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PRESTIGE AND PROCESS AT CDC: RECONCILING ADMINISTRATIVE EXPERTISE WITH REGULATORY FLEXIBILITY

Of all the United States' executive agencies, none leans so heavily on its reputation for expertise as the Centers for Disease Control and Prevention. Constitutionally obligated to persuade rather than coerce, the agency's effectiveness hinges on its credibility, which in turn rests on its expertise. The coronavirus pandemic forced CDC to reevaluate its relationship with expertise, and to transform in a way that has broad implications for other agencies that likewise rely on their reputations for knowledge and professionalism.

This Paper tracks how CDC transformed during the tumultuous pandemic years; how it transitioned from an institution that relied on the scientific and academic prestige of its decision makers to one that relies on the rigor and flexibility of its decision-making process. From this transformation, we draw an important doctrinal inference: CDC's troubles during the pandemic highlight a latent tension between the values of expertise and flexibility in administrative decision-making. In the face of uncertainty, CDC could not simultaneously leverage both.

**492 The Paper concludes by isolating and naming a new model of administrative expertise suggested by the post-pandemic CDC. This model, which we call process-expertise, promises to resolve the tension between administrative expertise and regulatory flexibility, offering other scientific agencies a blueprint to avoid the crisis of confidence that spurred CDC's transformation.*

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*493 INTRODUCTION

In the center of the Galápagos archipelago, a tiny volcanic island called Daphne Major juts out of the Pacific.¹ It is so small and steep that there is barely room there for biologists to pitch a single tent, but from the opening of that tent, they can watch evolution happen with incredible speed.² The island's harsh conditions accelerate natural selection to the point where its results can be apparent over the course of a single generation. For example, the finches that emerge from a major drought are often radically different in shape and size than those that entered it.³ These droughts--sudden changes in environmental conditions--compress the timeline of an otherwise glacial process. The change of many decades can squeeze itself into a single breeding season. Evolution happens before one's eyes.

Some 2,300 miles northeast of Daphne Major lies the headquarters of the Centers for Disease Control and Prevention (CDC), just outside Atlanta, Georgia. This historic institution represents, perhaps more than any other administrative agency, the traditional ideal of scientific expertise in government. Within its walls, scientists have diagnosed, tracked, and fought communicable diseases for almost 100 years, developing a sterling reputation for professionalism and reliability along the way. In 2019, however, when a novel coronavirus emerged in China, the ensuing combination of crisis and uncertainty plunged the agency into a period of chaos that nearly destroyed its reputation. This sudden change in circumstances, much like a drought on Daphne Major, spurred sudden, significant changes to the agency's identity. It was a rare example of an agency evolving before our eyes.

CDC's evolution during the coronavirus pandemic is instructive in at least two ways. First, it shows how agencies react, rightly or wrongly, in the face of crises. CDC's missteps *494 and corrections provide a valuable case study for other organizations seeking to retain a reputation for expertise in the midst of skepticism and uncertainty. Second, it illustrates the tension between two popular values in institutional design: expertise and flexibility. Though each is lauded as a grounds for administrative legitimacy, these ideals do not easily coexist.

To illustrate these conclusions, this Paper has four parts. First, it explains CDC's unique relationship with expertise and how the coronavirus pandemic challenged that relationship. Second, it grapples with theory. It explains the administrative ideals of expertise and flexibility and the tension between the two. Third, it presents original research on how CDC's relationship with expertise changed between the beginning of the pandemic and the present. Finally, it draws conclusions from CDC's changed relationship with expertise. Most importantly, it derives from CDC's updated identity a new concept of administrative competence that promises to reconcile the otherwise incompatible values of flexibility and expertise.

II. CENTERS OF EXPERTISE

Among federal administrative agencies, CDC has a unique relationship with expertise. Charged with protecting Americans from disease,⁴ it must understand and regulate complex medical matters. To fulfill this obligation, it must ask people to change their behavior, whether it be washing their hands, coughing into their elbows, or receiving a vaccination. Though CDC can issue binding regulations, the Constitution places public health largely outside the reach of the federal government.⁵ This means that CDC's primary product is nonbinding guidance, and its best tool for inducing people to conform with its guidance is credibility. If people do not trust CDC, they will not follow its guidance and the *495 agency will struggle to fulfill its purpose. Thus,

both the agency's actual and perceived expertise are critical to discharging its mission. Where other agencies advertise their expertise mainly as grounds for judicial deference,⁶ CDC advertises it as a way to accomplish its mission: to persuade state health departments and ordinary people to follow its guidance.

But CDC did not always have a reputation for expertise. Without experts, the agency relied instead on hard work and problem-solving to gain credibility. It then spent decades building and projecting a new identity as "centers of expertise." That identity brought advantages, but also problems, particularly when unexpected disease outbreaks left its experts unsure how to proceed. CDC's history helps explain the position it found itself in at the beginning of the coronavirus pandemic and foreshadows the changes it eventually made in response. It also illustrates the vicious cycle that agencies reliant on expertise experience when they encounter significant uncertainty.

A. A Reputation for Elbow Grease

Born in 1942, the agency was created to fight the spread of malaria in military camps.⁷ Named "Malaria Control in War Areas" or "MCWA," it sprang from the insight that individual states lacked the funding and resources to successfully control malaria outbreaks.⁸ The MCWA marshaled federal resources to combat this threat. With the military having already snapped up most established experts, the agency first poached specialists from universities and sister agencies, then resorted to hiring laymen and training them in-house.⁹ Ultimately, less than ten percent of the officers in the agency had received prior training on malaria suppression, but they learned so quickly and performed so effectively that the MCWA soon had a reputation *496 for reliability and efficiency.¹⁰

B. Accruing Expertise

The agency was so successful at creating systems for combating the spread of malaria that, as the war ended, the stage was set for a major expansion in its reach and capacity. It took on more work until its purview extended over almost all communicable diseases.¹¹ It became the main point of federal liaison for state governments facing public health emergencies.¹² The agency's founding father, Dr. Joseph W. Mountin, envisioned the agency's future as a network of federal "centers of expertise," dispensing medical knowledge to states facing health crises.¹³ In line with Mountin's vision, the agency increasingly began surrounding itself with prestige. For its headquarters, it chose the campus of Emory University, one of the South's premier research institutions.¹⁴ Its directors were a series of distinguished military doctors who insisted on exceptionally high standards for the research performed and published by the increasingly well-trained staff.¹⁵ As its reach expanded, however, the agency found itself dealing with epidemiological problems its staffers had little experience with.¹⁶ Believing that more expertise was the solution, it hired expert consultants to bridge the gap.¹⁷ It then set about encouraging specialists--which were in high demand--to leave other posts and come work for the agency.¹⁸ The minutes of a staff meeting record the challenges attendant to this approach:

It is going to be very difficult to employ such people as these, as there aren't very many, and they all have jobs. The only *497 possibility is to make the assignment here more attractive than the one they now have, and entice them away from someone else. The Division is attempting also to recruit young medical officers interested in the field of epidemiology for the regular corps to do the leg work and gain experience so that eventually--in five or ten years from now--well qualified and capable personnel will be available.¹⁹

This program of persuasion was successful; within a few years, minutes at subsequent meetings noted a stream of elite doctors and scientists joining the agency's ranks.²⁰ This investment in expertise paid dividends for the agency's public credibility.²¹ People trusted the independent judgment of the scientists and doctors at CDC, not least because they believed them to be America's best.²² Through the decades, the agency changed its name three times--from the Communicable Disease Center to the Center for Disease Control, and finally to the Centers for Disease Control and Prevention--but it held fast to its identity as a center of medical and scientific expertise.²³

C. The Specter of Uncertainty

In 1976, CDC experienced its first major public-relations failure. An outbreak of swine flu in New Jersey triggered alarm bells inside the agency and panic outside it.²⁴ Unlike previous flu outbreaks, which had followed largely predictable patterns, this one combined two competing strains of influenza, which disrupted CDC models and made it difficult to predict what might happen next.²⁵ Following its protocols, CDC convened an emergency meeting to create and distribute a draft of recommended actions.²⁶ Reporters from major newspapers attended to publicize the guidance.²⁷ But in a break with prior *498 practice, the meeting yielded no recommendations because, as the director at the time recalled, “we literally did not know.”²⁸

Realizing something had to be done and feeling immense political pressure, CDC ultimately mobilized a massive effort to vaccinate everyone in the country against the flu.²⁹ The agency was successful in persuading people to get the vaccine, in large part because people trusted its expertise. In the words of one science reporter, CDC was “almost the last Federal agency widely regarded by reporters and producers as a good thing, responsible, respectable, scientific, and above suspicion.”³⁰

Unfortunately, a series of accidents and mistakes quickly eroded that trust. First, while the vaccination efforts were still in the planning stages, the swine flu suddenly disappeared from hospitals and test results. In its place, a second mysterious disease appeared in Philadelphia.³¹ After this illness killed dozens of attendees at an American Legion conference, it was nicknamed “Legionnaire’s Disease.” Once again, CDC was perplexed; the new disease defied categorization.³² Short of answers and unsure what to do about Legionnaire’s, CDC decided to press on with the flu vaccination drive regardless.³³ In a jarring blow, many people who received the flu vaccine were later diagnosed with Guillain-Barré syndrome, a medical accident that punished people’s trust in CDC guidance.³⁴ A junior staffer cleaning out his desk over holiday break brought out his microscope on a whim and discovered that Legionnaires’ Disease was caused by bacteria—a possibility the agency’s *499 epidemiologists had long before ruled out.³⁵ After massive expenditure and troubling collateral damage, the expected swine flu pandemic never arrived.³⁶

The entire affair was a stain on the agency’s reputation and a blow to its credibility. The criticism extended to the ability of expertise to protect Americans from disease. How was it, one congressman asked, that “we could have been awarded three Nobel prizes this year in medicine and at the same time blow the search for the cause of the Philadelphia epidemic?”³⁷ In the aftermath, a prominent Duke scientist asked how the public were to be protected “from scientific expertise gone, not mad, but conscientiously and collectively amuck?”³⁸

One historian wrote that, in defending CDC’s response, staffers “demonstrated an unflinching, but perhaps unwarranted, faith in science and a naiveté about the politics of public health.”³⁹ Aside from the hiring of a new director, no major changes took place within the agency.⁴⁰

CDC’s history to this point suggests a cycle that tees up our later analysis. First, an agency develops trust through elbow grease, working through tricky issues despite lacking a reputation for academic or technical prestige. Then, capitalizing on that trust, it expands and surrounds itself with prestige. The legacy of its past successes allows it to speak authoritatively, but it increasingly relies on the resumes of its decision-makers to justify its decisions. Inevitably, however, a situation arises that requires answers outside the agency’s institutional knowledge. Presented with uncertainty, it makes missteps and errors that threaten to destroy its reputation and credibility with the public. As the next section shows, this cycle, fully completed at least once in the years between 1942 and 1976, began descending toward a new nadir in 2019.

*500 D. The COVID-19 Crisis

Like the swine flu 50 years before, COVID-19 threatened to destroy CDC’s institutional credibility and reputation for expertise. Faced with uncertainty, the agency made a series of significant errors. Those errors, perceived by a public already skeptical of expertise, led to widespread distrust, and in some cases, active resistance against the agency’s guidance. This crisis of confidence

and the resulting efforts to rebuild the agency's credibility highlight the tension between CDC's reliance on its internal expertise and its need for adaptation in a fast-changing environment.

1. Uncertainty

"Moving fast and risk-taking in a setting of ambiguity is not the CDC's strength--it's not what they do," a public official told the Wall Street Journal.⁴¹ Unfortunately, it was exactly what the COVID-19 crisis demanded.⁴² As the disease spread in China, it defied identification.⁴³ Chinese officials described it to CDC as simply a "pneumonia of unexplained origin," only later conceding that it was a novel coronavirus.⁴⁴ The only thing that global health organizations agreed on was that it was very dangerous.⁴⁵ *501 Alex Azar, then-Secretary of the Department of Health and Human Services (HHS), listed the critical unknowns: "how transmissible is this disease? What is the severity? What is the incubation period and can there be asymptomatic transmission?"⁴⁶ The nation's disease experts were groping for answers. By the time American investigators arrived there, China had reported more than 75,000 cases.⁴⁷ The investigators had only been in-country for eight days when CDC announced that an outbreak was coming to the United States.⁴⁸

2. Errors

Partially because of the uncertainty surrounding COVID-19, CDC made a series of misjudgments and errors in addressing it. Critical tests designed to track the spread of the disease turned out to be faulty.⁴⁹ Robert Redfield, CDC Director at the time, "trusted his veteran scientists to create the world's most precise test for the coronavirus and share it with state laboratories."⁵⁰ National confidence in CDC was strong, in part because of its "storied history as [a] preeminent testing authority."⁵¹ Unfortunately, in this case the agency's expertise did not translate into acceptable results: the labs producing CDC tests were contaminated, rendering the tests useless for tracking the spread of the disease.⁵² By the time the agency devised an effective workaround, the coronavirus was already widespread in the United States.⁵³ It was too late to contain it with localized quarantines.⁵⁴

*502 Tracking remained chaotic for months. CDC reported inaccurate transmission statistics because many states, encountering technical difficulties entering negative test results, entered positive ones instead.⁵⁵ The agency conflated results from tests that measured whether a person *currently* had the virus with tests that measured whether someone *had ever had* the virus, leading to inaccurate diagnostics and inflated reports of national testing capacity.⁵⁶

Compounding this problem was the lack of a clear response plan. In 2018, the Trump Administration dissolved the National Security Council Directorate for Global Health Security and Biodefense.⁵⁷ The Directorate was in charge of managing the federal government's response to worldwide health concerns like disease outbreaks.⁵⁸ Without the Directorate's pandemic response plans, CDC issued unclear and contradictory guidance. At first, it treated COVID as if it could be spread by contact with contaminated surfaces.⁵⁹ It later revised this guidance to reflect that people, not surfaces, spread the disease.⁶⁰ Believing that COVID spread via large airborne droplets, the agency suggested that masks would not be necessary.⁶¹ Later it corrected course, announcing that because the disease spread through tiny air particles, masks were in fact critical.⁶² In the summer of 2021, as *503 cases across the country declined, CDC again suggested that Americans stop wearing masks.⁶³ Weeks later, the Delta variant emerged, causing a significant surge in cases and hospitalizations.⁶⁴ As the Omicron variant rolled out, CDC gave conflicting guidance on how long people should isolate after testing positive and whether they should take a test after isolation.⁶⁵ It likely overstated the risk of outdoor transmission, recommending that people wear masks outdoors based on a statistic that some virologists later called "a huge exaggeration."⁶⁶

3. Mistrust

CDC had the misfortune of facing this uncertainty and making these mistakes in an era when Americans already doubted the value of expertise. As early as 2015, sociologists noted that Americans were losing faith in experts.⁶⁷ Institutions that had polled as highly reliable, such as organized religion, the medical system, and public schools, now polled as untrustworthy.⁶⁸ Whether because of an increasingly credentialed population, social media's ability to make anyone seem credible, or some deeper societal unrest, the tendency to disregard expertise was well-established in the United States by the time COVID hit.⁶⁹ Online conversations about the pandemic or vaccine often employed the phrase, "do your own research," expressing confidence that, with some effort, anybody could have sophisticated opinions about anything, including complex medical or epidemiological concepts.⁷⁰ The inference followed that *504 experts like the scientists at CDC were at best redundant, or at worst, subversive.⁷¹

CDC encountered significant resistance to its vaccination efforts.⁷² "Anti-vaxxers" raised concerns about the vaccine's effectiveness and spread misinformation about its potential for harm.⁷³ CDC became the target of resentment and hostility from those who felt the pandemic response had been too restrictive.⁷⁴ The agency took the lead in rebutting vaccine misinformation⁷⁵ but saw only moderate success.⁷⁶

4. The Politicization of Science

The rise of scientific misinformation and public skepticism toward science largely stems from the politicization of science. The First Amendment guarantees freedom of speech, whether that speech is factually based or not.⁷⁷ Political actors have long sought to undermine research that undercuts their political messaging.⁷⁸ Though this behavior has persisted for decades, if *505 not centuries, one of the largest, most concerted political polarization initiatives occurred within the last few decades and involved the debate around climate change. Despite a panoply of studies establishing that climate change poses an existential threat to humanity, its significance--and even its reality--is now a political question rather than a scientific one.⁷⁹ In the early 1990s when scientists began publishing extensive studies and findings pertaining to climate change, powerful industries that were contributing toward global warming quickly--like coal and oil companies--realized that those studies threatened their revenue.⁸⁰ Based on the reports, it seemed likely that legislators would try to regulate their industries to combat climate change.⁸¹ Rather than risk that possibility, many industrial giants began mobilizing lobbyists to discredit the scientists and cultivate contrarian scientists who sought to convince the public that their industries had nothing to do with climate change and therefore did not need to be regulated.⁸² Aware of the numerical disparity between scientists who recognized climate change and those who did not, the contrarian scientists floated a new theory of "scientific prestige."⁸³

Scientific prestige equates the legitimacy of a theory with the number of publications behind it, rather than the quality of those publications.⁸⁴ The numerically inferior scientists worked to out-publish the proponents of climate change and disseminate their *506 research more widely using interviews, books, and television programming. Through their efforts, the contrarian scientists successfully created a counterweight of publications, polarizing the once-uniform scientific issue.⁸⁵ As a result, the fundamental question of whether climate change is real is now a political one, and the strength of the United States' commitment to combating climate change depends on the prevailing political party.⁸⁶

This erosion of a consensus behind hard science compounded the problems CDC faced in fighting the coronavirus. The sensationalization and polarization of media coverage based on party politics impacted the United States' response to the pandemic. Less than 50% of polled Republicans believed that media coverage of the coronavirus pandemic was accurate, beneficial to the public, or important to public education.⁸⁷ And because many public health directives were disseminated by those same media outlets, many people began distrusting health professionals or, conversely, trusting unreliable sources. For example, initial suggestions about the effectiveness of Hydroxychloroquine in treating COVID-19 were rapidly picked up by media sources after President Trump announced that he was taking it as a prophylactic measure.⁸⁸ The Food and Drug Administration even conducted an expedited review and issued an emergency use authorization for the drug.⁸⁹ The Administration later rescinded its recommendation and actively advised against people taking Hydroxychloroquine to treat COVID-19.⁹⁰ Throughout the regulatory back-and-forth, Democrats and Republicans took hard stances on the drug and *507 attacked the other side's positions.⁹¹

Similarly, political actors successfully weaponized politics to polarize other more effective COVID-19 protective measures, like lockdowns, masks, and vaccines.⁹² Face masks became a battleground issue between conservatives and liberals. Conservatives rejected masks and characterized them as symbolical tools of government control.⁹³ Liberals retaliated by pushing measures to penalize non-compliance with mask mandates.⁹⁴ Soon, the decision to wear--or not wear--a mask became a symbolic choice that said as much about the wearer's politics as it did his risk factors.

Vaccines became another political battlefield. Between May and September 2020, polling indicated that public willingness to receive a COVID-19 vaccine dropped from 67% to 33%.⁹⁵ That number was far less than the 70% of the population that epidemiologists estimated must be vaccinated before herd immunity could be achieved.⁹⁶ Though public health experts' endorsement of vaccines impacted public confidence, their involvement was less persuasive for Republicans than Democrats.⁹⁷ The statements of politicians had as much or more effect on public vaccine approval.⁹⁸ “[E]ndorsements of the vaccine by political leaders [had] a polarized response, increasing confidence among co-partisans while being ignored or *508 undermining confidence among respondents affiliated with the other party.”⁹⁹

In sum, it was a very bad time for CDC to be issuing contradictory guidance. The political climate was harsh and the public was generally unwilling to greet errors with understanding or forgiveness. The scientific uncertainty and political circus combined to nearly undermine the agency's decades-old reputation for trustworthiness and reliability.

5. Crisis of Legitimacy

In early 2022, a survey from the Annenberg Public Policy Center at the University of Pennsylvania found that confidence in CDC fell from 77% in November 2021, to 72% in January, 2022--a drop of five percentage points in only two months.¹⁰⁰ The drop was even more pronounced among self-identified Republicans, of which only 50% believed CDC to be a reliable source of information about the pandemic.¹⁰¹ Pundits criticized the agency for using outmoded data collection methods and operating “like a slow-moving academic institution,” rather than an agile problem-solver.¹⁰² It became the butt of jokes and a scapegoat for the government's pandemic failures.¹⁰³ “I used to have the utmost respect for the guidance from the CDC,” said Senator Susan Collins in a Senate Committee on Health, Education, Labor and Pensions hearing. “I always considered [it] to be the gold standard. I don't anymore.”¹⁰⁴ This loss of faith in CDC presented major problems for the federal government's pandemic response. “When there is doubt, people don't trust the source of the advice anymore, and that has huge implications,” said Leana Wen, an emergency physician at George Washington University.¹⁰⁵

*509 In 2021, Joe Biden succeeded Donald Trump as President. The Biden administration prioritized rehabilitating CDC's public image, appointing a new director¹⁰⁶ and promising improved communication.¹⁰⁷ “The messages, to the extent they've been confusing--it's because the scientists, they're learning more,” said President Biden.¹⁰⁸ The President praised newly-appointed CDC Director Rochelle Walensky for her willingness to admit when she was wrong and when she did not have an answer.¹⁰⁹ “[S]he came along and said: ‘I'm a scientist, and I'm learning, I'm learning how to deal with stating what is the case that we've observed.’”¹¹⁰ President Biden's comments reflect a growing awareness that rehabilitating CDC's credibility would mean reconciling the idea of “being a scientist” with “still learning.”

III. EXPERTISE AND FLEXIBILITY

Two themes coexist uneasily in the literature of administrative law. The first theme is what we call expertise, but others have called it professionalism¹¹¹ or, considered in the aggregate, internal administrative law.¹¹² Scholars like Gillian Metzger, Sidney Shapiro, Elizabeth Fisher, and Wendy Wagner have argued that agencies derive legitimacy through the depth of their expertise and professionalism.¹¹³ The second theme is what *510 we call flexibility, but others have called it experimentalism,¹¹⁴ adaptive management,¹¹⁵ measured action,¹¹⁶ principled flexibility,¹¹⁷ or even peer review.¹¹⁸ The many proponents of flexibility argue that agencies can propagate better, more accurate regulation in the face of uncertainty by

adopting pliable, iterative guidance frameworks that adjust with circumstances.¹¹⁹ These two lines of argument, celebrating expertise on one hand and flexibility on the other, despite often proceeding along parallel tracks and arising in different contexts, exist in tension with each other.

A. Expertise / Prestige

Expertise most often arises in the context of administrative legitimacy. In brief, scholars argue that because agencies are populated with experts who are good at their jobs, (1) agencies are legitimate instruments of government, (2) judges should defer to their decisions, and (3) people should trust the accuracy and validity of those decisions.¹²⁰ In all three of these contexts, progressive scholars rely on agencies' expertise as grounds for defending their legitimacy.¹²¹ This paper is interested mainly in *511 the third proposition, but all three are worth briefly considering.

1. Constitutional and Legal Legitimacy

Expertise is critical to arguments justifying agencies' place in the constitutional system.¹²² According to scholars sympathetic to the administrative state, its legitimacy derives from interplay between both external and internal forces.¹²³ Externally, agencies are legitimized through the vigorous oversight of a democratically elected President and the delegation of legislative power from Congress.¹²⁴ Internally, agencies are legitimized by the professionalism of their leaders and staff.¹²⁵ Scholars argue that these internal and external forces combine and interact to produce regulation that is generally politically neutral, scientifically accurate, and democratically responsive.¹²⁶

2. Judicial Review

Because agencies are populated with experts who adhere to high standards of professionalism, progressive scholars argue that courts should give broad deference to their decisions.¹²⁷ Agencies speak with scientific and practical authority because of the expertise and experience concentrated inside them.¹²⁸ Thus, the argument goes, generalist judges who lack the same expertise should defer to the judgment of agency authorities.¹²⁹

*512 Scholars also argue that courts need not put restrictive constraints on agencies' discretion because their professionalism deters them from misbehavior.¹³⁰ For instance, expertise may protect agencies' professional neutrality and insulate them from political bias.¹³¹ Expertise may also be a check on self-interest.¹³² In these ways, agencies' expertise provides peace of mind to judges who might otherwise want to constrain their discretion or reflexively review their decisions.

3. Decisional Accuracy

For the same reasons that judges ought to defer to agency decisions, the common argument goes, regulated parties and ordinary people should trust those decisions. The traditional concept of expertise says, in essence, "trust the experts." The SEC's regulations prohibiting insider trading are presumably wise and correct for the same reason a dentist's diagnosis of an abscess or a mechanic's recommendation of an oil weight would be presumptively reliable: the regulators' training makes them more likely to be correct, more often than a layman would be. Their credibility is grounded in their experience and expertise.

That agencies are populated with experts from elite institutions plays a role in their public perception.¹³³ It has been argued that the New Deal concept of agencies as "neutral experts who ... resolve the nation's socio-political challenges," finding "objectively correct solution[s] to the country's problems" died *513 long ago.¹³⁴ Even so, the discourse surrounding CDC during the COVID-19 pandemic suggests that ordinary people still consider an agency's scientific prestige when evaluating its credibility.¹³⁵

Unfortunately, even if expertise can perform the feats of legal, scientific, and popular legitimation that scholars attribute to it, it still has inherent weaknesses. When elevated as an institutional value, expertise naturally lends itself to top-down decision-

making. Once the experts have spoken, it naturally follows that no further consultation or inquiry is necessary. In the same vein, expertise may easily evade transparency.¹³⁶ The great promise of expertise is that it can be trusted. Transparency is in many ways the opposite of trust. If the nation's best, most qualified people are working on a problem, who are we to demand insight into their process?

B. Flexibility / Process

Flexibility arises most often in the context of institutional and regulatory design. Uncertainty, “the inability to anticipate future states of the world with enough confidence to assign them probabilities,” poses a constant threat to regulatory systems.¹³⁷ When circumstances change rapidly with no previous indication of their outcome, they may reveal rigid regulatory frameworks to be outmoded, arbitrary, or inefficient.¹³⁸ If the process for updating the frameworks is time-consuming or burdensome, the agency charged with regulating the uncertain field can be trapped in a punishing cycle, constantly racing to replace old rigid rules with new ones at the pace of situational change. In some cases, the agency encounters crippling uncertainty from the very start: “policy aims cannot be extensively defined in advance of implementation; they have to be discovered in the course of problem solving.”¹³⁹

One way agencies have avoided the first scenario and coped with the second is by stepping away from rigid rules.¹⁴⁰ The dramatic rise of loose, non-binding guidance as an alternative to more rigid and time-consuming rulemaking can be attributed to agencies' increasing awareness of uncertainty and their relative powerlessness before it.¹⁴¹ Guidance allows an agency to change regulated parties' behavior while remaining free to alter its official position as circumstances change.¹⁴² It essentially offers the regulatory effect of rulemaking without tying the agency down to a fixed position.

The flexibility of guidance is its great advantage and a main driver of its widespread adoption. Flexibility allows agencies to work through uncertain situations the way a rat works its way through a maze--taking small, tentative steps until it reaches a dead end, then retracing its steps, changing its approach, and trying again until it finds a system that works.¹⁴³ Flexibility acknowledges and even embraces the presence of trial and error in administrative decision-making.¹⁴⁴

C. Conflict

Expertise and flexibility are in constant, if subtle, tension. The more iterative and flexible an agency's decision-making process, the less reliant the agency is on expertise. One reason for having experts make decisions is to allow the agency to make fewer, bigger decisions and get better results; to “‘get it right’ at each pronouncement and to ‘keep it right.’”¹⁴⁵ The point of using a flexible framework is to start somewhere, “to say honestly, ‘We have only a vague idea now of how to achieve what we want to achieve, but we think this decision is a good start for now.’”¹⁴⁶

Expertise and flexibility perform similar functions. They both insulate agencies from the consequences of catastrophically incorrect decisions-- expertise by trying to avoid errors entirely, flexibility by ensuring that errors are small and corrective action swift. Both allow agencies to achieve better results and attain public credibility, but they achieve these ends in very different ways. Expertise necessarily grounds an agency's credibility in *results*. When an agency asks people to defer to its decisions because of its prestige, it is implicitly telling them that it is going to get the answer right. An expert's prestige is only as good as the decisions she makes. No amount of education or professional accolades, for instance, would protect the career of a doctor who consistently prescribed the wrong medicines or amputated the wrong limbs.

Flexibility, on the other hand, grounds agencies' credibility in *process*. It presumes that not every decision will be right every time; in fact, these errors are a necessary feature of the system rather than a bug. But it does promise to make its failures quick and relatively painless, and to shortly arrive at a good answer. Proceeding by trial and error through a series of small, frequent, corrective decisions, the agency works through the fog of uncertainty toward a field-tested regulatory system. The problem is that it does not take an expert to make these kinds of adaptive decisions. Given enough time and determination, even a very inexperienced person could be expected to learn a complex system through trial and error.

Indeed, “trial and error” is such a universal learning method, one that requires so little mental acuity or practical experience that its very employment belies a lack of expertise. Critically, it requires admitting error--something that prestige-oriented experts cannot do without risking their reputations. The point of *516 having an expert is to eliminate, to whatever degree possible, trial and error from regulatory systems. Experts, the reasoning goes, have already gone through the painful process of learning from others' mistakes, both in school and throughout their careers. Having emerged from this training, their trial and error behind them, they are now ready to be more correct more often than other people would be, reducing the need for frequent corrective decisions.

IV. TRANSFORMATION AT CDC: 2019-2023

As uncertainty, errors, and criticism threatened CDC's identity as “centers of expertise,” the agency's relationship with expertise changed. Its words and actions reveal an agency increasingly focused on flexibility and process rather than expertise and prestige. To probe this changing relationship, we tracked the way CDC made decisions, the way it justified those decisions to the public, the way it hired and promoted talent, and the way it supervised internal teams. In all these areas, the agency showed signs of embracing uncertainty and grounding its popular legitimacy in the strength of its decision-making process rather than the prestige of its decision-makers.

While we were doing our research, CDC was doing its own. When we began this Paper, we could not have known how quickly the agency would confirm our hypotheses on its transformation. In April 2022, CDC announced a sweeping internal review of its culture, practices, and structure. Spurred in large part by the criticism and errors detailed earlier in this Paper, CDC admitted that it was “responsible for some large, public mistakes” and had a “strategic imperative” to retool and modernize its operations.¹⁴⁷ Soon after, CDC teams began conducting interviews and preparing two comprehensive reports.¹⁴⁸ The first was a scientific and programmatic report focusing on ways CDC could develop and deploy its science more efficiently.¹⁴⁹ The second was a *517 structural report addressing problems within CDC's organization.¹⁵⁰ Both teams consolidated their findings in a summary report.¹⁵¹ At the end of the internal review, after consulting all these reports, CDC leadership settled on four priorities for change:

1. Institutionalizing new “systems, processes, and policies” to improve its “accountability, collaboration, communication, and timeliness;”
2. Drawing on the experiences of the COVID-19 pandemic to improve how it delivers its “science, guidance, and programs;”
3. Reorganizing itself to “facilitate a more cohesive and customer centric structure;” and
4. Finalizing “programs, flexibilities, and authorities” that will make the agency faster and more efficient.¹⁵²

Each one of these priorities corresponds with a dimension we monitored. Our research tends to show the agency making reflexive, instinctive changes in real time. The internal review and subsequent structural changes show CDC taking stock in hindsight, ratifying those early moves, and exploring how to take them further. Below we present the results from our research alongside CDC's conclusions and post-review changes. Together, they tell a compelling story about an agency undergoing mammoth change. We break the findings down into four areas: (1) guidance, (2) public-facing communications, (3) internal values, and (4) organizational structure.

D. Guidance

We measured the volume, scope, and style of CDC health guidance over the course of the pandemic. Our hypothesis was that, as the pandemic progressed, CDC gradually began releasing more guidance that was narrower in scope, signifying a move away from sweeping, binding, prestige-oriented decisions and toward iterative, flexibility-oriented decisions. We suspected ***518** that guidance might start to look and sound like checkpoints along a journey of discovery rather than words handed down from Sinai.

By its nature, guidance is not easy to measure or track. Happily, unlike much agency guidance, which is communicated privately to individual regulated parties, most of CDC's guidance is aimed at state health departments or the public. We considered guidance broadly, including both formal guidance documents and more informal communications with the public. We found that CDC tried over the course of the pandemic to communicate more regularly with Americans, whether it had important updates or not. Further, in an apparent concession to uncertainty, the language of its guidance changed to be more tentative and less concrete. As the pandemic progressed, the scope of CDC guidance also became narrower.

CDC sought to increase both the quality and volume of its communications with the public, especially under its new leadership. There was a clear consensus that the quality of CDC guidance needed to be improved.¹⁵³ In previous years, CDC had released guidance without much thought to interpreting or justifying it.¹⁵⁴ “There's this misunderstanding among CDC scientists sometimes that if ‘I write a document and post it to the web, it will happen,’” one CDC doctor said.¹⁵⁵ Moving forward, “the agency must learn how to communicate with real people--not other doctors, not epidemiologists, not people with Ph.D.s in zoology or biostatistics, but real people.”¹⁵⁶

To improve the clarity of its guidance, the agency created a new tool.¹⁵⁷ The “CDC Clear Communication Index” provides a ***519** rubric for helping staffers determine when communications are ready to send out.¹⁵⁸ As part of its evaluation criteria, the rubric asks whether the material “explains what authoritative sources, such as subject matter experts and agency spokespersons, know *and don't know* about the topic.”¹⁵⁹ Under the rubric, public-facing materials receive a lower score if they only address what is known--or what is not known--about a topic rather than describing both.¹⁶⁰ The tool helped ensure that CDC's public statements were accessible, accurate, and actionable.

But volume was also a problem. Former CDC Director Tom Frieden told the Wall Street Journal that more regular communication was critical to restoring confidence in the agency. “Little by little they have to rebuild trust. It's not enough to get things right, you have to get things right and explain how you got things right and got the answer you did.”¹⁶¹ Responding to this kind of feedback, Director Walensky announced plans to give more frequent agency briefings.¹⁶² “I think what I have not conveyed is the uncertainty in a lot of these situations,” she said.¹⁶³ In an effort to better convey the most up-to-date data while still communicating the inherent difficulty in interpreting it, she hired a media consultant.¹⁶⁴ She also began giving CDC-specific press briefings along with the more general ones organized by the White House COVID-19 Response Team, which had been the director's main point of contact with the press.¹⁶⁵ In 2020, the agency issued forty-eight news releases.¹⁶⁶ In 2021 it issued fifty-eight.¹⁶⁷ The number of press briefings that the ***520** agency gave appeared to increase proportionally as well.¹⁶⁸

The language of CDC guidance reflected a trend away from self-certainty and toward experimentalism. Unlike its earliest pandemic decisions, which were often issued as binding regulations and stated in concrete, authoritative terms, CDC began to prefer non-binding guidance, and the tone of that guidance became increasingly tentative.

Early agency actions included a “no sail order” suspending cruise ship operations from U.S. ports of call,¹⁶⁹ a requirement for proof of a negative COVID-19 test or recovery from COVID-19 for air passengers arriving into the United States,¹⁷⁰ and a mask mandate for travelers using public transportation.¹⁷¹ These regulations were broad and binding; they reflected top-down decision making consistent with a prestige-based organization.¹⁷²

Later, the tone and practical effect of regulation changed. For instance, on January 4, 2022, the agency said that people who had tested positive for Omicron and had quarantined “could choose” to take a test after five days, but that it was not required ***521** or even recommended.¹⁷³ On January 14, 2022, CDC “suggested” “considering” N95 and KN95 masks due to their improved performance against the Omicron variant.¹⁷⁴ The announcement was brief and gently worded, stopping short of recommending

that people in riskier situations wear better masks.¹⁷⁵ Though one could attribute these changes to the difference between regulation and guidance or changes in public health needs, they do suggest a developing willingness to admit uncertainty and a corresponding unwillingness to commit to a hard position, suggesting that the pendulum of agency decision-making was swinging from rigid expertise toward iterative flexibility.

CDC's internal review bore out these conclusions. It found that, though the agency propagated many guidance documents and announcements during the pandemic, most were too long and complicated to be actionable for ordinary people.¹⁷⁶ For instance, the documents were often filled with footnotes and the recommended actions could be presented with so many caveats that readers could not deduce how they applied.¹⁷⁷

To remedy this problem, the summary report recommended certain changes. Most importantly, in the spirit of the Clear Communication Index, the report suggested imposing a standardized process onto the drafting of all guidance documents.¹⁷⁸ The steps would include documenting what is known and unknown about the issue, determining the priority status of the proposed guidance, and ensuring that recommended actions have at least two methods of implementation with a clear set of pros and cons to help people decide which one is right for them.¹⁷⁹ Sounding a recurring theme, the report suggested that CDC make its process more collaborative, looping in key internal and external stakeholders earlier.¹⁸⁰ The proposed process would not stop once the guidance had been finished and published. The *522 report recommended that CDC create a “feedback loop” that would allow it to quickly assess how effectively the guidance addressed the problem.¹⁸¹ If the guidance fell short, the improved communication between teams and feedback from stakeholders would allow the agency to swiftly issue a second iteration correcting the shortcomings of the first.¹⁸²

In sum, CDC identified problems with its former prestige-based approach and turned to process for the solution. This theme held true across every dimension we measured.

E. Public Facing Communications

We tracked the way CDC's leaders justified and accounted for the agency's decisions, especially when those decisions were challenged. Our hypothesis was that the evidence would show a change in the way the agency advertised its expertise to the public; rather than asking Americans to trust it because of its prestige, it would increasingly ask them to follow along with its process. The evidence bore us out.

Over the course of the pandemic, the way CDC justified its decisions changed. Though at first it had argued that its decisions were credible because of the credentials of the people who made them, it eventually began arguing that its decisions were credible because they were made using reliable processes. It became increasingly willing to admit uncertainty.

In the pandemic's early days, CDC deployed its prestige like a shield against criticism. Dr. Robert Redfield, who led the agency during the early pandemic, often pointed to the credentials of the senior epidemiologists whose judgment he relied on.¹⁸³ Other government leaders sheltered behind the agency's prestige too. When it became clear that CDC's first batch of tests were defective, the Secretary of the Department of Health and Human Services defended his actions by saying he *523 had “empowered and followed the guidance of world-renowned U.S. scientists.”¹⁸⁴ In response to separate criticism, a senior administration official said, “[w]hen CDC, who has always been able to handle these things--when they tell us they have this thing under control, who are we to say, ‘[y]ou double PhDs, MDs who have been doing this for years, no you're wrong?’”¹⁸⁵

Once Dr. Rochelle Walensky took control of the agency, the approach changed.¹⁸⁶ Unlike the way earlier CDC leaders defended themselves from criticism, Walensky justified CDC decisions by pointing to the processes by which they were made.¹⁸⁷ CDC briefings and hearings became an invitation into the agency's decision-making process.¹⁸⁸ Defending the agency's controversial guidance on Omicron testing and isolation, she said “[w]e used CDC-based science to make that addition.”¹⁸⁹ Later, she explained what that meant, telling reporters that the decision was based on consideration of more than one hundred papers as well as reports from hospitals and pharmacies.¹⁹⁰ She acknowledged the uncertainty of the moment and the provisional nature

of the guidance: “[w]e felt the need to take action before we had Omicron-specific data,” she said.¹⁹¹ Later, the agency decided to add further language about testing as more information became available and exposed weaknesses in the prior guidance.¹⁹²

The portion of CDC’s summary report directed at the public openly admitted the shortcomings of prestige-based expertise. It noted that, though its staffers are experts and professionals, they were still responsible for making mistakes:

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 *524 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.¹⁹³

By admitting that it had been wrong--that expertise is not synonymous with correctness--CDC was laying the groundwork for a new identity and reputation. Instead of “the people who always get it right,” its staffers would be better categorized as “the people who are good at figuring it out.”

F. Internal Values

We tried to identify the values that the agency claimed as its own. What attributes did it look for in candidates for employment or promotion? What values did it elevate in its mission statements and internal meetings? What traits did it most closely associate with its institutional identity? Our hypothesis was that CDC would gradually emphasize values like communication, collaboration, resilience, and problem-solving--those that would benefit an agency focused on flexibility. Though credentials and past accomplishments would still be important, we suspected they might have been valued less within the agency as the pandemic progressed. Again, the evidence bore out our theories.

The values that CDC leadership measured, inspected, and rewarded changed over the course of the pandemic, signifying a change in the institutional culture.¹⁹⁴ Though credentials and hard skills remained a top priority, the emphasis shifted to celebrate soft skills like flexibility, resilience, energy, and problem-solving ability. These values align with those of an agency increasingly aware of the need to communicate its processes and flexibility, not its prestige.

As the pandemic progressed, CDC started looking for people who could adapt, communicate, and solve problems rather than simply exude technical expertise. Using the Wayback Machine,¹⁹⁵ *525 we compared recent CDC job postings against postings for corresponding jobs that appeared before the pandemic. The differences between the two unmistakably show that CDC changed the way it evaluated candidates--and expertise. The table below shows job postings for four positions that were available before and after the pandemic. Notice how the desired traits for candidates changed.

Table 1: Changes in CDC Job Descriptions¹⁹⁶

| POSITION | PRE-PANDEMIC KSA REQUIREMENTS | POST-PANDEMIC KSA REQUIREMENTS |
|---------------------------|--|---|
| Epidemiologist (GS-13-15) | September 2017 ¹⁹⁷ | March 2022 ¹⁹⁸ |
| | 1. Knowledge of epidemiological methodology, theories, principles, and methods | • Collaboration / Partnering |
| | 2. Knowledge of public health program management | • Data Management, Analysis, and Interpretation |

| | | |
|--|---|---|
| | 3. Ability to provide direction and guidance | • Epidemiological Knowledge |
| | 4. Skill in written communication | • Financial Management |
| | 5. Skill in oral communication | • Flexibility |
| | 6. Ability to work with multidisciplinary officials and groups | • Oral Communication |
| | | • Problem Solving |
| | | • Professional Communications |
| | | • Project Management |
| | | • Project Management Knowledge |
| | | • Public Health Intervention Research |
| | | • Research Ethics |
| | | • Surveillance Systems |
| | | • Written Communication |
| Public Health Advisor (GS-13) (National Center for Emerging & Zoonotic Infectious Diseases, Division of Preparedness & Emerging Infections) | August 2015 ¹⁹⁹ | January 2023 ²⁰⁰ |
| | 1. Knowledge of public health programs, theories, concepts, principles, practices, and techniques | • Creativity/Innovation |
| | 2. Knowledge of policies and procedures to manage and oversee funds, grants, and cooperative agreements | • Data Synthesis |
| | 3. Knowledge of program goals and objectives and | • Program Assessment |
| | 4. Knowledge of qualitative and/or quantitative methods | • Project Management |
| | 5. Skill in oral communication | • Technical Credibility |
| | 6. Skill in written communication | • Public Health Information Dissemination |
| Health Scientist (GS-14) | August 2015 ²⁰¹ | January 2023 ²⁰² |
| | 1. Knowledge of public health systems and program | • Accountability |
| | 2. Knowledge and skill in applying analytical methods and techniques to issues of public health systems and program | • Collaboration/Partnering |
| | 3. Skill in oral communication | • Creativity/Innovation |
| | 4. Skill in Written communication | • Data Analysis and Interpretation |
| | | • Data Collection |

| | | |
|-------------------------------|--|---|
| | | <ul style="list-style-type: none"> • Decision Making |
| | | <ul style="list-style-type: none"> • Integrity |
| | | <ul style="list-style-type: none"> • Oral Communication |
| | | <ul style="list-style-type: none"> • Problem Solving |
| | | <ul style="list-style-type: none"> • Project Management |
| | | <ul style="list-style-type: none"> • Public Health Knowledge |
| | | <ul style="list-style-type: none"> • Research |
| | | <ul style="list-style-type: none"> • Team Building |
| | | <ul style="list-style-type: none"> • Written Communication |
| | | <ul style="list-style-type: none"> • Technical Credibility |
| Public Health Analyst (GS-14) | April 2014 ²⁰³ | January 2023 ²⁰⁴ |
| | 1. Knowledge of qualitative and/or quantitative analysis techniques for formulating program and project goals, objectives, operating policies, and setting priorities. | <ul style="list-style-type: none"> • Accountability |
| | 2. Knowledge of concepts, principles, methods, and techniques of public health programs administration | <ul style="list-style-type: none"> • Acquisition and Grants Management |
| | 3. Knowledge of interpersonal relationships to establish and maintain effective and diplomatic working relationships | <ul style="list-style-type: none"> • Collaboration/ Partnering |
| | 4. Skill in written communication | <ul style="list-style-type: none"> • Customer Service |
| | 5. Skill in oral communication | <ul style="list-style-type: none"> • Data Synthesis |
| | | <ul style="list-style-type: none"> • Networking and Partnership Development |
| | | <ul style="list-style-type: none"> • Oral Communication |
| | | <ul style="list-style-type: none"> • Performance Management |
| | | <ul style="list-style-type: none"> • Policy Analysis and Support |
| | | <ul style="list-style-type: none"> • Program Assessment |
| | | <ul style="list-style-type: none"> • Project Management |
| | | <ul style="list-style-type: none"> • Public Health Information Dissemination |
| | | <ul style="list-style-type: none"> • Public Health Knowledge |
| | | <ul style="list-style-type: none"> • Written Communication |

***529 1. Epidemiologist**

Consider the differences between two representative postings for senior epidemiologists in the GS 13-15 range. The first was posted September 5, 2017. The second was posted March 7, 2022.

The first posting, under the heading “duties,” begins “[a]s an [e]pidemiologist you will: [s]erve as the recognized expert in epidemiology.”²⁰⁵ After framing the role as one that revolves around expertise, the posting explains how candidates will be evaluated. The first step is a qualifications check: reviewers examine the resume to see if the candidate's education and experience conform with the agency's minimum expectations.²⁰⁶ Candidates must have a set amount of specialized experience that allows them to develop the specific “knowledge, skills, and abilities” or “KSAs” the position requires.²⁰⁷ After passing the initial resume check, candidates are evaluated and ranked according to their mastery of the relevant KSAs.²⁰⁸ The posting lists these KSAs in ranked numerical order.²⁰⁹ The hierarchy suggests the primacy of academic knowledge, then practical expertise, then finally soft skills.²¹⁰

The second epidemiologist posting shows significant differences.²¹¹ Though much of the text, including the “recognized expert in epidemiology” language, remains the same, the KSAs--or “competencies”--are listed very differently.²¹² The posting presents the competencies in a disordered, unranked series.²¹³ Prestige-oriented values like epidemiological knowledge and data analysis are still core competencies, but they live in the middle of the list between process-oriented soft skills like collaboration, communication, and--for the first time--flexibility.²¹⁴ The differences in these job postings reflect a conscious shift away from a rigid hierarchy that prioritizes credentials and prestige toward something new.

2. Public Health Advisor

The public health advisor job posting also changed during the pandemic. Like the pre-pandemic epidemiologist job posting, this new posting required knowledge of existing programs, theories, procedures, program goals, and qualitative and quantitative methods.²¹⁵ But it did not rank institutional knowledge highly.²¹⁶ Rather, the KSAs that CDC considered to be relevant included creativity, innovation, and project management.²¹⁷ CDC also added a new KSA called “technical credibility.”²¹⁸ The umbrella organization that controls CDC, the Department of Health and Human Services, defines technical credibility as the “demonstrat[ion of] a depth of judgment, knowledge and technical skill important for the position.”²¹⁹ Specific relevant skills not only include institutional knowledge--that the pre-pandemic job listing valued so highly--but also the ability to *531 “track[] new advances and cutting-edge developments in the technical field” and “modif[y] and create[] new methods and techniques in response to changing technology.”²²⁰ This new KSA reflects CDC's intent to populate its upper-level staff with adaptable individuals who have the training to take existing principles and processes and modify them to reflect changing landscapes. And the lack of emphasis on institutional knowledge and the prestige that comes with it shows CDC's shift toward flexibility.

3. Health Scientist and Public Health Analyst

The last two positions that CDC overhauled on its job application portal were health scientist and public health analyst. Both positions are GS-14 on the General Schedule (GS) Pay Scale. Unlike the lower tiers, GS-14 employees are generally not promoted from a lower GS level based, at least in part, on being at that lower level for at least a year.²²¹ Rather, GS-14 is a “grade generally reserved for highly specialized and valued positions.”²²² Interestingly, CDC also replaced its institutional knowledge based KSAs for these higher GS positions with technical credibility.²²³ CDC introduced a slew of new project-management-based KSAs including accountability, integrity, decision making, and problem solving.²²⁴ From these new KSAs, it becomes apparent that CDC is moving away from hiring inflexible supervisors and specialists who solely rely on their credentials. Instead, CDC is looking for performance-driven individuals who can develop new processes, manage teams, and adapt swiftly to changing situations.

*532 4. Broader Staffing Changes

The changes extended beyond hiring. They reached the staffing of internal projects as well. For instance, CDC's pandemic response team comprised staffers from all areas of the agency.²²⁵ As the pandemic wore on and the CDC workforce increasingly

wore out, this response team came to be staffed entirely with volunteers.²²⁶ By January 2022, there was no requirement that staffers have experience with infectious diseases, data analysis, or field work in order to join the response team.²²⁷ In a callback to the agency's MCWA days, burnout and turnover required it to make staffing decisions in some key areas based on simple availability, not expertise or prestige. The way to get onto new projects was not to have better credentials than everyone else, but simply to have more energy.

With the benefit of hindsight, CDC's post-review summary report laid out the problem in stark terms. The report concluded that, for too long, the agency had celebrated abstract academic credentials over hands-on capability, and that this preference had, over time, left it with a workforce and culture unsuited to rapid responses or flexibility:

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 *533 organization.²²⁸

In other words, it was time to stop rewarding academic prestige and start rewarding practical capability and action. The report even suggested that longtime CDC scientists should be encouraged to get out of their laboratories and into the field.²²⁹ It was an implicit admission that the ivory tower approach to staffing had failed.

Whether driven by leadership priorities, like the job postings, or necessity, like the staffing decisions, CDC took major steps to change its culture and institutional identity. Though credentials and expertise remained important, the agency showed a new affinity for values that would allow it to rebuild its reputation as an agency grounded in process, flexibility, and transparency.

G. Organization and Hierarchy

We monitored how the pandemic affected CDC's internal processes and power structures. How, if at all, did the actual decision-making process at the agency change? Who was allowed or expected to participate? Our hypothesis was that the leadership structure of the organization gradually became more horizontal, suggesting more peer review of decisions rather than vertical, top-down decision-making. Here, once again, the 2022 internal review and reports validated our theories. CDC's internal review was the first step in an ongoing project of reconstruction that has already been significant. This restructuring is designed, in part at least, to promote a more cohesive culture. Based on its experiences during the pandemic, CDC's goals were to restructure itself to better “share scientific findings and data faster, translate science into practical, easy to understand policy, prioritize public health communications, promote results-based partnerships, and develop a workforce prepared for future emergencies.”²³⁰ By changing its power structures and encouraging more cross-department collaboration, CDC aspires to cement its new institutional values of *534 “accountability, collaboration, communication, and timeliness.”²³¹ This means overcoming two of the agency's major structural problems: its top-down, command-and-control power structure, and its siloed workforce.

CDC has drawn criticism for its linear, vertical command hierarchy. This structure, which aligns with the agency's traditional respect for seniority and prestige, caused issues with mid-level management and junior staffers.²³² When non-senior staff understood that their role was to follow orders rather than solve problems themselves, it eroded the agency's capacity and deprived it of ground-level leadership.²³³ The other problem is a lack of collaboration within the agency. “CDC is notoriously siloed in its organization,” one longtime vaccine advisor told CNN. “Everyone is so involved in their own matters that there is very little cross-fertilization and conversation.”²³⁴ This culture made the agency slower to react and limited its creativity because departments became echo chambers.²³⁵

To solve these problems, CDC is adopting processes to “enhance bi-directional communication and accountability.”²³⁶ In other words, communication will no longer flow in one unbroken line from the top to the bottom; CDC expects more junior employees--those traditionally perceived as less prestigious--to send thoughts and ideas back up the command chain and take accountability for solving problems themselves.

The agency is also working to become less vertically oriented by encouraging broader peer review of decisions and initiatives.²³⁷ This starts with the director, who will now be surrounded by a newly formed executive council composed of rotating members from various agency branches and different professional backgrounds.²³⁸ It also extends to greater investment in cross-department projects. The summary report *535 emphasized that these collaborative projects must be better funded in comparison to the traditional siloes of expertise:

[T]he 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.²³⁹

The summary report concludes by stating our thesis almost verbatim. It advises that CDC must step back from its mid-century identity as rigid, prestigious centers of expertise and become instead a nimble, flexible, problem-solving agency.²⁴⁰ It suggests that CDC become “response-oriented,” focused on issuing flexible guidance that adapts with the circumstances rather than propagating rigid regulations and expecting them to remain effective over time.²⁴¹ It says CDC should change its culture to celebrate preparedness and response rather than academic publications.²⁴² It says that the agency needs more collaboration and peer review.²⁴³ In sum, it sketches the outline of a new agency geared around fast responses and flexible reactions. Now CDC's actions are beginning to flesh out and color in that outline.²⁴⁴

Though they did not set out to do so, CDC's internal review and reports, combined with the other evidence of transformation within the agency, suggest both a new model of administrative expertise and a way to reconcile that value with flexibility.

***536 V. A NEW MODEL OF ADMINISTRATIVE EXPERTISE**

Every dimension we studied revealed some signal that CDC's relationship with expertise was changing. The agency was moving, slowly in some areas and quickly in others, away from its traditional concept of expertise; increasingly unwilling to explain its decisions as legitimate simply because they were made by highly credentialed people. Instead, it showed an increased focus on transparency and process, inviting people into its decision making and holding up its systems rather than its scientists as the main source of its credibility.

This development at CDC was foreshadowed by events in the agency's history. In its mid-century configuration as a bastion of rigid prestige, CDC was vulnerable to disaster in moments of uncertainty. When the swine flu and Legionnaires' Disease emerged in 1976, Americans turned to the agency for answers it did not have. Rather than acknowledge that its institutional knowledge was outmatched by a disease it did not understand, CDC caved to political pressure--and perhaps a desire to protect its reputation for having all the answers--stalwartly pressing forward with the flu vaccination campaign even after it knew that the disease spreading from Philadelphia was not flu-related. Its prestige-oriented relationship with expertise prevented it from adapting flexibly to the situation. It could not use trial and error to work its way through the uncertainty because it could not admit error without undermining its institutional prestige. It could not deploy the tools of flexibility without risking its reputation for expertise.

The success of its earliest years, however, provides a compelling counterargument. At its inception, CDC demonstrated itself to be effective even without significant institutional prestige. When its role was limited to reducing the spread of malaria, prestige was generally unavailable to it. Deprived of experts by the war, which drove scientists and doctors into the military, the fledgling agency poached talent where it could and trained it up where it could not. With a roster of engineers and recently graduated medical students, the MCWA was highly effective in draining swamps, tracking and treating malaria cases, and teaching soldiers how to protect *537 themselves from the disease. It was known, not as an agency that already had all the answers, but as

an agency that could figure things out. Its success in that role ironically gave it a reputation for excellence, which attracted experts and prestige, which turned out to be a mixed blessing. It took almost eighty years for the agency to begin retreating from prestige-oriented expertise and returning to its process-oriented roots.

The points at the beginning and end of CDC's coronavirus transformation represent two concepts or models of expertise. The earlier model could be called "prestige-expertise." It asks for trust because its decisions are made by experts. The latter model could be called "process-expertise." It asks for trust because its decisions are made using the best information available, and the agency has a process for figuring the situation out quickly, even if it does not get the answer right the first time. Process-expertise offers a way to reconcile the competing values of flexibility and expertise by drawing a new connective line between an agency's expertise and its credibility. By shifting the discourse around expertise from prestige to process, agencies can maintain their popular legitimacy while also acknowledging uncertainty and using the principles of flexibility to work through it.

The idea of process-expertise is not, at first glance, new. Wendy Wagner has written about the "twenty-first century model of the agency-as-expert," a model that shares similarities with this one. To Wagner, however, process means the multiple rounds of deliberation and peer review that go into making initial decisions, not the agency's flexibility in quickly releasing new, incremental guidance once existing decisions are shown to be inadequate.²⁴⁵ This post-decision flexibility is the great attraction of process-expertise. It invites public trust not only because the agency is smart enough to issue good guidance, but because the agency is flexible enough to quickly correct imperfect guidance as new information becomes available. Thus, as we use the word, process means more than just the input that goes into making a discrete decision. It means the agency's system for creating a regulatory framework composed of many iterative decisions *538 updated over time.²⁴⁶

In an environment where uncertainty is constant, process-expertise is not merely desirable. It is inevitable. Prestige-expertise is only as valuable as the decisions it produces and thus can only validate or legitimize agencies retroactively. Each new generation of experts is evaluated by the correctness of the decisions of those who came before. When an agency grounds its authority in prestige, that authority is fragile. The agency is never further than a string of inaccurate decisions from losing legitimacy in the eyes of regulated parties. Faced with a period of intense uncertainty like the coronavirus pandemic, agencies whose reputations are built on prestige alone cannot maintain popular legitimacy for the simple reason that "[u]ncertainty calls authority in all its forms into question."²⁴⁷ Thus, agencies should ground their legitimacy less in the prestige of the people making the decisions and more in the flexible processes used to make them. By focusing public attention on their responsive, iterative processes, agencies can fully harness both the regulatory advantages of flexibility and the public-facing advantages of expertise.

CONCLUSION

For CDC, the coronavirus pandemic was like a drought on Daphne Major. The extreme conditions killed off the attitudes, structure, and habits that were not built to survive. The agency that emerged from the pandemic was a different shape and size, with vastly different values and structures than the one that went into it. Of all the changes that took place at the agency between 2019 and 2023, perhaps the most remarkable is the way CDC valued, nurtured, employed, and projected its own institutional expertise. The coronavirus demonstrated-- like the swine flu pandemic before it--that prestige alone cannot sustain *539 an agency in the face of uncertainty. CDC responded in the way the circumstances demanded. In order to regain the public's trust, it began shifting its emphasis away from the prestige of its decision-makers and toward the rigor of its decision-making processes. This shift was both internal and external. It affected everything from the way the agency hired and promoted talent to the way it wrote and issued guidance documents.

Not only did this shift place the agency on better footing to weather the uncertainty of the next health crisis, but it also gave it the tools to resolve the tension between expertise and flexibility that had bedeviled it in previous pandemics. Agencies that rely too heavily on prestige become inflexible; they cannot admit uncertainty without undermining their reputation for expertise, and so they cannot benefit from the rapid, iterative flexibility that guidance allows. By making the process itself the center of the agency's identity, CDC is able to maintain its reputation for expertise and excellence while remaining capable of admitting error and learning from its mistakes.

Daphne Major is, of course, not the only place where evolution happens. Everywhere else in the world, natural selection is ongoing but at a slower rate that is more difficult to observe. CDC's evolution is not a fluke or an outlier. It is better viewed as a harbinger. Other agencies, especially those that rely on their reputation for expertise, will likely make similar changes in coming years. If they do not make them voluntarily, the next crisis in their field--like a drought on Daphne Major or the emergence

of a novel coronavirus-- could force their hands. Wherever expertise exists, it is vulnerable to uncertainty. And the only way through uncertainty is a flexible process of trial and error. Only by grounding their legitimacy in process-expertise can agencies survive the buffeting of uncertainty while keeping their reputations for expertise intact.

Footnotes

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a1 Associate Attorney, Cole Schotz P.C. The Author holds a J.D. from the Texas A&M University School of Law, and a B.S. from the University of Miami. He would like to thank his family and friends. He would also like to thank Gary Sorden and his colleagues at Cole Schotz. The opinions expressed in this Article reflect the author's independent academic views and are not attributable to Cole Schotz P.C. or any other entity.

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- 206 *Id.*
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- 227 *Id.*
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- 229 *Id.*
- 230 *Internal Review*, *supra* note 42.
- 231 *Id.*
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- 234 Cohen & Herman, *supra* note 153.
- 235 *Summary Report, supra* note 148.
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- 237 *Id.*
- 238 *Id.*
- 239 *Summary Report, supra* note 148 (emphasis added).
- 240 *Id.* (“CDC would benefit from being nimbler and more flexible.”).
- 241 *Id.*
- 242 *Id.* (“CDC needs to ... move agency culture towards integrating preparedness and response into every activity.”).
- 243 *Id.* (“CDC should elevate response-related activities and better integrate cross-cutting preparedness and response elements across the organization.”).
- 244 *Internal Review, supra* note 42.
- 245 Wagner, *supra* note 133, at 2026-28.
- 246 Process-expertise is thus more analogous to Craig and Ruhl's concept of “adaptive management.” Craig & Ruhl, *supra* note 115, at 1 (“Adaptive management is a structured decision-making method, the core of which is a multistep, iterative process for adjusting management measures to changing circumstances or new information about the effectiveness of prior measures[.]”).
- 247 Kessler & Sabel, *supra* note 111, at 198.

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