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# CDC Moving Forward Summary Report

## Background



The Centers for Disease Control and Prevention (CDC) faces structural and systemic operational challenges, which were exacerbated during the COVID-19 pandemic. Staff across the agency are deeply committed to the mission, working 24/7 to support and promote public health. Because of their expertise and tireless dedication, there have been many profound successes at the agency over the last several years. However, since the pandemic, we also acknowledge that CDC is responsible for some large, public mistakes.

Acknowledging the need to change, in April 2022, the CDC Director launched a review of the agency. There were two components to this review, with designated leads for each:

1. **Scientific and Programmatic Review:** To identify ways to improve and institutionalize how CDC develops and deploys its science, both in pandemic and non-emergency times. Interviews conducted by [Mr. James Macrae](#) .
2. **Structural Review:** To gather feedback on the agency's current processes, systems, and structure and solicit suggestions for strategic change, with a strong focus on the agency's core capabilities – a diverse public health workforce, data modernization, laboratory capacity, rapid response to disease outbreaks, and preparedness within the US and around the world. Interviews were conducted by three current CDC senior leaders: [Dr. Deb Houry](#), [Mr. Robin Bailey](#), and [Ms. Sherri Berger](#).

## Approach to the Review

To accomplish the Scientific and Programmatic Review, approximately 120 interviews were conducted from April through June with CDC leadership, staff, and external partners (e.g., those from academic, jurisdictional public health, and former CDC employees and leaders). During the data collection phase, interviewers met regularly with the Director to provide updates and share findings in real time. After presenting to CDC leaders, Mr. Macrae delivered the Scientific and Programmatic Review report to the CDC Director that captured his findings and recommendations specific to his task: to identify ways to improve and institutionalize how CDC develops and deploys its science. This report is included in full as Appendix A.

The Structural Review has taken place alongside the Scientific and Programmatic Review. Over 50 interviews were conducted, and findings are presented below. Taken together, these in-depth reviews offer CDC a clear path forward to improve scientifically and structurally to better serve the American people and execute the mission of the CDC.

## Highlighting Examples of Progress to Date

It is important to note, the Director did not wait for the start of the review to begin implementing changes within CDC. Just three months into her tenure in April 2021, she [declared racism as a serious public health threat](#) and established the internal process, [CORE](#), to integrate health equity into the fabric of the agency. Another example is the re-establishment of the [Advisory Committee to the Director](#), with an immediate focus to gather external feedback and input via working groups on some of the agency's most critical challenges including [laboratory capacity](#) and [public health data modernization](#). A third example of changes underway includes an effort to streamline the internal clearance process to publish data and findings faster. On July 30, 2021, CDC posted online a [MMWR Early Release](#) describing an outbreak of the Delta variant in Barnstable County, Massachusetts, that had been detected just a week prior, and the [December 2021 MMWR](#) documented the first

Omicron cases in the U.S. identified earlier that month. After mpox was declared a public health emergency in August 2022, CDC leveraged the declaration and [posted unpublished data from the American Men's Internet Survey](#) that demonstrated behavioral changes among high-risk populations in response to education and outreach and then quickly published data in the *MMWR* that same month.

While these efforts have resulted in tangible change, the CDC review recognized that much more is needed to institutionalize and formalize these and other approaches and to find new, more facile ways to keep pace with the ever-changing landscape of public health.

## Structural Review: Findings and Recommendations

As stated above, Mr. Macrae delivered a report (see Appendix A) to the CDC Director that captured his findings and recommendations.

Data from the Structural Review were consistent with Mr. Macrae's major findings, including the need to:

1. Share science and data faster
2. Translate science into practical policy
3. Prioritize public health communications, with a focus on the American public
4. Develop a CDC workforce ready to respond to future threats
5. Promote partnerships

In addition to these recurrent themes, the Director identified the following additional overarching concepts and recommendations:

***CDC's academic approach has sometimes slowed critical agency action. CDC must align incentives with public health action and impact.***

Acknowledging that the work of the agency requires a deep understanding of the science to develop and implement public health action, the agency's incentive structure – hiring, performance reviews, promotions – however, is too heavily focused on publication productivity rather than an individual's impact or actions. Modification should be made within the agency to better recognize and reward action, such as deploying for a public health response, embedding in the field during an outbreak, and implementing activities that lead to public health impact (e.g., increasing access to screening services or vaccinations). This realignment of incentives toward action and change needs to happen at all levels of the organization.

To further this concept, CDC leaders and staff would benefit from more practical, experiential learning opportunities in the field. CDC has a strong foundation of [public health workforce programs](#), including the [Epidemic Intelligence Service](#), to build upon. These programs should be expanded and resourced to increase rotational assignments with jurisdictions. Hands-on experience will strengthen scientific leadership and lead to more practical work from CDC.

***CDC's silos have impeded critical, cross-cutting support functions. CDC must improve its internal coordination and work with external partners.***

CDC's centers, institutes, and offices too often work in silos and could better utilize agency-wide approaches to implement policies and strategies, particularly to support [public health core capabilities](#). CDC has deep subject matter expertise across the agency; the cross-cutting functions (e.g., health equity, science, communication, policy, etc.) that serve as the foundation of that expertise need to have the same level of financial and leadership support. CDC's budget, complexity, mission, and staffing have grown substantially over the past decade, and new priorities and challenges have emerged that require additional support, engagement, and leadership. Meanwhile, the agency's critical cross-cutting functions and core capabilities have been woefully underfunded and their presence within the organization have been de-emphasized in comparison to disease-specific subject matter expertise. These functions should be supported, elevated, and empowered to further CDC's mission, engage directly in the work of programs across the agency to meet their intent, and be held accountable. Given the domestic public health threats of the last several years (e.g., COVID-19, mpox, polio, etc.), we can safely assume we do not yet know what the next threat will be; as such, it is critically important to have a strong public health foundational infrastructure – with a complimentary CDC structure – prepared for any next threat.

The communities of practice structure (offices stood up in 2018 to supervise most of CDC's national centers) led to layers of reporting and confusion regarding roles and responsibilities; the limited personnel resources and expertise within these units are best redirected to support cross-cutting agency functions.

The public health field is a different landscape than it was before the COVID-19 pandemic and in addition to CDC's traditional partners and state, local, tribal, and territorial jurisdictions, there are new partners, community-based organizations, private sector organizations, and the healthcare sector that are engaged in public health. CDC should provide a streamlined opportunity for these organizations to interact with the agency. A "front door" to CDC should be developed to increase collaboration with industry, academia, state/local government, etc., beyond the traditional public health partners.

***CDC's internal operating model often fails to support the public health core capabilities and cross-cutting functions. CDC must implement new governance with an emphasis on the core capabilities and accountability at all levels.***

New internal systems, processes, and governance require change to enhance bi-directional accountability and foster collaboration, communication, and timeliness at all levels of the organization. The agency should re-establish an agency-wide, program performance-based framework for programs focused on key agency goals and results, including impact, timeliness, and quality. This process should include an open and transparent way to track initiatives and outcomes, including timeframes for deliverables and schedules for regular progress updates, which should feed into the agency's overarching [Strategic Plan](#).

The agency should also stand up a new internal governance model, through an executive board that reports to the CDC Director. The executive governance board should be comprised of no more than five CDC senior leaders, serving rotational assignments, and charged with assessing and recommending the agency's priorities each year. The executive board's work will be informed by the [CDC senior leadership team](#) and include annual budget execution planning and review activities to ensure alignment with the agency's overarching strategy. This board's efforts should be closely linked to the new program performance-based framework, as well as the agency's [Enterprise Risk Management](#) process, and include a process in which evaluation of impact and action contributes to the annual planning process.

***CDC would benefit from being nimbler and more flexible. CDC must upskill and train toward a response-capable agency while maintaining the core public health work that is critical to the health of the nation.***

Throughout its history, CDC has effectively responded to disease outbreaks, which have been relatively small in terms of size and scope as compared to recent public health emergencies (e.g., [Ebola](#), [Zika](#), [EVALI](#), [COVID-19](#), and [mpox](#)). Over the past decade, outbreaks and their resultant responses have grown larger and more complex – and the agency has not had the capacity to keep pace. The agency needs a new approach to preparedness from top to bottom, including structure, function, budget, staffing, and authorities. CDC needs to be fast-paced and response-oriented and needs to move agency culture towards integrating preparedness and response into every activity, including defining roles and responsibilities for CIOs and employees. CDC should elevate response-related activities and better integrate cross-cutting preparedness and response elements across the organization. With budget flexibility, and a change to how the agency can execute its budget to support response work, CDC should develop a response-ready cadre of staff trained for preparedness and response activities. This would enable rapid assignment of staff to an emergency response or other urgent public health crisis for the duration of the response. CDC should develop a comprehensive document that explains the challenges and opportunities to help pivot the agency to a response-ready organization moving forward. Lessons learned from the recent responses, along with feedback received from inside and outside the agency, made it clear that CDC needs to receive additional flexibilities and authorities to meet its public health mission and support core public health infrastructure. Highlights include mandatory data reporting, exemption from Paperwork Reduction Act requirements, other transaction authority, and various human resources and financial resources authorities.

## Next Steps

On August 17, 2022, the CDC Director launched CDC Moving Forward, which includes four inter-related efforts aimed to better position CDC to achieve its [vision](#):

1. Implement changes to improve how CDC develops and delivers its data and science during public health responses, as well as normal operations
2. Stand up new internal systems, processes, and governance within the agency to improve accountability, collaboration, communication, and timeliness within CDC and with its customers, at all levels of the organization
3. Reorganize the agency to breakdown silos, elevate core capabilities, and better leverage resources

4. Articulate new programs, authorities, and flexibilities that will better position CDC and public health for future response activities

The Director has brought on a seasoned executive – Mary Wakefield, PhD, RN – to lead this effort and has committed to providing regular updates to the CDC community. As part of this process, CDC leadership will track progress and develop an evaluation framework to measure the success of the changes over time, and allow for adjustments to the original goals, as needed.

## Conclusion

CDC has made an exceptional impact on the lives of Americans and people around the world over the years. Never in its 75-year history has CDC had to make decisions so quickly, based on limited and evolving science. Traditional scientific and communication processes were inadequate to accelerate quickly and effectively respond to a crisis the size and scope of the COVID-19 pandemic. This review and subsequent improvement efforts will build upon CDC's rich history. The agency – and all of its staff – have made tremendous progress in many critical public health areas, despite the structural and systemic operational barriers that exist today. Those who work at CDC are deeply committed to the agency, its mission, and public health. Pivoting is especially challenging in a time where countless CDC staff have worked tirelessly for more than two years through the pandemic, which has had a profound impact on staff and their families, but it is critical that these changes occur now to be prepared for the next threat. This review, and subsequent work, are intended to lift up the agency's work and institute changes in how the agency operates to better support its staff and mission. The challenges identified through this review did not happen overnight, and our progress toward these improvements will be dedicated, gradual, and systematic; it will take time to implement the improvements to better position CDC for the future.

# Appendix A: COVID-19 Response and the Centers for Disease Control and Prevention: Translating Science and Data into Policy and Communications

## Observations and Recommendations for the Future

A crisis, especially one at a global scale, often reveals an organization's strengths as well as its weaknesses. The COVID-19 global pandemic was no exception. For the Centers for Disease Control and Prevention (CDC), the crisis shined a spotlight on the thousands of dedicated public servants who worked tirelessly over the past two years to support State and local health officials, employers, providers, the American public, and the global public health community in the face of uncertainty and an ever-changing disease. At the same time, the pandemic also highlighted several longstanding challenges and issues that have impacted CDC's ability to fully accomplish its mission.

This report focuses on how CDC can better translate science and data into actionable policy and communications during a public health emergency and will be part of an overall assessment of the CDC to inform its future direction and role in public health. This report does not cover areas examined by the concurrent review of how CDC operates (including potential structural changes, internal processes, systems, and governance), alternative funding arrangements, and/or additional or new programmatic authorities and flexibilities. The observations and recommendations presented in this report are organized into five inter-related focus areas and are based on over 120 interviews conducted from mid-April to early June 2022 with internal staff and key CDC stakeholders.

### 1. Sharing Scientific Findings and Data Faster

A variety of different stakeholders and partners rely on the CDC for the latest scientific information and data to inform their actions and decision-making. State and local health officials, employers, providers, other researchers, the American public, and the global public health community often turn to the CDC for their expertise and knowledge. During a crisis, the need for this type of information is frequently time sensitive and urgent. At the same time, the latest scientific information or data may not always be definitive, complete, or fully analyzed. However if the latest information is not shared by CDC in a timely or understandable manner, people and organizations will have to make decisions without the benefit of the agency's scientific expertise or knowledge.

Recommendations for CDC:

- Release scientific findings and data more quickly (prior to formal publications) in response to the need for information and action, and be transparent about the agency's current level of understanding.
  - Develop and utilize standard language that clarifies the agency's current level of scientific understanding (e.g., This reflects our current understanding of the science and may change as additional research is conducted/information is gathered);
  - Explore the use of an evidence-based rating system – assigning different levels of confidence to scientific findings similar to other Federal government agencies (e.g., ARHQ); and
  - Establish a new mechanism (or add this component to an existing scientific or data release mechanism) to share real-time scientific information and data that clearly differentiates it from current CDC scientific publications (i.e., MMWRs, Science Briefs, and Vital Signs).
- Strengthen and expedite the development and review/approval process for scientific publications and data (including laboratory data) to match the needs of the emergency.
  - Establish priority areas of scientific focus based on emerging public health emergency trends and needs rather than relying on individual/center priorities;
  - Assess and determine the need for real-time surveillance data versus formal data collection analyses and reports;
  - Redeploy scientific/data staff and resources across the agency to focus on urgent issues and applied science during an emergency, utilizing staff from outside the CDC response team and agency, when necessary;
  - Set clear deadlines for sharing the latest scientific findings/data and/or completing a scientific publication to assure the timely release of information that aligns with the timeframes needed by decision makers; and
  - Strengthen and streamline the scientific and data review/approval processes by engaging outside reviewers and reducing the number of internal review layers and personnel involved; focus comments on substantive scientific and data issues rather than editorial/wording preferences.

## 2. Translating Science into Practical, Easy to Understand Policy

During the COVID-19 crisis, CDC produced a large number of policy guidance documents specific to the implementation needs of various stakeholders. Guidance documents were also often long and overly complex with a large number of caveats and footnotes. As a result, the central message of the implementation guidance became obscured or misinterpreted by the public, media, or other stakeholders. In certain circumstances, the accompanying science brief or scientific background was published after the initial release of the guidance document. In addition, without involvement of key partners upfront, guidance documents did not always reflect the on the ground reality needed to effectively implement the policy or communicate its importance.

### Recommendations for CDC:

- Develop and implement a standardized policy development process for implementation guidance documents. This process should include the following key steps:
  - Document the latest scientific information available (i.e., what is known, what is unknown);
  - Determine if an implementation guidance should be developed and its priority status by reviewing whether the proposed guidance responds to a major emerging public health implementation issue (e.g., guidance needed for upcoming school year) identified by grantees, partners, agency staff (e.g., front-line responders), and/or the public, and whether the latest scientific or data release does not already provide sufficient implementation support or guidance for decision makers/key implementers, including the public;
  - Develop a set of options (minimum of two) to implement the latest scientific information; each implementation option should include a set of pros and cons and a discussion of its practical feasibility, net benefit/harm, alignment with current CDC/HHS public health emergency guidance, goals and objectives (e.g., low/no transmission; reduced hospitalizations and deaths; addressing needs of populations at higher risk; community mitigation; self-protection; etc.); and impact on all populations;
  - Share proposed options with key internal (including public communications staff) and external stakeholders (e.g., through town halls, listening sessions, forums, meetings) for reactions, comments, and suggestions, including the opportunity to introduce new options;
  - Finalize options with pros and cons and provide a policy recommendation for the decision maker(s) [Please note: The final recommendation should consider whether multiple implementation options may need to be presented in the final guidance document to reflect the varying resource and/or feasibility limitations that may exist across the country];

- Develop the implementation guidance and put into final expedited clearance for publication; and
- Establish a feedback loop to quickly assess the effectiveness of the implementation guidance by engaging key stakeholders on its clarity, ease of implementation, timeliness, and resultant outcomes.  
**[Please note that in times of urgency/emergency, CDC should still follow the general outlines of this approach albeit in a streamlined or expedited manner.]**

- Produce plain language, easy to understand implementation guidance documents that:
  - Apply over multiple settings (e.g., high density congregate settings) and situations to reduce the number and length of guidance documents;
  - Provide a brief scientific rationale/background in the implementation guidance with a referenced and/or accompanying MMWR, Science Brief, as necessary; and
  - Use FAQs to address unique or changing circumstances that are not covered by the implementation guidance; these FAQs should accompany the implementation guidance and be actively managed to assure that the latest relevant information is shared and out of date material is archived.

### 3. Prioritizing Public Health Communications

CDC has multiple audiences for its scientific knowledge and implementation guidance documents, including State/local/territorial health officials, providers, researchers, employers, policy makers, media, and the public. However, given the need for a credible source of public health information and communication, CDC needs to prioritize and strengthen its public-facing health communication practices and staff expertise. During the public health emergency, the lack of regular communications and consistent channels/methods for sharing information also impacted CDC's ability to effectively communicate internally and externally.

Recommendations for CDC:

- Focus communication efforts to the general public first with additional communications tailored to key partners.
  - Employ a risk communication strategy and speak with a unified voice throughout a public health emergency response – communicating regularly what is known and what is not known;
  - Communicate plain language Bottom Line Upfront (BLUF)/Headlines (including visual representations) in all scientific publications (e.g., MMWRs, HANs, Science Briefs, Vital Signs) and implementation guidance documents – with more detailed information available for health professionals, policy makers, researchers and others in the body of the documents;
  - Formalize roll out procedures and processes for all science publications and implementation guidance documents to include:
    - Plain language, public talking points, FAQs, and central messages; and
    - Tailored pre-release materials, talking points, and FAQs for key external partners and internal staff – adopt a no surprises communication operating posture; and
  - Utilize different communication channels (e.g., MMWRs, Science Briefs, HANs, Vital Signs, information releases, health communications, etc.) for various CDC audiences, developing one specifically for the public and establishing routine delivery schedules for such information sharing.
- Restructure the agency web site and digital communication platforms to eliminate unnecessary content and focus on key target audiences with a primary emphasis on the public.
  - Prioritize front-facing web material for the public with links to other key audience sections;
  - Utilize human-centered design approach to web and digital communications; and
  - Streamline the review process for adding or removing web content, regularly archiving limited viewed materials and updating/removing out of date material.

### 4. Developing a Workforce Prepared for Future Emergencies

The COVID-19 pandemic highlighted the dedication and strengths of the CDC workforce in responding to public health emergencies but also exposed several areas where new skills, training, and capabilities are needed. In addition, during the COVID-19 response, the agency relied heavily on detailees from across the agency to lead and staff its operations often resulting in changing priorities, lack of continuity, and a mismatch of needed skills and people. Concerns were also raised about the ability of the agency to actively attract, retain, engage, and develop the workforce necessary for the future of public

health. [Please note: This report does not cover areas examined by the concurrent review of how CDC operates (including potential structural changes, internal processes, systems, and governance), alternative funding arrangements, and/or additional or new programmatic authorities and flexibilities.]

#### Recommendations for CDC:

- Change the agency's emergency response operating model as well as its rewards and incentive structure to better recognize the importance of the agency's response work.
  - Dedicate permanent leadership, response experts, and line staff for agency-wide public health emergency response to assure continuity in policies, procedures, and staffing;
  - Supplement this core permanent staff with a cadre of emergency response trained, highly qualified staff who can be called upon from across the agency depending on the type of emergency for 6 months to 1 year deployments (rather than 30 to 60 day assignments);
  - Develop a rapid response team that can quickly address real-time public health emergency science, policy and communication needs, and respond to feedback from various internal and external stakeholders;
  - Build a redundancy model of emergency staffing (i.e., backup or co-lead staff in all key positions) to prevent response burnout and assure continuity in operations;
  - Conduct emergency drills and scenarios across the agency on a routine basis, preparing for a variety of different emergency events and sharing results/lessons learned with agency staff;
  - Maintain, strengthen, and develop new agency-wide, emergency response data and management information systems and platforms for use in future emergencies; and
  - Incorporate an emergency response PMAP element in all employee's performance plans that includes response training and deployment readiness for internal and/or external assignments.
- Expand and diversify workforce recruitment, retention, training, and development programs.
  - Recruit staff with new skills sets and abilities in the following key areas: data analytics/ visualization; technology and systems engineering; informatics; behavioral sciences; human centered design; policy development; public communications; and emergency response;
  - Increase efforts to support a more diverse, equitable, inclusive, and accessible agency, reviewing the effectiveness of agency recruitment, retention, training, and engagement strategies;
  - Develop executive leadership and leadership development courses that focus on adaptive leadership rather than technical skills;
  - Initiate a formal succession planning effort that supports promotions and advancements for both technical experts and executive leaders/managers; and
  - Expand programs to embed more staff (including front line, leadership, and data staff) in State and local health departments.
- Increase senior leadership team engagement with staff throughout the agency.
  - Present a new vision for the future of CDC with agency-wide priority goals and clear roles for staff and supervisors across the organization;
  - Conduct more routine All Hands meetings, employee development sessions, and other staff engagement activities at all levels across the organization; and
  - Develop annual employee satisfaction action plans focusing on high priority Employee Viewpoint Survey concerns and issues.

## 5. Promoting Results-Based Partnerships

CDC has a longstanding history as the nation's leader in disease prevention and control. However, many people today also view the agency as more of an academic institution than a public health, service-oriented organization. A lack of clear agency-wide performance accountability structures hinders the ability of the agency to demonstrate and leverage the full impact and value of its operations. In addition, success in public health requires working effectively with others to accomplish results and acknowledging the limitations of a siloed approach to solving major public health issues/problems.

#### Recommendations for CDC:

- Establish an agency-wide performance-based framework for operations and programs focused on key agency goals and results, timeliness and quality of products/services, customer/grantee satisfaction (as measured through a new annual grantee survey), and staff satisfaction.
  - Implement new agency-wide initiatives (e.g., Public Health Workforce; Data Modernization; Lab Capacity; Global Health; Emergency Response; Health Equity) with dedicated resources and cross-agency leadership, established outcomes and timeframes for deliverables, and regular feedback/updates to senior leadership; and
  - Accelerate new ways of doing internal operations by supporting process re-engineering initiatives on key agency priorities or improvement areas (e.g., streamlined clearance processes; lab capabilities; data platforms; etc.) – utilizing both program staff and innovation experts.
- Work in partnership with others in and outside of government to turn science into public health action and results.
  - Engage CDC Senior Leadership and decision makers in ongoing forums to receive feedback on issues and concerns from key stakeholders: State/local/territorial health officials; providers; researchers; employers; community-based organizations; policy makers; and the public;
  - Adopt a partnership approach in grants and cooperative agreement management, focusing on achieving key results together, using internal and external performance dashboards, promoting the use of evidence practices and peer-based technical assistance, and reducing administrative/prescriptive implementation procedures and requirements;
  - Invite private sector entrepreneurs to help with accelerating key CDC priorities such as data modernization, lab capabilities, predictive analytics, communications, etc.;
  - Play a convener role in the scientific and data communities to identify and share the latest science and data among researchers across the US and internationally; and
  - Invest in innovation and new partnership models through the use of Prize Challenges and other resources.

## Next Steps:

CDC has a rich and proud history of service to this nation and the global community. The recommendations presented above focus on how the CDC as an agency can better translate science and data into actionable policy and communications. In addition, while this report focuses on a set of agency-wide recommendations for use during a public health emergency, many of these recommendations also apply to individual CDC center-level work as well as the agency's non-public health emergency activities. As highlighted in this report, by taking several critical strategic actions now, CDC can improve and move forward as *the nation's leading science-based, data-driven, service organization that protects the public's health.*

Last Reviewed: September 1, 2022