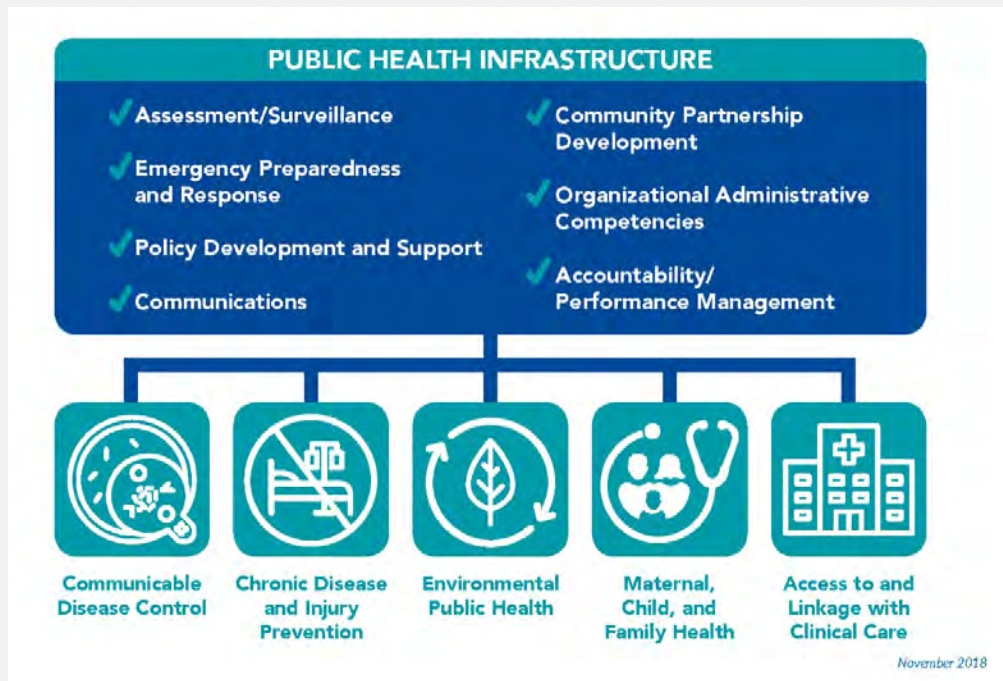


The full methodological report is available at www.staffingup.org

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## RESEARCH ADVISORY COMMITTEE MEMBERS

Angela Beck, University of Michigan School of Public Health

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Bianca Frogner, University of Washington, School of Medicine

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