

Protecting Public Health amid Misinformation and Scientific Illiteracy: Federal Actions Necessitating State Interventions

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INTRODUCTION

With the United States (“U.S.”) federal government permissive to misinformation¹ and weaponizing it for its own gain,² states must prepare to protect the health of their people in the face of poor U.S. scientific and health literacy³ and increasing politicization of science⁴ through affirmative anti-misinformation policies, proactive legislation, and dedicated research on scientific and health literacies and interventions.⁵

At the individual level, scientific and health literacies could serve as protections against misinformation.⁶ Both have undergone numerous definition changes as the public’s understanding of science and health has evolved.⁷ At their core, these definitions often center on an individual’s ability to understand, interpret, and apply scientific and health information to

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1. See discussion *infra* Section IV.

2. See discussion *infra* Section IV.

3. See discussion *infra* Section II.

4. See discussion *infra* Section III.A.

5. See discussion *infra* Section VI.

6. See Jon D. Miller, *Public Understanding of Science and Technology in the Internet Era*, 31 PUB. UNDERSTANDING SCI. 266, 268–69 (2022) [hereinafter Miller, *Internet Era*].

7. COMM. ON SCI. LITERACY & PUB. PERCEPTION SCI., NAT’L ACADS. SCIS., ENG’G, & MED., *SCIENCE LITERACY: CONCEPTS, CONTEXTS, AND CONSEQUENCES* 26–27, 34–35 (Catherine E. Snow & Kenne A. Dibner eds., 2016) [hereinafter NASEM, *SCIENCE LITERACY*].

make informed decisions.⁸ With the highly specialized, technical nature of modern science, it is impractical to expect laypeople to fully grasp each particular of every scientific field.⁹ In the modern era of scientific and technological advancement, the idea of a generalist becomes idealistic, incorrectly assuming everyone can gain competence in each of the ever-increasing number of scientific fields.¹⁰ Rather than celebrating expertise, people are expected to reach into multiple fields where they may lack the relevant knowledge to make accurate decisions.

On average, less than one-third of the U.S. adult population is scientifically literate,¹¹ with a low-level, broad understanding of science, not subject-matter expertise.¹² As used here, scientific and health literacies are essentially synonymous.¹³ Therefore, studies of scientific literacy are more predictive of health literacy than studies of health literacy themselves which measure an individual's ability to navigate the U.S. healthcare system.¹⁴ While socioeconomic factors complicate health behaviors, scientific and health literacy have been found to be predictive of health outcomes, with worse health outcomes among those who are less scientifically or health

8. Jon D. Miller, *The Conceptualization and Measurement of Civic Scientific Literacy for the Twenty-First Century*, in SCIENCE AND THE EDUCATED AMERICAN: A CORE COMPONENT OF LIBERAL EDUCATION 241, 243 (Jerrold Meinwald & John G. Hildebrand eds., 2010) [hereinafter Miller, *Civic Scientific Literacy*]; NASEM, SCIENCE LITERACY, *supra* note 7, at 26–27, 34–35.

9. Miller, *Internet Era*, *supra* note 6, at 268–69.

10. *See id.*

11. Jon D. Miller et al., *Citizen Attitudes Toward Science and Technology, 1957–2020: Measurement, Stability, and the Trump Challenge*, 51 SCI. & PUB. POL'Y 526, 527 (2024) [hereinafter Miller et al., *Citizen Attitudes*].

12. *See* Miller, *Internet Era*, *supra* note 6, at 267.

13. *See* discussion *infra* Section II.A.

14. *See* discussion *infra* Section II.A. In the 2003 National Assessment of Adult Literacy (“NAAL”), the only national study on U.S. literacy to include a health literacy survey since 1952, the questions were meant to mimic skills necessary to read and understand “insurance information, medicine directions, and preventive care information” but not disease information or health data (e.g., blood pressure, test results, etc.). *See* MARK KUTNER ET AL., U.S. DEP’T EDUC., THE HEALTH LITERACY OF AMERICA’S ADULTS: RESULTS FROM THE 2003 NATIONAL ASSESSMENT OF ADULT LITERACY 2, 3 (2006). Because the NAAL considered whether individuals could navigate the U.S. healthcare system, not whether they understood scientific health information, measures of scientific literacy are a better indicator of health literacy as relevant here. Even if health literacy were to be considered separately, results are poorer for health literacy than for scientific literacy. *See id.* at 10. Only twelve percent of U.S. adults are proficiently health literate, or able to successfully navigate the U.S. healthcare system. *Id.* Regardless of which measure is used, the result is the same: U.S. adults have poor scientific and health literacy.

literate.¹⁵ Given the U.S. adult population's limited scientific and health literacy, their capacity to effectively process and assess misinformation is limited.

While U.S. adults may not have the tools to protect themselves from misinformation, they also may not consistently trust scientists either.¹⁶ Since the 1980s, the U.S. has faced increased politicization of science,¹⁷ more recently spurred on by misinformation circulated through social media platforms.¹⁸ The public health consequences of this mistrust and misinformation became especially clear at the start of the COVID-19 pandemic.¹⁹ Distrust spurred on by social media misinformation kept certain populations from relying on scientific messaging.²⁰

Even before the Biden administration, several social media platforms had implemented content moderation policies that attempted to restrict or flag misinformation.²¹ In response to these policies, some states passed legislation limiting social media content moderation—legislation that was later judicially blocked.²² In several cases that have either come before the U.S. Supreme Court (“SCOTUS”)²³ or been appealed to SCOTUS,²⁴ the Court has not taken an affirmative position on content moderation, using procedural

15. NASEM, SCIENCE LITERACY, *supra* note 7, at 97–102; AGENCY FOR HEALTHCARE RSCH. & QUALITY, U.S. DEP’T HEALTH & HUM. SERVS., HEALTH LITERACY INTERVENTIONS AND OUTCOMES: AN UPDATED SYSTEMATIC REVIEW 8 (2011) [hereinafter AHRQ, HEALTH LITERACY]; Anna Romanova et al., *Improving Health and Scientific Literacy in Disadvantaged Groups: A Scoping Review of Interventions*, PATIENT EDUC. & COUNSELING, May 2024, at 1, 1–3; Rabia Shahid et al., *Impact of Low Health Literacy on Patients’ Health Outcomes: A Multicenter Cohort Study*, BMC HEALTH SERVS. RSCH., Sept. 2022, at 1, 1–3.

16. See discussion *infra* Section III.A.

17. Gordon Gauchat, *Politicization of Science in the Public Sphere: A Study of Public Trust in the United States, 1974 to 2010*, 77 AM. SOCIO. REV. 167, 174 (2012).

18. See Miller, *Internet Era*, *supra* note 6, at 271.

19. U.S. DEP’T HEALTH & HUM. SERVS., CONFRONTING HEALTH MISINFORMATION: THE U.S. SURGEON GENERAL’S ADVISORY ON BUILDING A HEALTHY INFORMATION ENVIRONMENT 4 (2021) [hereinafter CONFRONTING HEALTH MISINFORMATION], <https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf> [https://perma.cc/5DTS-CPAM]; James G. Hodge, Jr. et al., *Supreme Court Impacts in Public Health Law: 2023–2024*, 52 J.L., MED. & ETHICS 484, 486 (2024).

20. See CONFRONTING HEALTH MISINFORMATION, *supra* note 19, at 4.

21. See, e.g., *Social Media Policies: Mis/Disinformation, Threats, and Harassment*, STATES UNITED DEMOCRACY CTR. (June 24, 2024), <https://web.archive.org/web/20241010193929/https://statesunited.org/resources/social-media-policies/> [https://perma.cc/4F95-2T3W].

22. See *Moody v. NetChoice, LLC*, 603 U.S. 707, 717 (2024).

23. *Murthy v. Missouri*, 603 U.S. 43, 76 (2024).

24. See, e.g., *Changizi v. Dep’t of Health & Hum. Servs.*, 82 F.4th 492 (6th Cir.), *cert. denied*, 144 S. Ct. 2716 (2024) (mem.); *Stockton v. Ferguson*, No. 2:24-CV-0071, 2024 WL 2329976, at *1 (E.D. Wash. May 22, 2024).

avenues to dodge crucial questions²⁵ or denying certiorari altogether.²⁶ Since late 2024, many social media platforms have revoked their content moderation policies altogether.²⁷ Consequently, these policies are tenuous and unlikely to provide any public health protection without additional state regulation.

Public trust in science somewhat improved in 2024, but remained lower than pre-pandemic levels.²⁸ However, the current presidential administration now poses a significant risk for misinformation circulated by President Trump²⁹ and his top advisors,³⁰ purges of important public health data,³¹ negative treatment of executive agency scientific expertise,³² inconsistencies

25. *Murthy*, 603 U.S. at 76.

26. *See, e.g., Changizi*, 144 S. Ct. at 2716 (denying certiorari); *Stockton*, 2024 WL 2329976, at *1.

27. *See* Kate Gibson, *Meta to End Fact-Checking, Replacing It with Community-Driven System Akin to Elon Musk's X*, CBS NEWS, <https://www.cbsnews.com/news/meta-facebook-instagram-fact-checking-mark-zuckerberg> (Jan. 8, 2025) [<https://perma.cc/VX6F-D45C>].

28. Teddy Rosenbluth, *Americans Have Regained Modest Trust in Scientists, Survey Finds*, N.Y. TIMES (Nov. 14, 2024), <https://www.nytimes.com/2024/11/14/health/trust-science-americans.html>.

29. Please note, for the sake of continuity, President Trump and Vice President Vance are referred to throughout this article by their official titles. However, many of the actions referred to occurred during periods when they did not hold those titles.

30. *See* Elizabeth Wolfe et al., *Vance's Team Was Told Haitian Immigrant Rumors Were False Before Debate, Springfield Mayor Confirms*, CNN, <https://www.cnn.com/2024/09/20/politics/springfield-ohio-vance-campaign-wsj-report/index.html> (Sept. 21, 2024) [<https://perma.cc/L986-QTWZ>]; LiveNOW from FOX, *WATCH: J.D. Vance Holds Q&A During Rally in Wisconsin*, at 10:00, YOUTUBE (Sept. 17, 2024), <https://www.youtube.com/watch?v=f4eiCCib1LQz> [<https://perma.cc/2Z9R-CKFB>]; Dana Bash and JD Vance Clash Over Baseless Claims About Haitian Immigrants, CNN (Sept. 15, 2024), <https://www.cnn.com/2024/09/15/politics/video/jd-vance-haitian-immigrants-baseless-pet-eating-claims-bash-sotu-digvid> [<https://perma.cc/HVR7-DAVJ>] [hereinafter CNN, *Bash, JD Vance*]; Daniella Diaz & Katherine Tully-McManus, *Elon Musk Fueled Backlash to Spending Plan with False and Misleading Claims*, POLITICO (Dec. 18, 2024), <https://www.politico.com/news/2024/12/18/elon-musk-false-claims-cr-00195252> [<https://perma.cc/2YX5-UYGT>].

31. *See* Will Stone & Pien Huang, *Some Federal Health Websites Restored, Others Still Down, After Data Purge*, NPR (Feb. 6, 2025), <https://www.npr.org/sections/shots-health-news/2025/02/06/nx-s1-5288113/cdc-website-health-data-trump> [<https://perma.cc/23NQ-WDVG>]; Ethan Singer, *Thousands of U.S. Government Web Pages Have Been Taken Down Since Friday*, N.Y. TIMES, <https://www.nytimes.com/2025/02/02/upshot/trump-government-websites-missing-pages.html> (Feb. 3, 2025) [<https://perma.cc/7A2E-WWVT>]; *see also* James G. Hodge, Jr., *Legal Strategies Countering Federal Public Health Data Purges*, 53 J.L., MED. & ETHICS 327, 327–28 (2025).

32. *See* Libby Cathey, *Trump, Downplaying Virus, Has Mocked Wearing Masks for Months*, ABC NEWS (Oct. 20, 2020), <https://abcnews.go.com/Politics/trump-downplaying-virus-mocked-wearing-masks-months/story?id=73392694> [<https://perma.cc/JV6E-VNUS>]; Toby Bolsen & Risa Palm, *Politicization and COVID-19 Vaccine Resistance in the U.S.*, 188 PROGRESS

between the top agencies' recommendations and the President's directives,³³ and the gutting of key public health executive agencies.³⁴

At the start of the COVID-19 pandemic, President Trump undermined executive agency recommendations for masking,³⁵ vaccinations,³⁶ social distancing,³⁷ testing,³⁸ and treatment for COVID-19.³⁹ This resulted in inconsistent responses to the pandemic at the state and local level,⁴⁰ with responses often split based on political affiliation.⁴¹ During the 2024 presidential campaign, President Trump and Vice President Vance repeated disinformation.⁴² At a rally, Vice President Vance stated that it was the media's job to fact check stories, not his,⁴³ and asserted in an interview that disinformation is good if it draws attention to issues that his constituents care about.⁴⁴ Following President Trump's re-election, Elon Musk, who initially

MOLECULAR BIOLOGY & TRANSLATIONAL SCI. 81, 85–89 (2021), <https://pmc.ncbi.nlm.nih.gov/articles/PMC8577882> [<https://perma.cc/8D4W-WZ4C>]; Martha Kinsella et al., *Trump Administration Abuses Thwart US Pandemic Response*, BRENNAN CTR. FOR JUST., <https://www.brennancenter.org/our-work/research-reports/trump-administration-abuses-thwart-us-pandemic-response> (July 26, 2021) [<https://perma.cc/SNH6-83JQ>]; Kacper Niburski & Oskar Niburski, *Impact of Trump's Promotion of Unproven COVID-19 Treatments and Subsequent Internet Trends: Observational Study*, J. MED. INTERNET RSCH., 2020, at 1, 6, <https://www.jmir.org/2020/11/e20044/PDF> [<https://perma.cc/Z5QE-SNSV>].

33. See Julie Scharper, *5 Ways the U.S. Botched the Response to COVID-19*, JOHNS HOPKINS UNIV. (Apr. 3, 2020), <https://publichealth.jhu.edu/2020/5-ways-the-us-botched-the-response-to-covid-19> [<https://perma.cc/WWN2-8V4N>]; John Kerr et al., *Political Polarization on COVID-19 Pandemic Response in the United States*, PERSONALITY & INDIVIDUAL DIFFERENCES, Apr. 2021, at 1, 1–3, <https://pmc.ncbi.nlm.nih.gov/articles/PMC8631569> [<https://perma.cc/QWC9-WUV4>].

34. Emily Anthes & Emily Baumgaertner, *Trump's Choices for Health Agencies Suggest a Shake-Up Is Coming*, N.Y. TIMES, <https://www.nytimes.com/2024/11/23/health/trump-kennedy-health-agencies-vaccines-covid.html> (Nov. 25, 2024); Dana Goldstein, *Trump Wants to Shut Down the Department of Education? Is That Possible?*, N.Y. TIMES (Sept. 10, 2024), <https://www.nytimes.com/2024/09/10/us/shut-down-department-of-education-trump.html>; Sheryl Gay Stolberg, *Fluoride, Vaccines, Obamacare: What to Know About Trump's Health Statements*, N.Y. TIMES (Nov. 4, 2024), <https://www.nytimes.com/2024/11/04/us/politics/trump-rfk-health-fluoride-vaccines-aca.html> [hereinafter Stolberg, *Fluoride*]; Sheryl Gay Stolberg, *Trump Picks R.F.K. Jr. to Be Head of Health and Human Services Dept.*, N.Y. TIMES (Nov. 14, 2024), <https://www.nytimes.com/2024/11/14/us/politics/rfk-jr-trump-hhs.html>.

35. Cathey, *supra* note 32.

36. See Bolsen & Palm, *supra* note 32, at 85–86.

37. Kinsella et al., *supra* note 32.

38. *Id.*

39. See, e.g., Niburski & Niburski, *supra* note 32.

40. Scharper, *supra* note 33.

41. Kerr et al., *supra* note 33.

42. Wolfe et al., *supra* note 30.

43. See LiveNOW from FOX, *supra* note 30.

44. See CNN, *Bash, JD Vance*, *supra* note 30.

led the Department of Government Efficiency (“DOGE”), may have spread disinformation that helped kill a bipartisan spending bill.⁴⁵

Since re-election, the President has also made clear that the Centers for Disease Control and Prevention (“CDC”),⁴⁶ the Department of Health and Human Services (“HHS”) more generally,⁴⁷ and the Department of Education (“ED”)⁴⁸ will undergo major changes. HHS Secretary Robert F. Kennedy (“RFK”), Jr.,⁴⁹ has made numerous statements opposing current CDC recommendations and general scientific understanding.⁵⁰ The federal government under the current administration cannot be relied on to protect public health interests in line with scientific evidence.

Even if executive agencies could mitigate influence from misinformation and regulate in promotion of health and scientific literacies and public health,⁵¹ SCOTUS’s decision in *Loper Bright Enterprises v. Raimondo* makes those regulations easier to challenge.⁵² *Loper* and other recent federal cases reveal judicial support for mitigating federal executive agency regulatory authority with closer judicial gatekeeping.⁵³ This is a disservice to both the public and judges themselves. Given the increasing complexity of scientific advancement, to quote the Hawaii Supreme Court, “[a] court’s domain is the law, and judges should recognize the limits of their expertise.”⁵⁴

45. Diaz & Tully-McManus, *supra* note 30.

46. Anthes & Baumgaertner, *supra* note 34.

47. *Id.*

48. Goldstein, *supra* note 34.

49. Selena Simmons-Duffin, *RFK Jr. Confirmed as Trump’s Health Secretary, Over Democrats’ Loud Objections*, NPR (Feb. 13, 2025), <https://www.npr.org/sections/shots-health-news/2025/02/13/nx-s1-5294591/rfk-jr-trump-health-human-services-hhs-vaccines> [<https://perma.cc/6X2Y-JJUY>].

50. See Stolberg, *Fluoride*, *supra* note 34; Chris Dall, *ACIP Postponement, Shelving of CDC Vaccine Campaigns Stir Fears*, CIDRAP (Feb. 21, 2025), <https://www.cidrap.umn.edu/public-health/acip-postponement-shelving-cdc-vaccine-campaigns-stir-fears> [<https://perma.cc/XZM5-SFBR>].

51. *But see* Exec. Order No. 14168, 90 Fed. Reg. 8615 (Jan. 20, 2025); Exec. Order No. 14210, 90 Fed. Reg. 9669 (Feb. 11, 2025); Exec. Order No. 14212, 90 Fed. Reg. 9833 (Feb. 13, 2025); Exec. Order No. 14215, 90 Fed. Reg. 10447 (Feb. 18, 2025).

52. See 603 U.S. 369, 412 (2024).

53. See, e.g., *Wages & White Lion Invs., LLC v. Food & Drug Admin.*, 90 F.4th 357, 390 (5th Cir. 2024) (reversing an FDA denial decision in favor of the plaintiff tobacco companies); *Braidwood Mgmt., Inc. v. Becerra*, 104 F.4th 930, 947–50 (5th Cir. 2024) (finding that members of the Preventive Services Task Force were improperly appointed, rendering their recommendations unenforceable); *RJ Reynolds Tobacco Co. v. Food & Drug Admin.*, 96 F.4th 863, 888 (5th Cir. 2024) (reversing and remanding a finding that FDA’s warning-label requirements did not violate the APA).

54. *Rosehill v. Land Use Comm’n*, 556 P.3d 387, 405 (Haw. 2024).

As a result of these federal actions, states must step in to protect their people.⁵⁵ Individuals lack the necessary scientific and health literacy to effectively protect themselves from misinformation.⁵⁶ Misinformation on social media and variations in trust in science based on political ideologies have exacerbated disparate health outcomes.⁵⁷ Federal intervention in the current misinformation crisis is unlikely to occur⁵⁸ as the Trump administration has promoted misinformation and undermined federal regulatory agency attempts to protect public health.⁵⁹ In addition to codifying administrative agency regulations and passing legislation on key public health issues,⁶⁰ states must (1) enforce or enact affirmative anti-misinformation policies; (2) pass proactive legislation protecting public health or repealing old laws blocked only by precedent; and (3) research health and scientific literacies to implement effective interventions.

I. SCIENTIFIC AND HEALTH LITERACY

Overcoming the current misinformation crisis requires everyone to have scientific and health literacy, or the ability to understand, interpret, and apply scientific and health information to make informed decisions.⁶¹ While literacy is not necessarily determinative of complex health behaviors complicated by socioeconomic factors, it has been shown to be predictive of health outcomes.⁶² Stated simply, improvement in scientific and health literacy is correlated with improved health outcomes.⁶³ However, current data suggest that U.S. adults are not sufficiently literate to dispel misinformation on their own.⁶⁴

55. See discussion *infra* Part V.

56. See discussion *infra* Part I.

57. See discussion *infra* Part II.

58. See discussion *infra* Section II.C., Part III.

59. See discussion *infra* Part III.

60. See, e.g., Shawn Hubler et al., *Leaders in Democratic States Begin Planning to Fight Trump Policies*, N.Y. TIMES (Nov. 7, 2024), <https://www.nytimes.com/2024/11/07/us/newsom-trump-california.html>.

61. See Miller, *Civic Scientific Literacy*, *supra* note 8, at 243; NASEM, SCIENCE LITERACY, *supra* note 7, at 3.

62. NASEM, SCIENCE LITERACY, *supra* note 7, at 96–102; AHRQ, HEALTH LITERACY, *supra* note 15, at 8; Romanova et al., *supra* note 15, at 2; Shahid et al., *supra* note 15, at 1.

63. NASEM, SCIENCE LITERACY, *supra* note 7, at 96–102; AHRQ, HEALTH LITERACY, *supra* note 15, at 8; Romanova et al., *supra* note 15, at 2; Shahid et al., *supra* note 15, at 1.

64. See discussion *infra* Section II.C.

A. Key Definitions

Scientific literacy—the ability to understand, interpret, and apply scientific information to make informed decisions⁶⁵—is a well-established concept.⁶⁶ However, definitions and studies vary over time with changes in science education.⁶⁷ As science education shifted to teaching baseline rather than specialized knowledge, scientific literacy definitions evolved and diverged to reflect varying perspectives on what information a layperson should understand.⁶⁸

Like scientific literacy, health literacy has evolved as healthcare services and access have changed.⁶⁹ In *Healthy People 2030*, HHS’s forward-looking assessment published in 2020, personal health literacy was defined as “the ability to find, understand, and use information and services to inform health-related decisions.”⁷⁰ However, definitions of health literacy often focus on patient interactions with providers or health organizations (e.g., hospitals, insurance companies, etc.).⁷¹ Resulting interventions usually look at how healthcare providers and organizations can increase the health literacy of their patients rather than looking at the public’s understanding of their individual health or health information.⁷²

For that reason, health literacy as defined here, while similar to the definition found in *Healthy People 2030*,⁷³ differs in one significant respect. Instead of focusing solely on information available from health care providers or organizations, health literacy applies to all available information that concerns health, including public information, social media, or other internet sources. Health literacy thus parallels scientific literacy—it is the ability to make accurate determinations about one’s own health and health care needs based on available information.⁷⁴

65. See Miller, *Civic Scientific Literacy*, *supra* note 8, at 243; see also NASEM, SCIENCE LITERACY, *supra* note 7, at 26–27.

66. See NASEM, SCIENCE LITERACY, *supra* note 7, at 26–27.

67. See *id.*

68. See *id.* at 27–28.

69. See *id.* at 34–35.

70. *Health Literacy in Healthy People 2030*, HEALTHY PEOPLE 2030, <https://odphp.health.gov/healthypeople/priority-areas/health-literacy-healthy-people-2030> [<https://perma.cc/G27B-AT8Z>].

71. See *id.*

72. See Andrew Pleasant et al., *Considerations for a New Definition of Health Literacy*, NAT’L ACAD. MED. (Apr. 4, 2016), <https://nam.edu/wp-content/uploads/2016/04/Considerations-for-a-New-Definition-of-Health-Literacy.pdf> [<https://perma.cc/NG76-2SAK>].

73. See HEALTHY PEOPLE 2030, *supra* note 70.

74. Current measures of health literacy are not predictive of health literacy as defined here. See discussion *supra* note 14. Therefore, measures of scientific literacy are discussed instead.

B. How Scientific Literacy Is Studied

With the focus on science learned in schools, studies of scientific literacy often rely on factual quiz questions about generalized scientific facts like those learned in primary or secondary school science courses (e.g., biology, chemistry, physics, etc.).⁷⁵ The most common set of questions can be found in *Science and Engineering Indicators*, a biennial report to Congress on “a broad base of quantitative information about U.S. science, engineering, and technology.”⁷⁶

Many of the questions are factual true or false questions, such as, “[t]he center of the Earth is very hot” or “[i]t is the father’s gene that decides whether the baby is a boy or a girl.”⁷⁷ *Science and Engineering Indicators* also includes open-ended questions asking individuals what a scientific study is or whether it is better to study a drug with or without a control group.⁷⁸ A Pew Research Center study from 2019 used similar multiple-choice questions, including “[w]hat is the main cause of seasons on the Earth?” or “[a]n antacid relieves an overly acidic stomach because the main components of antacids are”⁷⁹

Study developers assert that the content of these questions is not what is being tested.⁸⁰ That is, while the question might ask about the difference between a bacterium and a virus, what is actually being tested is “civic scientific literacy” or the ability “to read the science section of the Tuesday *New York Times*.”⁸¹ The questions are meant “to represent measures of underlying ‘latent’ constructs.”⁸² Put another way, “people who happen to know more from this set of questions are also likely to know more about the

75. NASEM, SCIENCE LITERACY, *supra* note 7, at 37. For a brief discussion on why health literacy is not discussed separately from scientific literacy, see discussion *supra* note 14. As defined here, scientific and health literacy are essentially synonymous. See discussion *supra* Section I.A.

76. *The State of U.S. Science and Engineering 2022: Letter of Transmittal*, U.S. NAT’L SCI. FOUND. (Jan. 18, 2022), <https://ncses.nsf.gov/pubs/nsb20221/letter-of-transmittal> [<https://perma.cc/VN8Z-NCQY>]; see also NAT’L SCI. BD., NAT’L SCI. FOUND., SCIENCE & ENGINEERING INDICATORS F-10 (2016) [hereinafter SCIENCE & ENGINEERING INDICATORS], https://fapesp.br/avaliacao/manuais/nsf_indicators.pdf [<https://perma.cc/VCH4-3RRG>].

77. SCIENCE & ENGINEERING INDICATORS, *supra* note 76, at ch. 7, 49–50.

78. *Id.* at ch. 7, 51–52.

79. Brian Kennedy & Meg Hefferon, *What Americans Know About Science*, PEW RSCH. CTR. (Mar. 28, 2019), <https://www.pewresearch.org/science/2019/03/28/what-americans-know-about-science> [<https://perma.cc/AW84-QS9P>] (to view the multiple choice questions, click “interactive quiz”).

80. NASEM, SCIENCE LITERACY, *supra* note 7, at 39–40.

81. Miller et al., *Citizen Attitudes*, *supra* note 11, at 527.

82. NASEM, SCIENCE LITERACY, *supra* note 7, at 39.

vast array of science information, generally.”⁸³ These questions assume that lifelong learning is effective.⁸⁴

Measured this way, scientific literacy is often linked to education and the number of science courses taken,⁸⁵ which leads to two primary concerns. First, are these measures testing understanding of science, or are they simply testing regurgitation of facts? Second, is a person’s level of education indicative of scientific literacy on the presumption that more education equals more science courses taken? For many individuals, especially in today’s post-secondary schooling structure with Advanced Placement⁸⁶ and International Baccalaureate⁸⁷ programs, the last time someone with an advanced degree took a science course may well have been in high school. For older Americans, that could now be years or decades ago. With these concerns, using these measures to generalize a broader statement about U.S. scientific and health literacy should be done “cautiously,” if at all.⁸⁸

C. Data on Scientific Literacy in the U.S.

Taking these concerns into consideration, results from 2020 show that U.S. individuals do not score well on the *Science and Engineering Indicators* questions. On average, U.S. respondents answered only 62% of all questions correctly⁸⁹ and performed significantly worse on individual questions. U.S. respondents correctly indicated only 50% of the time that antibiotics kill

83. Kennedy & Hefferon, *supra* note 79.

84. Miller, *Internet Era*, *supra* note 6, at 270 (“This is a fundamental misunderstanding of the function of constructs and lifelong learning. The recent . . . experience of the coronavirus pandemic illustrates why it is important for citizens to know the difference between a virus and a [bacterium].”). *But see* Sophia I. Gatowski et al., *Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World*, 25 LAW & HUM. BEHAV. 433, 455 (2001) (“The question becomes, then, what is the appropriate scope and purpose of science-based judicial education? . . . Judges do not need to be trained to become scientists, they need to be trained to be critical consumers of the science that comes before them.”).

85. SCIENCE & ENGINEERING INDICATORS, *supra* note 76, at ch. 7, 42.

86. *Statewide AP Credit Policies*, COLL. BD., <https://reports.collegeboard.org/ap-program-results/statewide-credit-policies> [<https://perma.cc/674D-9MJX>].

87. *Find Countries and Universities that Recognize the IB*, INT’L BACCALAUREATE, <https://www.ibo.org/university-admission/find-countries-and-universities-that-recognize-the-ib> (Mar. 6, 2026) [<https://perma.cc/K6CA-U3KY>].

88. SCIENCE & ENGINEERING INDICATORS, *supra* note 76, at ch. 7, 40. For a discussion on health literacy as a separate measure, see discussion *supra* note 14. Even if health literacy were discussed separately from scientific literacy, similar issues would arise due to the nature of the questions asked on the NAAL. *Id.*

89. NAT’L SCI. BD., NAT’L SCI. FOUND., SCIENCE AND TECHNOLOGY: PUBLIC ATTITUDES, KNOWLEDGE, AND INTEREST 23 (2020) [hereinafter SCIENCE AND TECHNOLOGY].

bacteria, not viruses.⁹⁰ While U.S. respondents scored relatively well on probability questions (scoring an average of 65% for two questions), only 49% of U.S. respondents could explain how to set up an experimental design and why a control group was necessary.⁹¹ This result was a slight decrease from previous years.⁹² When looking at probability and experimental design together under the umbrella of “scientific inquiry understanding,” only 43% of U.S. respondents could correctly answer both probability and experimental design questions.⁹³ These scores are relatively comparable to other similarly developed nations, such as Canada.⁹⁴

Although individual questions may have higher or lower scores, when considering all questions together, only 28% of U.S. adults were considered scientifically literate in 2016.⁹⁵ More recent data from 2020 suggested that only 31% of U.S. adults were scientifically literate.⁹⁶ This percentage, just below a third of the population, appears to have largely plateaued since the early 2000s.⁹⁷

For both scientific and health literacies, people of color, individuals with less education, and individuals with lower income consistently had lower literacy rates.⁹⁸ While socioeconomic factors complicate evidence of these health outcomes,⁹⁹ individuals with low health literacy generally have higher rates of hospitalization and emergency department use; lower use of preventative services (e.g., vaccines, Pap tests, colon screenings, etc.); lower medication adherence; higher rates of depression, chronic illness, and disability; and higher mortality.¹⁰⁰ Notably, lower scientific and health literacies correlate with persistent disparities in health outcomes based on socioeconomic factors.¹⁰¹

Study results do not reflect well on how the U.S. approaches science and health education or the lay populations’ ability to make accurate scientific or

90. *Id.* at 24.

91. *Id.* at 26–27.

92. See SCIENCE & ENGINEERING INDICATORS, *supra* note 76, at ch. 7, 52.

93. SCIENCE AND TECHNOLOGY, *supra* note 89, at 28.

94. *Id.*

95. JON D. MILLER, UNIV. OF MICH., CIVIC SCIENTIFIC LITERACY IN THE UNITED STATES IN 2016, at 3 (2016).

96. Miller et al., *Citizen Attitudes*, *supra* note 11.

97. See MILLER, *supra* note 95, at 7.

98. Steven S. Coughlin et al., *Health Literacy, Social Determinants of Health, and Disease Prevention and Control*, J. ENV’T HEALTH SCI., Feb. 2021, at 1, 2; KUTNER ET AL., *supra* note 14, at v.

99. AHRQ, HEALTH LITERACY, *supra* note 15, at 39.

100. *Id.* at 27, 29–30, 34; Coughlin et al., *supra* note 98, at 1, 2.

101. NASEM, SCIENCE LITERACY, *supra* note 7, at 97–102.

health determinations. More than two-thirds of the U.S. adult population, some 170 million people,¹⁰² are scientifically illiterate. Regardless of which is being considered, scientific and health literacy are not guaranteed among any population.

II. PUBLIC TRUST IN SCIENCE AND MISINFORMATION

Low scientific and health literacy among U.S. adults has left them unprepared to dispel misinformation¹⁰³ and more likely to make decisions about whether they trust scientists along political lines.¹⁰⁴ Partisan decision making may be due to both misinformation reinforcement by social media algorithms and shortcuts, known as cognitive heuristics, such as emotional decision making.¹⁰⁵ Content moderation, currently unprotected by Supreme Court precedent and subject to the discretion of social media sites, threatens public health by diminishing the role of scientific evidence in decision making.¹⁰⁶

A. Public Trust in Science and Political Polarization

As the role of social media has evolved in society, algorithms and cognitive heuristics have polarized public trust in science. While on average much of the U.S. population trusts and supports science,¹⁰⁷ albeit with understandable levels of concern,¹⁰⁸ trust has become increasingly divided along political lines.¹⁰⁹ Of course, political ideologies are complex and often encompass more than just basic “left” or “right” values, but research often relies on straightforward partisan divides,¹¹⁰ requiring some generalizations. It is understood that, to some extent, science itself has become political due to underlying influences from public and private organizations that run and

102. See Stella U. Ogunwole et al., *U.S. Adult Population Grew Faster Than Nation's Total Population from 2010 to 2020*, U.S. CENSUS BUREAU (Aug. 12, 2021), <https://www.census.gov/library/stories/2021/08/united-states-adult-population-grew-faster-than-nations-total-population-from-2010-to-2020.html> [<https://perma.cc/7Y27-62Q5>].

103. See discussion *supra* Part I.

104. See discussion *infra* Section II.A.

105. See discussion *infra* Section II.B.

106. See Ullrich K. H. Ecker et al., *The Psychological Drivers of Misinformation Belief and Its Resistance to Correction*, 1 NATURE REV. PSYCH. 13, 24 (2022).

107. Rosenbluth, *supra* note 28.

108. See Miller et al., *Citizen Attitudes*, *supra* note 11, at 538.

109. See Gauchat, *supra* note 17, at 174.

110. See Gordon Gauchat, *The Political Context of Science in the United States: Public Acceptance of Evidence-Based Policy and Science Funding*, 94 SOC. FORCES 723, 728 (2015).

fund scientific research.¹¹¹ However, working from the data available, certain conclusions may be drawn.

One 2012 study evaluating U.S. national data showed rapidly declining trust in science among conservatives over four decades from 1974 to 2010.¹¹² In a second study, between 2016 and 2020, public trust in science became increasingly polarized.¹¹³ In 2020, only 42% of respondents had no or moderate opinions on science, down from 76% in 2016.¹¹⁴ By 2020, 24% of conservatives reported distrusting science compared to only 3% of liberals.¹¹⁵ Conversely, 37% of conservatives reported trusting science, compared to 87% of liberals.¹¹⁶

One possible explanation for this split along political lines is the use of “cognitive shortcuts or heuristics, such as ideological predispositions or cues from mass media.”¹¹⁷ Emotional decision making, one example of a cognitive heuristic, is likely to precede and overpower logical decision making unless individuals are preemptively prompted to consider information logically.¹¹⁸ Essentially, without being motivated to consider their opinion’s accuracy and anticipate having to explain that opinion, individuals regularly rely on partisan motivations or similar gut reactions in reaching their conclusions.¹¹⁹ The partisan effect of misinformation is especially impactful when political leaders make false claims.¹²⁰ In one study, being reminded that science could be politicized was enough to undermine any evidence that high-trust individuals were shown, regardless of whether that particular information was itself politicized.¹²¹ The reminder that information could be used for political gain caused distrust even among those who were predisposed towards trust.¹²²

111. *Id.* at 724.

112. Gauchat, *supra* note 17, at 174 (determining that conservatives had the lowest trust in science of any political ideology).

113. Miller et al., *Citizen Attitudes*, *supra* note 11, at 536.

114. *Id.*

115. *Id.* at 535.

116. *Id.*

117. Chul-Joo Lee et al., *Public Attitudes Toward Emerging Technologies*, 27 SCI. COMM’N 240, 241 (2005).

118. *Id.* at 244; *see also* Ecker et al., *supra* note 106, at 14–15 (explaining how emotional decision making, a cognitive heuristic, can impact information acceptance).

119. Toby Bolsen et al., *The Influence of Partisan Motivated Reasoning on Public Opinion*, 36 POL. BEHAV. 235, 238–39, 252 (2014); Ecker et al., *supra* note 106, at 14.

120. Bolsen et al., *supra* note 119, at 237; Ecker et al., *supra* note 106, at 15.

121. Toby Bolsen et al., *How Frames Can Undermine Support for Scientific Adaptations: Politicization and the Status-Quo Bias*, 78 PUB. OP. Q. 1, 13 (2014).

122. *See id.*

When considering scientific literacy as a variable in public trust in science, trust was found to be low even among the most highly educated conservatives, suggesting that “scientific literacy and education are unlikely to have uniform effects” across political ideologies.¹²³ This means that even among more educated individuals in the U.S. with greater scientific literacy,¹²⁴ public trust in science may not follow, especially among those who are politically conservative.¹²⁵ A 2024 study found that religious fundamentalism was actually the main driver of distrust in science,¹²⁶ a belief system that has increasingly become associated with the conservative party.¹²⁷ The idea that better-educated Americans are more open to scientific information when they have more knowledge may only be true if other factors, such as emotions, religion, or political ideologies, do not intervene.¹²⁸ This is true among both experts and laypeople.¹²⁹

B. *The Role of Social Media in Misinformation*

Misinformation, which is information that is “incorrect or misleading,”¹³⁰ and disinformation, intentionally spread misinformation,¹³¹ impact scientific understanding¹³² as the U.S. population sources more of its information from

123. Gauchat, *supra* note 17, at 182.

124. *But see* discussion *infra* Section II.C.

125. *See* Gauchat, *supra* note 17, at 182.

126. Miller et al., *Citizen Attitudes*, *supra* note 11, at 533.

127. *See* Gauchat, *supra* note 17, at 170; *see also* Lawrence Hurley, *Secret Recording Puts Spotlight on Alito’s Strong Conservative Views on Religious Issues*, NBC NEWS (June 11, 2024), <https://www.nbcnews.com/politics/supreme-court/secret-recording-puts-spotlight-alitos-strong-conservative-views-relig-rcna156535> [<https://perma.cc/JF5N-EPRX>]; HERITAGE FOUND., MANDATE FOR LEADERSHIP: THE CONSERVATIVE PROMISE 3–4 (Paul Dans & Steven Groves eds., 2023), https://static.heritage.org/project2025/2025_MandateForLeadership_FULL.pdf [<https://perma.cc/XT37-BKBV>].

128. *See* Lee et al., *supra* note 117, at 259 (“[P]eople’s gut reactions, or emotional responses, toward science and technology can be expected to have a significant impact on their attitudes toward these issues. This is, in part, a function of directing people’s attention to certain aspects of scientific research or of leading them to selectively seek information consistent with their initial feelings, and thus preventing them from making analytical judgments.”).

129. *Id.* at 260.

130. *Misinformation*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/misinformation> [<https://perma.cc/2GLQ-D6A8>].

131. *Disinformation*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/disinformation> [<https://perma.cc/JX7T-LABC>].

132. *See* Miller, *Internet Era*, *supra* note 6, at 271; Ecker et al., *supra* note 106, at 13–14.

the internet.¹³³ A 2023 Pew Research Center survey found that 50% of U.S. adults get at least some news from social media.¹³⁴ However, 31% to 40% cited information inaccuracy as their main dislike of social media news sources.¹³⁵

Following the 2016 U.S. presidential election, the Pew Research Center found that 64% of U.S. adults were confused due to misinformation circulating on social media platforms.¹³⁶ In that same survey, 32% of respondents reported having seen misinformation, of which 14% shared it as disinformation: the 14% knew it was misinformation and chose to share it anyway.¹³⁷ A 2018 study found that misinformation was 70% more likely than true information to be reshared on social media due to humans, not bots.¹³⁸ In 2021, another study found that only twelve people, including now-HHS Secretary RFK Jr., were behind most vaccination misinformation on social media.¹³⁹

Additionally, algorithms on social media sites will create misinformation feedback loops when users interact with misinformation.¹⁴⁰ This is especially common among those at the extremes of the political ideologies,¹⁴¹ at least in

133. SCIENCE AND TECHNOLOGY, *supra* note 89, at 5; see also Philipp Lorenz-Spreen et al., *How Behavioural Science Can Promote Truth, Autonomy and Democratic Discourse Online*, 4 NAT. HUM. BEHAV. 1102, 1103–04 (2020).

134. Luxuan Wang & Naomi Forman-Katz, *Many Americans Find Value in Getting News on Social Media, but Concerns About Inaccuracy Have Risen*, PEW RSCH. CTR. (Feb. 7, 2024), <https://www.pewresearch.org/short-reads/2024/02/07/many-americans-find-value-in-getting-news-on-social-media-but-concerns-about-inaccuracy-have-risen> [<https://perma.cc/3NZU-7CRA>].

135. *Id.*

136. Michael Barthel et al., *Many Americans Believe Fake News Is Sowing Confusion*, PEW RSCH. CTR. (Dec. 15, 2016), <https://www.pewresearch.org/journalism/2016/12/15/many-americans-believe-fake-news-is-sowing-confusion> [<https://perma.cc/N7FY-SL6P>].

137. *Id.*

138. Soroush Vosoughi et al., *The Spread of True and False News Online*, 359 SCIENCE 1146, 1149 (2018).

139. Shannon Bond, *Just 12 People Are Behind Most Vaccine Hoaxes on Social Media, Research Shows*, NPR, <https://www.npr.org/2021/05/13/996570855/disinformation-dozen-test-facebooks-twiters-ability-to-curb-vaccine-hoaxes> (May 14, 2021) [<https://perma.cc/MMU9-NQ8A>]; Keesha Middlemass, *RFK Jr.'s History of Medical Misinformation Raises Concerns Over HHS Nomination*, BROOKINGS (Feb. 6, 2025), <https://www.brookings.edu/articles/rfk-jr-s-history-of-medical-misinformation-raises-concerns-over-hhs-nomination> [<https://perma.cc/BG89-76JK>].

140. Lu Tang et al., “Down the Rabbit Hole” of Vaccine Misinformation on YouTube: Network Exposure Study, J. MED. INTERNET RSCH., 2021, at 1, 2; Lorenz-Spreen et al., *supra* note 133, at 1104.

141. James Devitt, *Online Misinformation Most Likely to Be Believed by Ideological Extremists, New Study Shows*, N.Y.U. (Sept. 30, 2024), <https://www.nyu.edu/about/news-publications/news/2024/september/online-misinformation-most-likely-to-be-believed-by-ideological-.html> [<https://perma.cc/5MAQ-D6LJ>].

part due to decision making based on cognitive heuristics.¹⁴² Recirculation reinforces misinformation over time, making it harder to overcome.¹⁴³ Misinformation further complicates science communication by requiring scientific literacy to overcome more than simple ignorance of facts.¹⁴⁴ Historically, increasing an individual's scientific literacy could overcome ignorance of a topic by providing the facts necessary to arrive at a consensus conclusion.¹⁴⁵ Now, individuals aware of a scientific consensus may actively choose to believe the opposite.¹⁴⁶ These beliefs, fueled “by factors such as conspiratorial mentality, fears, identity expression, and motivated reasoning—reasoning driven more by personal or moral values than objective evidence” are much harder to overcome than ignorance and tend to persist even in the face of correction.¹⁴⁷

When the flow of information from scientific experts to the public was controlled through a few select outlets (i.e. a few newspapers, television stations, or radio stations), these outlets served as quality control for that information, determining accuracy before disseminating it to the public.¹⁴⁸ With the rise of the internet and real-time access to information for the majority of the U.S. population, that quality control is now gone.¹⁴⁹

The pervasiveness and negative impact of health misinformation spread over social media became clear during the COVID-19 pandemic¹⁵⁰ when misinformation “led people to decline COVID-19 vaccines, reject public health measures such as masking and physical distancing, and use unproven treatments.”¹⁵¹ Between early 2021 and 2022, during the period when COVID-19 vaccines were available to all adults, one-third of the one million reported deaths were likely vaccine-preventable.¹⁵² While not all of these deaths can fairly be traced to misinformation, social media anti-vaccine

142. See discussion *supra* Section II.A.

143. Tang et al., *supra* note 140, at 2, 7.

144. Ecker et al., *supra* note 106, at 5.

145. *Id.*

146. *Id.*

147. *Id.*

148. See Miller, *Internet Era*, *supra* note 6, at 267–68.

149. *Id.*

150. See CONFRONTING HEALTH MISINFORMATION, *supra* note 19, at 4.

151. *Id.*

152. See A. Martínez & Allison Aubrey, *How Vaccine Misinformation Made the COVID-19 Death Toll Worse*, NPR (May 16, 2022), <https://www.npr.org/2022/05/16/1099070400/how-vaccine-misinformation-made-the-covid-19-death-toll-worse> [https://perma.cc/X9M7-W8LD]; see also Brown Sch. of Pub. Health & Microsoft AI for Health, *New Analysis Shows Vaccines Could Have Prevented 318,000 Deaths*, GLOB. EPIDEMICS (May 13, 2022), <https://globalepidemics.org/2022/05/13/new-analysis-shows-vaccines-could-have-prevented-318000-deaths> [https://perma.cc/XA45-L98B].

influencers likely played a significant role in increasing vaccine hesitancy.¹⁵³ COVID-19 vaccine misinformation is a specific example of social media amplification and reinforcement of misinformation over time to a particular subset of users with significant, measurable consequences.

C. Legal Challenges to Misinformation Policies

Creating new quality control measures for misinformation can raise significant First Amendment questions in the face of government or private business censorship, resulting in judicial challenges.¹⁵⁴ For example, in response to mass COVID-19 misinformation, various agencies under the Biden administration urged social media platforms and states to flag or investigate misinformation.¹⁵⁵ Several social media sites either already had policies in place or put out new policies outlining regulation of misinformation on their platforms.¹⁵⁶ Following that uptick in misinformation regulation, lawsuits were filed challenging the regulations' constitutionality.¹⁵⁷

In *Murthy v. Missouri*, decided by SCOTUS in 2024, two states and five social media users sued on behalf of social media platforms alleging First Amendment freedom of speech violations by federal officials and agencies.¹⁵⁸ The plaintiffs argued that government entities had pressured social media platforms into censoring particular users.¹⁵⁹ Finding that social media platforms like Facebook have a long and separate history of regulating misleading information on their platforms, the Court held that the plaintiffs lacked standing (i.e. the ability) to sue.¹⁶⁰ Additionally, the Court indicated that the plaintiffs' request to stop government agencies from talking to social media platforms did not line up with the alleged injury of removal or demotion of content.¹⁶¹ While the Court's ruling on standing was favorable

153. See Martínez & Aubrey, *supra* note 152.

154. *Id.* at 270–71.

155. See Nina Totenberg, *Supreme Court Examines Whether Government Can Combat Disinformation Online*, NPR (Mar. 18, 2024), <https://www.npr.org/2024/03/18/1238122337/supreme-court-social-media-disinformation-first-amendment> [<https://perma.cc/4PDQ-LUAR>].

156. See STATES UNITED DEMOCRACY CTR., *supra* note 21.

157. See, e.g., *Murthy v. Missouri*, 603 U.S. 43, 49 (2024); *Changizi v. Dep't of Health & Hum. Servs.*, 82 F.4th 492, 494 (6th Cir. 2023); see also, e.g., *Stockton v. Ferguson*, No. 2:24-CV-0071-TOR, 2024 WL 2329976, at *1 (E.D. Wash. May 22, 2024) (challenging the regulation of doctors' social media posts).

158. 603 U.S. at 49.

159. *Id.*

160. *Id.* at 50.

161. *Id.* at 57–58.

to the Biden administration,¹⁶² without a decision on the merits of the case, it is unclear whether similar content moderation policies would survive First Amendment challenges if standing was established.

Some states, including Texas and Florida, passed legislation that attempted to ban or significantly alter these social media content moderation policies, resulting in litigation snaking its way to SCOTUS.¹⁶³ In *Moody v. NetChoice, LLC*, social media platforms sued several states, arguing First Amendment freedom of speech protections.¹⁶⁴ The Court indicated that social media sites, as private entities, were protected from being “directed to accommodate messages [they] would prefer to exclude.”¹⁶⁵ Pending review by the lower courts, Texas and Florida’s legislation is unlikely to survive this First Amendment challenge.¹⁶⁶

To date, SCOTUS has not taken an affirmative stance on social media content moderation policies.¹⁶⁷ While the Court’s decisions are technically favorable, without a decision on the merits of these misinformation cases, social media content moderation is not safe from judicial review. This is particularly significant following the 2024 presidential campaign, which saw repeated use of disinformation by political leaders and the rollback of content moderation policies following President Trump’s reelection.¹⁶⁸

III. FEDERAL EXECUTIVE BRANCH: MISINFORMATION-WEAPONIZATION AND ADMINISTRATIVE AGENCY-DESTABILIZATION

In his first administration, President Trump appeared to wage a “war on regulatory science,” undermining executive agencies during national emergencies, including the COVID-19 pandemic.¹⁶⁹ Even as the president

162. *Id.* at 76.

163. *Moody v. NetChoice, LLC*, 603 U.S. 707, 717 (2024).

164. *Id.*

165. *Id.* at 731.

166. *Id.* at 744–45. *But see* *NetChoice, LLC v. Uthmeier*, No. 4:21cv220-RH-MAF, 2025 WL 3534514, at *16 (N.D. Fla. May 22, 2025) (suggesting that “[t]he Supreme Court’s discussion of the plaintiffs’ facial claims and the breadth of the inquiry those claims will require has understandably triggered every good litigator’s best, or perhaps worst, instinct: to turn over every rock” trying to find instances in which the legislation may survive or apply in the face of the First Amendment claim).

167. *See Murthy*, 603 U.S. at 49. In other recent misinformation cases appealed to SCOTUS, the Court has repeatedly denied certiorari. *See, e.g., Changizi v. Dep’t of Health & Hum. Servs.*, 144 S. Ct. 2716 (2024) (mem.); *Stockton v. Ferguson*, 145 S. Ct. 1039 (2025) (mem.).

168. *See* discussion *infra* Part IV.

169. Albert C. Lin, *President Trump’s War on Regulatory Science*, 43 HARV. ENV’T L. REV. 247, 255–72 (2019); Emily J. Berman, *Shielding Science: The Scientific Integrity Act and*

announced CDC's masking guidance on April 3, 2020,¹⁷⁰ his comments during the announcement and refusal to wear a mask largely undermined the legitimacy of the recommendation with his constituency.¹⁷¹ Though the Trump administration supported the development and distribution of COVID-19 vaccines¹⁷² and the president was vaccinated against COVID-19 himself,¹⁷³ President Trump's history of anti-vaccine comments likely increased vaccine hesitancy among his supporters.¹⁷⁴ Additionally, during the pandemic, the president attempted to stop CDC from recommending asymptomatic COVID-19 testing; blocked or refused to spend funds for COVID-19 testing and contact tracing; promoted chloroquine, hydroxychloroquine, and bleach injections as cures for COVID-19; and prevented CDC from holding media briefings.¹⁷⁵

Because of the inconsistent or non-existent national response (e.g., no national mask mandate), state and local responses varied, resulting in a "map of trust" for vaccine-preventable deaths.¹⁷⁶ Vaccine-preventable deaths were

Enforcing Firewalls Between Science and Politics, 56 COLUM. J.L. & SOC. PROBS. 503, 521–22 (2023).

170. Colin Dwyer & Allison Aubrey, *CDC Now Recommends Americans Consider Wearing Cloth Face Coverings in Public*, NPR (Apr. 3, 2020), <https://www.npr.org/sections/coronavirus-live-updates/2020/04/03/826219824/president-trump-says-cdc-now-recommends-americans-wear-cloth-masks-in-public> [https://perma.cc/384L-LARG].

171. Cathey, *supra* note 32 ("[Trump] stressed [masking] was 'voluntary' and that 'you do not have to do it.' Ever since, Trump has resisted wearing [a mask].").

172. *See generally* Remarks by President Trump at the Operation Warp Speed Vaccine Summit, Nat'l Archives (Dec. 8, 2020).

173. Teaganne Finn, *Trump Renews Praise for Covid Vaccines, 'One of the Greatest Achievements of Mankind'*, NBC NEWS (Dec. 23, 2021), <https://www.nbcnews.com/politics/donald-trump/trump-renews-praise-covid-vaccines-one-greatest-achievements-mankind-n1286551> [https://perma.cc/EY6Z-B9VM].

174. Matthew J. Hornsey et al., *Donald Trump and Vaccination: The Effect of Political Identity, Conspiracist Ideation and Presidential Tweets on Vaccine Hesitancy*, J. EXPERIMENTAL SOC. PSYCH., May 2020, at 1, 1 (discussing, in relevant part, examples of these comments, including Trump repeating the disproven link between autism and the measles, mumps, and rubella ("MMR") vaccine).

175. Kinsella et al., *supra* note 32.

176. Selena Simmons-Duffin & Koko Nakajima, *This Is How Many Lives Could Have Been Saved with COVID Vaccinations in Each State*, NPR (May 13, 2022), <https://www.npr.org/sections/health-shots/2022/05/13/1098071284/this-is-how-many-lives-could-have-been-saved-with-covid-vaccinations-in-each-sta> [https://perma.cc/JTR4-86FW]. As discussed in Part II above, research often leans on political generalizations, grouping all conservatives and all liberals together. *See supra* Part II. These samples may lack important nuance, so conclusions are drawn here with that in mind. In a 2022 study by Politico, a small subset of conservatives, deemed "low-conscientiousness conservatives," were the primary drivers of misinformation on social media sites, suggesting that personality traits may be a better way of differentiating between groups than political ideology. Hemant Kakkar & Asher Lawson, *We Found the One Group of Americans*

markedly higher in states that had voted for President Trump in 2020; these states had low vaccination or low booster rates.¹⁷⁷ Researchers did note that this higher death toll may also be due to lower implementation of additional protective measures, such as masking mandates or stay-at-home orders in Republican-led states.¹⁷⁸ In a separate study, while governor-issued stay-at-home orders increased the amount of time spent at home across the nation, more people spent more time at home in Democratic-leaning counties as compared to Republican-leaning counties.¹⁷⁹

In another study, liberals were found to engage more frequently in protective behaviors (*e.g.*, masking, staying at home, etc.) and perceived greater risk from the COVID-19 pandemic than conservatives.¹⁸⁰ This study suggests that one reason conservatives did not acknowledge the risk from the COVID-19 pandemic was solution-aversion, a form of motivated reasoning wherein conservatives did not want to follow policy interventions that were “value-incongruent.”¹⁸¹ This is an example of heuristic thinking as applied to a real-world scientific and health issue.¹⁸²

At the start of the COVID-19 pandemic, the president and his administration relegated executive agency experts to the background, prevented them from speaking publicly at briefings or testifying before the House of Representatives on various COVID-19 issues, and regularly attacked their character or scientific findings.¹⁸³ There were also numerous reports of retaliation against executive agency officials who did speak out.¹⁸⁴ In 2020, the Food and Drug Administration (“FDA”) decided to release vaccine trial regulations that slowed the rollout of the COVID-19 vaccine—a decision touted by the president as politically motivated.¹⁸⁵ When given the

Who Are Most Likely to Spread Fake News, POLITICO (Jan. 14, 2022), <https://www.politico.com/news/magazine/2022/01/14/we-found-the-one-group-of-americans-who-are-most-likely-to-spread-fake-news-526973> [https://perma.cc/R5FB-9PT3]. However, a 2025 study on X’s Community Notes found that posts by Republicans were flagged more often than Democrats’ posts, finding that political bias on the part of those flagging the posts did not drive this asymmetry. Thomas Renault et al., *Republicans Are Flagged More Often Than Democrats for Sharing Misinformation on X’s Community Notes*, PNAS, June 2025, at 1, 1.

177. See Simmons-Duffin & Nakajima, *supra* note 176.

178. *Id.*

179. Guy Grossman et al., *Political Partisanship Influences Behavioral Responses to Governors’ Recommendations for COVID-19 Prevention in the United States*, 117 PROC. NAT’L ACAD. SCI. 24144, 24146–47 (2020).

180. Kerr et al., *supra* note 33, at 4.

181. *Id.* at 7.

182. For additional discussion of heuristic thinking, see discussion *supra* Section II.A.

183. Kinsella et al., *supra* note 32.

184. *Id.*

185. *Id.*

chance previously, the president and his administration seemed to ignore, contradict, silence, or demean executive agency scientists.¹⁸⁶

Though social media sites were previously moderating content, President Trump and his top advisors, including Elon Musk, the owner of X, appeared to use disinformation to further their own objectives.¹⁸⁷ For example, during the 2024 presidential campaign, President Trump and Vice President Vance repeated misinformation about Haitian immigrants in Springfield, Ohio.¹⁸⁸ Prior to the debate in which President Trump reasserted that domestic pets were being eaten, a Vance staffer called Springfield's City Manager and was informed that no such reports or rumors existed.¹⁸⁹ President Trump repeated the disinformation anyway.¹⁹⁰

In response to criticism about this use of disinformation, at a rally, Vice President Vance said that the media has a responsibility to fact-check stories, not him.¹⁹¹ He doubled down on this sentiment when he was challenged about knowingly repeating disinformation in an interview.¹⁹² Vice President Vance asserted that disinformation is good when it draws the attention of constituents and the media to issues they otherwise would not discuss.¹⁹³

Additionally, Musk—who reinstated President Trump's X account after President Trump was barred following the January 6, 2021 riot at the U.S. Capitol¹⁹⁴ and actively supported President Trump's 2024 presidential campaign¹⁹⁵—appeared to use his X platform to spread disinformation about a bipartisan spending bill in December 2024, which may have led to the bill's collapse.¹⁹⁶ Of note, following the president's reelection, Meta, the platform encompassing Facebook, Instagram, and WhatsApp, also discontinued its content moderation policies.¹⁹⁷

186. *Id.*

187. *See infra* notes 187–95 and accompanying text.

188. Wolfe et al., *supra* note 30.

189. *Id.*

190. *Id.*

191. LiveNOW from FOX, *supra* note 30.

192. CNN, *Bash, JD Vance*, *supra* note 30.

193. *Id.*

194. Ryan Mac & Kellen Browning, *Elon Musk Reinstates Trump's Twitter Account*, N.Y. TIMES (Nov. 19, 2022), <https://www.nytimes.com/2022/11/19/technology/trump-twitter-musk.html>.

195. Thomas Beaumont et al., *Elon Musk Signals He'll Go Beyond Supporting Trump to Serve as His Political Enforcer*, PBS NEWS (Dec. 10, 2024), <https://www.pbs.org/newshour/politics/elon-musk-signifies-hell-go-beyond-supporting-trump-to-serve-as-his-political-enforcer> [<https://perma.cc/GM68-Y66P>].

196. Diaz & Tully-McManus, *supra* note 30.

197. Gibson, *supra* note 27.

Since winning re-election, the current administration's actions promise to implode public trust and efficacy of key executive agencies. During his 2024 presidential campaign, President Trump stated that CDC,¹⁹⁸ HHS more generally,¹⁹⁹ and ED²⁰⁰ would undergo major changes if not abolition. Though the president's promises to demolish ED are unlikely to be brought to fruition, the administration could still take aim at ED's regulations and change the distribution of federal funds in ways that would seriously impact public education.²⁰¹ DOGE personnel terminations have had wide-reaching impacts, with massive cuts at many agencies, including the National Institutes of Health ("NIH") and CDC.²⁰²

HHS Secretary RFK Jr.²⁰³ has been a vocal anti-vaccination advocate²⁰⁴ and is well known for promoting various conspiracy theories including: Atrazine, a pesticide, causes "sexual dysphoria" in children; COVID-19 vaccines contain microchips; and that HIV does not cause AIDS.²⁰⁵ He was banned from some social media platforms in 2021 for spreading COVID-19 misinformation.²⁰⁶ Despite the lack of scientific support for RFK Jr.'s statements, Senate Republicans confirmed him as HHS Secretary.²⁰⁷ Within his first week, the Secretary directed CDC to stop its current flu vaccine

198. Anthes & Baumgaertner, *supra* note 34.

199. *Id.*

200. Goldstein, *supra* note 34.

201. Steve Inskeep & Taylor Haney, *What Trump's Pledge to Close Dept. of Education Means for Students*, *GOP-Led States*, NPR, <https://www.npr.org/2024/11/14/nx-sl-5181966/a-look-at-the-potential-impact-of-shutting-down-the-department-of-education> (Nov. 15, 2024) [<https://perma.cc/5BPK-YD6A>].

202. Meredith Wadman, *'Wrecking Ball': RFK Jr. Moves to Fire Thousands of Health Agency Employees*, *SCIENCE* (Feb. 14, 2025), <https://www.science.org/content/article/wrecking-ball-rfk-jr-moves-fire-thousands-health-agency-employees> [<https://perma.cc/UMV9-T8XT>] ("At [NIH] . . . some 1500 employees were initially scheduled to be let go; at [CDC] the number was 1269.").

203. Simmons-Duffin, *supra* note 49.

204. Brandy Zadrozny, *The Conspiracy Candidate: What RFK Jr.'s Anti-Vaccine Crusade Could Look Like in the White House*, *NBC NEWS*, <https://www.nbcnews.com/politics/2024-election/rfk-jr-anti-vaccine-push-white-house-rcna89470> (June 26, 2023) [<https://perma.cc/87EH-QFL4>]. RFK Jr. jumped on board the MMR-vaccines-cause-autism train post-Wakefield and wrote an article that was later retracted after repeated corrections. Kerry Lauerman, *Correcting Our Record*, *SALON* (Jan. 16, 2011), https://www.salon.com/2011/01/16/dangerous_immunity [<https://perma.cc/THS3-8SJU>]. RFK Jr. asserts as recently as 2023 that this article and the opinion expressed therein were correct.

205. Anjali Huynh & Teddy Rosenbluth, *7 Noteworthy Falsehoods Robert F. Kennedy Jr. Has Promoted*, *N.Y. TIMES* (Nov. 22, 2024), <https://www.nytimes.com/article/rfk-conspiracy-theories-fact-check.html>.

206. Zadrozny, *supra* note 204.

207. Simmons-Duffin, *supra* note 49.

campaigns and cancelled the first meeting of the Advisory Committee on Immunization Practices during the current administration.²⁰⁸

Since then, in August 2025, Secretary Kennedy fired CDC Director Susan Monarez after she “refused to rubberstamp unscientific, reckless directives” following repeated clashes over firing scientists and rewriting vaccines recommendations.²⁰⁹ In September 2025, RFK Jr. and President Trump announced that acetaminophen taken by pregnant women caused autism, despite scientific evidence to the contrary.²¹⁰ And more recently, in November 2025, RFK Jr. directed the CDC to update its website to state that “[t]he claim ‘vaccines do not cause autism’ is not an evidence-based claim because studies have not ruled out the possibility that infant vaccines cause autism.”²¹¹ This statement is identical to those made by Secretary Kennedy’s former nonprofit, Children’s Health Defense. It relies on a few select studies that lack scientific rigor or fail to draw the conclusions that the CDC’s website reaches, revealing an underlying misunderstanding of the philosophy of science, and ignoring decades of scientific consensus.²¹² Many other similar actions have been taken since then.

208. Dall, *supra* note 50.

209. Stephanie Soucheray, *CDC Director Fired After She ‘Refused to Rubber-Stamp’ Kennedy’s Vaccine Directives*, CIDRAP (Aug. 28, 2025), <https://www.cidrap.umn.edu/public-health/cdc-director-fired-after-she-refused-rubber-stamp-kennedys-vaccine-directives> [<https://perma.cc/FM3X-2QWQ>].

210. Madeline Halpert & Courtney Subramanian, *US Doctors Face Anxious Tylenol Conversations After Trump’s Autism Announcement*, BBC (Sept. 24, 2025), <https://www.bbc.com/news/articles/ckgym44gy24o>.

211. *Autism and Vaccines*, CTRS. FOR DISEASE CONTROL (Nov. 19, 2025), <https://www.cdc.gov/vaccine-safety/about/autism.html> [<https://perma.cc/F3EZ-ML4Q>].

212. Benjamin Mazer, Opinion, *We Don’t Seem to Be Making America Healthy Again*, N.Y. TIMES (Dec. 28, 2025), <https://www.nytimes.com/2025/12/28/opinion/one-year-of-kennedy.html>. The first of the two studies cited on the CDC website is John W. Harrington et al., *Parental Perceptions and Use of Complementary and Alternative Medicine Practices for Children with Autism Spectrum Disorders in Private Practice*, 27 J. DEVELOPMENTAL & BEHAV. PEDIATRICS S156 (2006). This study found that 54% of the 150 parents surveyed across three pediatric clinics in New York and New Jersey believed that immunizations were associated with their child’s autism diagnosis. *Id.* at S158. What this study does not do is draw a causal link between vaccines and autism. *Id.* at S160. In fact, this study specifically suggests that “[t]hese vaccine controversies represent an opportunity for focused physician-parent discussion. Some parents cannot be convinced that immunizations will not harm their child; however, many parents are willing to listen and discuss their concerns—they are not polemically anti-vaccine.” *Id.* This statement is in direct opposition to the purported use by RFK Jr.’s CDC.

Finally, in line with his first administration,²¹³ the president has signed several Executive Orders²¹⁴ that led to expansive health data purges from executive agency websites.²¹⁵ While a federal judge ordered restoration of these websites, discrepancies are difficult to spot, and gaps may remain.²¹⁶ By removing information from federal websites and keeping vaccine information from the public, the president and HHS Secretary are creating an information vacuum. Where data necessary for prompt, consistent public health responses are missing, “lack of information equates to misinformation.”²¹⁷

The federal government under the direction of the current administration appears to be using misinformation and poor scientific and health literacies in the U.S. for its own gain.²¹⁸ The president and his advisors have shown—through repeated attacks on executive agency experts, statements made during the 2024 presidential campaign, social media presence, and numerous actions since the start of the current administration—that they are willing to use disinformation to promote their own interests over the health of the U.S. people.²¹⁹

IV. POST-*LOPER* CONCERN FOR JUDICIAL BIAS IN PUBLIC HEALTH REGULATION DECISIONS

As federal administrative agencies face overwhelming influence from the Trump administration, SCOTUS’ decision in *Loper Bright Enterprises v. Raimondo* made it easier to challenge any protective policies those agencies could promulgate.²²⁰ *Loper*’s ruling, further undermining agency regulatory

213. See Nathan Cortez, *Information Mischief Under the Trump Administration*, 94 CHI.-KENT L. REV. 315, 324–39 (2019).

214. See, e.g., Exec. Order No. 14168, 90 Fed. Reg. 8615 (Jan. 20, 2025); Exec. Order No. 14151, 90 Fed. Reg. 8339 (Jan. 20, 2025).

215. See Stone & Huang, *supra* note 31; Singer, *supra* note 31; see also Hodge, *supra* note 31, at 328.

216. Will Stone, *Judge Orders Restoration of Federal Health Websites*, NPR (Feb. 11, 2025), <https://www.npr.org/sections/shots-health-news/2025/02/11/nx-s1-5293387/judge-orders-cdc-fda-hhs-websites-restored> [<https://perma.cc/63AX-MERJ>].

217. Hodge, *supra* note 31, at 328.

218. See discussion *supra* Part III.

219. *Id.*

220. See *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 412 (2024). Although it could be argued that this ruling may also make it easier to challenge politically motivated regulations, *Chevron* already allowed regulations to be overturned that were “arbitrary or capricious,” including those without scientific foundations promulgated for political reasons. See *id.* at 458–59 (Kagan, J., dissenting).

authority, overturned decades of *Chevron* doctrine precedent.²²¹ Now, as courts stray into questions of science, inherent biases are likely to complicate decision making on more controversial topics.²²² States must proactively legislate on public health issues rather than rely on judges and precedent.

A. The Judiciary's Role Post-Loper

The *Loper* decision, overturning the *Chevron* Doctrine, perpetuated the judicial trend of undermining agency regulatory authority and removed significant protections against judicial scientific decision making. In *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, SCOTUS considered whether an Environmental Protection Agency ("EPA") regulation, which interpreted an otherwise undefined term in the statutory language, was reasonable.²²³

According to the Court in *Chevron*, there were two steps when determining whether a regulation was reasonable.²²⁴ In the first step, courts determined whether Congress had directly addressed the issue.²²⁵ If Congress had, the regulation was impermissible.²²⁶ In instances where the legislation or legislative history were ambiguous or where Congress explicitly delegated interpretive authority, the second step required that courts defer to the administrative agency's "reasonable interpretation" rather than "impos[ing their] own construction."²²⁷ Essentially, a regulation was permitted where it upheld Congress's intent.²²⁸ *Loper* overturned this precedent.²²⁹

In *Loper*, several fishing companies challenged an amended rule approved by the National Marine Fisheries Service ("NMFS"), an administrative agency empowered under the Magnuson-Stevens Fishery Conservation and Management Act ("MSA") to regulate fishing in U.S. waters.²³⁰ In relevant part, this rule required observers on some Atlantic herring fishing trips.²³¹ If a federal observer was not available for a trip, fishermen had to pay for a government-approved third party observer themselves.²³² Both lower courts

221. *See id.* at 450 (Kagan, J., dissenting).

222. *See* discussion *infra* text accompanying notes 285–300.

223. *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 840 (1984).

224. *Id.* at 842–43.

225. *Id.* at 842.

226. *Id.* at 842–43.

227. *Id.* at 843–44.

228. *See id.*

229. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 412 (2024).

230. *Id.* at 381–82.

231. *Id.*

232. *Id.*

applied *Chevron's* two-step consideration, and found in favor of the government.²³³ SCOTUS agreed to consider whether *Chevron* should be overruled.²³⁴

On review, Chief Justice Roberts, writing for the majority in *Loper*, asserted that the *Chevron* Doctrine was “unworkable” in part because it was antithetical to the Administrative Procedures Act (“APA”).²³⁵ Though the APA requires that courts be deferential to agencies when considering an agency’s own policies or factfinding, the Chief Justice noted that the APA specifically omits a deference requirement for legal questions.²³⁶ Under § 706 of the APA, as the Chief Justice asserted, courts decide what the law says.²³⁷ Further, statutory ambiguities cannot be interpreted as “implicit delegations to agencies” because agencies “have no special competence in resolving [them].”²³⁸ Even if agencies did have special interpretative competence, interpretation of the law is the courts’ domain.²³⁹

Additionally, where technical aspects of a field are implicated in a decision, the Chief Justice stated that courts are perfectly capable of making decisions without deference to outside interpretation.²⁴⁰ As Chief Justice Roberts stated, courts before *Chevron* and courts interpreting non-*Chevron* (i.e. non-agency) issues have not made decisions “blindly”: the parties and *amici* help inform the courts about technical issues.²⁴¹ In reaching this conclusion, the Chief Justice overlooks the fact that issues answered by regulatory agencies often inextricably intertwine legal questions with scientific or technical subjects.²⁴² Saying that courts decide the law ignores that it can be impossible to isolate legal issues from associated scientific questions.

Effectively, *Loper* “[put] courts at the apex of the administrative process as to every conceivable subject—because there are always gaps and ambiguities in regulatory statutes.”²⁴³ Justice Kagan, writing for the dissent, pointed out that “Congress knows that it does not—in fact cannot—write perfectly complete regulatory statutes.”²⁴⁴ The resulting ambiguities—for

233. *Id.* at 383.

234. *Id.* at 378.

235. *Id.* at 407.

236. *Id.* at 371.

237. *Id.* at 392.

238. *Id.* at 373, 399.

239. *See id.* at 399.

240. *Id.* at 402.

241. *Id.*

242. *See id.* at 456 (Kagan, J., dissenting).

243. *Id.* at 478 (Kagan, J., dissenting).

244. *Id.* at 449 (Kagan, J., dissenting).

example, “scientific or technical subject matter,” “complex and interdependent regulatory programs,” or “policy choices . . . between competing goods”—will require resolution by an actor with relevant expertise.²⁴⁵ Congress, Justice Kagan said, chose agencies as the resolving actors by creating agencies and authorizing them to issue regulations.²⁴⁶ On these issues, those requiring subject-matter expertise, “[i]t is courts (not agencies) that ‘have no special competence’—or even legitimacy.”²⁴⁷

Since *Loper*, several other cases have seen courts overturn administrative agency regulations to insert their own statutory interpretation or otherwise strip away administrative agency authority.²⁴⁸ As Justice Kagan wrote: “[I]t is impossible to pretend that [*Loper*] is a one-off . . . [It] presents yet another example of the Court’s resolve to roll back agency authority.”²⁴⁹ With *Loper*, SCOTUS determined that the judiciary would be responsible for interpreting scientific and technical information when deciding legal questions, raising the question of whether judges will be able to separate their inherent biases from the science.²⁵⁰

245. *Id.* (Kagan, J., dissenting).

246. *Id.* at 449–50 (Kagan, J., dissenting).

247. *Id.* at 460 (Kagan, J., dissenting) (quoting the Majority).

248. *See, e.g.,* *Wages & White Lion Invs., L.L.C. v. FDA*, 90 F.4th 357, 389–90 (5th Cir. 2024) (reversing an FDA denial decision in favor of the plaintiff tobacco companies); *Braidwood Mgmt., Inc. v. Becerra*, 104 F.4th 930, 947–48 (5th Cir. 2024) (finding that members of the U.S. Preventive Services Task Force were improperly appointed, rendering their recommendations unenforceable); *RJ Reynolds Tobacco Co. v. FDA*, 96 F.4th 863, 887–88 (5th Cir. 2024) (reversing the district court’s finding that FDA’s warning-label requirements violated the First Amendment and remanding for further consideration of the Administrative Procedure Act claim).

249. *Loper*, 603 U.S. at 479 (Kagan, J., dissenting). As proof of this statement, Justice Kagan describes three recent cases where the Court overturned agency regulations, substituting its beliefs for agency subject-matter expertise even before *Loper* felled the *Chevron* Doctrine. *Id.* at 450 (Kagan, J., dissenting). In *National Federation of Independent Business v. OSHA*, the Court stayed the Occupational Safety and Health Administration’s (“OSHA”) COVID-19 vaccination mandate on the grounds that it likely exceeded the Secretary of Labor’s statutory power. 595 U.S. 109, 113 (2022). In *West Virginia v. EPA*, the Court determined that EPA did not have authority under the Clean Air Act to set emission caps as found in EPA’s new Clean Power Plan. 597 U.S. 697, 728–32 (2022). In *Biden v. Nebraska*, the Court found that the Secretary of Education lacked the statutory power to forgive student loan debt. 600 U.S. 477, 483 (2023).

250. *See* Margaret B. Kovera & Jacqueline L. Austin, *Expert Testimony*, in *INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL & BEHAVIORAL SCIENCES* 582, 585 (2d ed. 2015).

B. Inherent Biases and Judicial Scientific Decision Making

Even if scientific issues were straightforward,²⁵¹ judges are still human with their own individual backgrounds and biases.²⁵² Judges likely rely on cognitive heuristics to the same degree as the general U.S. population,²⁵³ since they are “not trained in science” and “are used to seeing experts disagree.”²⁵⁴ One study evaluating state court judges’ decisions on admission of scientific evidence found that “science background neither moderated nor mediated the bias effects.”²⁵⁵ Even judges with more scientific education fell victim to personal biases when rating admissibility of evidence, especially on particularly socially divisive issues (e.g., abortion, the death penalty, etc.).²⁵⁶ This included both liberal- and conservative-leaning judges.²⁵⁷ Therefore, even where evidentiary decision making is not inherently politically motivated, political ideologies can still lead to discrepancies in judicial admissions of scientific evidence.

A likely example of this inherent bias arose in the recent case, *FDA v. Alliance for Hippocratic Medicine*. In *FDA v. Alliance*, the plaintiffs alleged that mifepristone, a drug used in medication abortions, was unsafe and was increasing the amount of care the plaintiff physicians must provide.²⁵⁸ In reaching their decisions, both the Northern District of Texas and the Fifth Circuit Courts relied on scientific evidence presented by the plaintiffs that had been retracted prior to use in the case.²⁵⁹ In doing so, both courts ignored

251. *But see* Miller, *Internet Era*, *supra* note 6, at 267–70 (suggesting that modern science has become increasingly specialized).

252. *See* Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 819–21 (2001).

253. *See, e.g., id.*; David S. Caudill & Richard E. Redding, *Junk Philosophy of Science?: The Paradox of Expertise and Interdisciplinarity in Federal Courts*, 57 WASH. & LEE L. REV. 685, 701–02 (2000) (“Our argument – that a judge’s perspective on science will affect his or her decisions on admissibility of scientific testimony – will seem to many readers uncontroversial. After all, the notion that judges are not objective is commonplace.”); Robert M. Griffin, *News Flash: Judges Are Ideologically Motivated*, 26 AM. J. CRIM. L. 395, 395 (1999); *see also* discussion *supra* Section II.A.

254. David S. Caudill & Lewis H. LaRue, *Why Judges Applying the Daubert Trilogy Need to Know About the Social, Institutional, and Rhetorical—And Not Just the Methodological—Aspects of Science*, 45 B.C. L. REV. 1, 8, 36–37 (2003).

255. Richard E. Redding & N. Dickon Reppucci, *Effects of Lawyers’ Socio-Political Attitudes on their Judgments of Social Science in Legal Decision Making*, 23 LAW & HUM. BEHAV. 31, 48 (1999).

256. *Id.* at 48–49.

257. *Id.* at 39, 49.

258. *FDA v. All. for Hippocratic Med.*, 602 U.S. 367, 386–87 (2024).

259. Press Release, Julia Kaye, Senior Staff Att’y, Am. C.L. Union, ACLU Calls Out Junk Science at the Heart of the Supreme Court Medication Abortion Case (Jan. 20, 2024),

the scientific consensus that, over decades, had found mifepristone was safe as regulated by FDA.²⁶⁰

As misinformation becomes more pervasive,²⁶¹ Justice Kagan's concern about what scientific issues judges can fairly rule on²⁶² is increasingly worrisome. SCOTUS has been portrayed as political,²⁶³ especially following recent conservative comments by Justice Alito.²⁶⁴ However, even ignoring public perception, judges, by virtue of their appointment by political actors, are likely to make decisions that align with the beliefs of a particular political party.²⁶⁵ *Chevron*, as Justice Kagan points out, was meant to constrain "partisanship in judicial [decision making]."²⁶⁶ After *Loper*, that constraint is gone. With the rise in misinformation and the increasing opportunity for judicial decision making along ideological lines, states should proactively legislate to avoid scrambling to course correct when judges make controversial decisions about public health.²⁶⁷

V. PROPOSED STATE INTERVENTIONS

As misinformation and poor health outcomes rise,²⁶⁸ the U.S.'s population may be unprepared to dispel misinformation on their own²⁶⁹ and the federal executive branch²⁷⁰ and judiciary²⁷¹ may not be motivated or positioned to act

<https://www.aclu.org/press-releases/aclu-calls-out-junk-science-at-the-heart-of-the-supreme-court-medication-abortion-case> [<https://perma.cc/2Q3G-LRMX>].

260. *See id.*

261. *See discussion supra* Part III.

262. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 452–54 (2024) (Kagan, J., dissenting).

263. Thomas Beaumont & Linley Sanders, *New Poll Shows Majority of Americans Believe Supreme Court Justices Put Ideology Over Impartiality*, PBS NEWS (June 27, 2024), <https://www.pbs.org/newshour/nation/new-poll-shows-majority-of-americans-believe-supreme-court-justices-put-ideology-over-impartiality> [<https://perma.cc/78E9-JJLN>].

264. Hurley, *supra* note 127.

265. Erwin Chemerinsky, *Ideology and the Selection of Federal Judges*, 36 U.C. DAVIS L. REV. 619, 620 (2003).

266. *Loper*, 603 U.S. at 474–75 (Kagan, J., dissenting) (quoting Kent Barnett et al., *Administrative Law's Political Dynamics*, 71 VAND. L. REV. 1463, 1463 (2018)).

267. *See, e.g.*, Adam Edelman & Alex Tabet, *Arizona Senate Passes Repeal of 1864 Abortion Ban*, NBC NEWS (May 1, 2024), <https://www.nbcnews.com/politics/arizona-senate-repeal-abortion-ban-rcna150024> [<https://perma.cc/S8KA-ZJQ9>]; Adam Edelman, *Alabama Governor Signs Bill to Protect IVF Treatments into Law*, NBC NEWS (Mar. 6, 2024), <https://www.nbcnews.com/politics/alabama-lawmakers-ivf-protection-bill-vote-rcna141710> [<https://perma.cc/6LV5-CSXA>].

268. *See discussion supra* Part II.

269. *See discussion supra* Part I.

270. *See discussion supra* Part III.

271. *See discussion supra* Part IV.

in the interest of the public's health. States are uniquely situated to act, with core police powers enabling their efforts to protect, promote, and preserve populations from public health harms.²⁷² Solutions, therefore, can come from the state level. Following the 2024 election, states including California, Illinois, and Washington indicated that they were prepared to fight federal policies opposing key public health interests in their states by codifying regulations and passing protective legislation.²⁷³

Additional steps should include: (1) creating and enforcing workable misinformation policies; (2) enacting proactive legislation, protecting state administrative regulatory authority, and repealing inactive laws; and (3) funding state scientific and health literacy studies and school health and science education program improvements.

A. Misinformation Policies

States should take action to regulate misinformation and enforce or encourage content moderation policies. Although social media platforms theoretically could enforce their own policies, states should not rely on the platforms for content moderation.²⁷⁴ While government regulation of misinformation faces significant First Amendment hurdles,²⁷⁵ there are many options still open.

Medical board disciplinary actions remain one option for misinformation regulation within states.²⁷⁶ In *Stockton v. Ferguson*, several physicians who were investigated by the Washington Medical Commission for social media posts containing COVID-19 misinformation and a private citizen arguing “that he has a right to hear licensed physicians who disagree with the ‘mainstream COVID narrative’” sued on First Amendment grounds.²⁷⁷ The district court dismissed the case in its entirety and dismissed the free speech

272. See JAMES G. HODGE, JR., PUBLIC HEALTH LAW IN A NUTSHELL 61–65 (5th ed. 2025).

273. Hubler et al., *supra* note 60; H.R. 1531, 2025 Leg., Reg. Sess. (Wash. 2025) (“AN ACT relating to preserving the ability of public officials to address communicable diseases using scientifically proven measures to control the spread of such diseases.”).

274. See discussion *supra* Section II.B.

275. See CONG. RSCH. SERV., IF12180, FALSE SPEECH AND THE FIRST AMENDMENT: CONSTITUTIONAL LIMITS ON REGULATING MISINFORMATION (2022).

276. See, e.g., *Stockton v. Ferguson*, No. 2:24-CV-0071-TOR, 2024 WL 2329976, at *1 (E.D. Wash. May 22, 2024); *Thomas v. Harder*, No. 23-35456, 2024 WL 4403868, at *1 (9th Cir. Oct. 4, 2024); see also, Ira Rubinstein & Tomer Kenneth, *Taming Online Public Health Misinformation*, 60 HARV. J. LEGIS. 219, 246–48 (2023). But see Emilie Cullen, *An Apple a Day Keeps the Doctor Away: COVID-19 Misinformation by Medical Professionals May Be Protected by the First Amendment*, 73 SYRACUSE L. REV. 241, 242–45 (2023).

277. *Stockton*, 2024 WL 2329976, at *1.

claim with prejudice.²⁷⁸ The district court stated that the Washington Medical Commission has the right to regulate licensed physicians' professional conduct even if it "incidentally involves speech" and that "[t]he State has not prevented [the private citizen] from hearing what they want to hear."²⁷⁹ When appealed to SCOTUS, Justices Kagan and Thomas both wrote to deny certiorari.²⁸⁰

Other attempts to regulate misinformation center on artificial intelligence ("AI"),²⁸¹ including removing AI-generated content or requiring "social media companies to prevent the amplification of generative AI output[s]."²⁸² While these interventions may survive First Amendment challenges since, "arguably AI doesn't have a right to free speech,"²⁸³ as discussed above, humans, not bots, are the main spreaders of misinformation on social media.²⁸⁴ As such, other solutions also need to be explored.

Numerous other solutions have been offered to overcome or circumvent the First Amendment to regulate misinformation and disinformation through various mechanisms.²⁸⁵ Regardless of which method states pursue, they need

278. *Id.* at *6–7.

279. *Id.*

280. *See* Stockton v. Ferguson, 145 S. Ct. 1039 (2025) (mem.).

281. *See, e.g.,* Lawrence Norden et al., *States Take the Lead in Regulating AI in Elections—Within Limits*, BRENNAN CTR. FOR JUST. (Aug. 7, 2024), <https://www.brennancenter.org/our-work/research-reports/states-take-lead-regulating-ai-elections-within-limits> [<https://perma.cc/UPH2-H93S>]; Mike Savino, *Lawmakers Revisit Bill to Regulate AI, Includes Deep Fake Pornography*, NBC CONN. (Feb. 26, 2025), <https://www.nbcconnecticut.com/news/local/lawmakers-revisit-bill-regulate-ai-deep-fake-pornography/3508196>; Press Release, Gavin Newsom, Governor, State of California, Governor Newsom Announces New Initiative to Advance Safe and Responsible AI, Protect Californians (Sept. 29, 2024), <https://www.gov.ca.gov/2024/09/29/governor-newsom-announces-new-initiatives-to-advance-safe-and-responsible-ai-protect-californians> [<https://perma.cc/48S7-CL9W>].

282. Smita Rajmohan, *Laws for AI Are Double-Edged Sword in the Disinformation Battle*, BLOOMBERG L. (Mar. 7, 2024), <https://news.bloomberglaw.com/us-law-week/laws-for-ai-are-double-edged-sword-in-the-disinformation-battle>.

283. *Id.*

284. *See supra* notes 138–139 and accompanying text.

285. *See, e.g.,* Rubinstein & Kenneth, *supra* note 276, at 246–48 (reviewing existing approaches and suggesting several new options for regulation); Michael M. Epstein, *Regulating Fraud on the Marketplace of Ideas: Federal Securities Law as a Model for Constitutionally Permissible Social Media Regulation*, 46 SEATTLE U. L. REV. 39, 55–58 (2022) (discussing how securities law could serve as a foundation for government regulation of noncommercial speech); Ecker et al., *supra* note 106, at 24 (discussing the need for policymakers to promote content moderation and suggesting that other interventions at the consumer level may be "stymied" if social media platforms are not regulated); VALERIE C. BRANNON, CONG. RSCH. SERV., R45650, FREE SPEECH AND THE REGULATION OF SOCIAL MEDIA CONTENT 40–42 (2019) (discussing how the analogy under which social media sites are analyzed (i.e. as state actors, special industries, or

to push their legislatures and national representatives to prioritize content moderation and misinformation legislation.

B. Proactive State Legislation

In addition to codifying administrative agency regulations and passing protective legislation for key public health issues, states should consistently introduce deference standards to their enabling legislation and repeal any laws that could resurrect with changes at the federal level. Rather than being reactive to unpopular or detrimental judicial decisions impacting issues that are known to be controversial (*e.g.*, abortion care or fetal personhood)²⁸⁶ where inherent biases reinforced by misinformation are more likely to promote inconsistent judicial decision making,²⁸⁷ states should be proactive.²⁸⁸

As Justice Kagan stated in her *Loper* dissent, “[t]he regulatory statutes Congress passes often contain ambiguities and gaps. Sometimes they are intentional.”²⁸⁹ These intentional gaps are a necessary aspect of legislation, as it can be difficult to predict how to write legislation to fully capture an issue,²⁹⁰ whether environmental protections, access to abortion care, or otherwise. As science becomes increasingly specialized, it becomes even harder to balance details and general applicability well enough to create workable legislation. This is why administrative agency regulations are necessary and judicial deference to them doubly so.

news editors) changes the approach to regulation); Tzu-Chiang Huang, *Private Censorship, Disinformation and the First Amendment: Rethinking Online Platforms Regulation in the Era of a Global Pandemic*, 29 MICH. TECH. L. REV. 137, 138 (2022) (reinterpreting the First Amendment’s freedom of speech as a “positive right” that “ensure[s] the government provides users with sufficient procedural safeguards to check against private platforms”). *See generally* Russell L. Weaver, *Should Congress (Or, for that Matter, a New Federal Authority) Regulate Social Media?*, 58 GA. L. REV. 1057 (2024) (exploring several options for regulating social media in the U.S.).

286. *See, e.g.*, sources cited *supra* notes 263–267.

287. *See* discussion *supra* Section IV.B.

288. As an excellent example of this since the 2024 election, see H.R. 1531, 2025 Leg., Reg. Sess. (Wash. 2025) (“AN ACT relating to preserving the ability of public officials to address communicable diseases using scientifically proven measures to control the spread of such diseases.”).

289. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 448–50 (2024) (Kagan, J., dissenting); *see also* Felix Frankfurter, *Some Reflections on the Reading of Statutes*, 47 COLUM. L. REV. 527, 528 (1947).

290. *Loper*, 603 U.S. at 448–50.

While states courts already set their own deference standards, these precedents are liable to change.²⁹¹ For example, post-*Loper*, the Georgia Court of Appeals suggested that the *Loper* decision gave them permission to change their deference standards and eradicate agency deference.²⁹² Other states explicitly defended the *Chevron* Doctrine.²⁹³ While some states may wish to rely on precedent as protective of their administrative agency decisions, those same states should explicitly outline the degree of deference they expect. SCOTUS appears increasingly willing to erode the authority of administrative agencies²⁹⁴ and state courts are following.²⁹⁵

SCOTUS has also been willing to overturn significant precedent, regardless of *stare decisis* principles,²⁹⁶ leaving states rushing to course correct in the aftermath. In *Dobbs v. Jackson Women's Health Organization*, SCOTUS overturned *Roe v. Wade*, ending five decades of precedent protecting abortion rights.²⁹⁷ Quickly after *Dobbs*, fourteen states banned abortion, with total abortion bans going into effect in twelve states.²⁹⁸ In response, by November 2024, ten states had passed constitutional amendments recognizing the right to abortion, and nine additional states had supreme court decisions finding a right to abortion in their state constitution.²⁹⁹ In ten of those states, those protections were only recognized after *Dobbs*.³⁰⁰

While some state supreme courts have recognized protections post-*Dobbs*, other state supreme court decisions have left state legislatures scrambling. For example, before Arizona amended its constitution to protect abortion

291. Martha Kinsella & Benjamin Lerude, *Judicial Deference to Agency Expertise in the States*, ST. CT. REP., <https://statecourtreport.org/our-work/analysis-opinion/judicial-deference-agency-expertise-states> (June 28, 2024) [<https://perma.cc/7V3N-C9EN>].

292. *See Brantley Cnty. v. Brantley Cnty. Dev. Partners, LLC*, 905 S.E.2d 685, 704–05 (Ga. Ct. App. 2024) (Dillard, J., concurring).

293. *See, e.g., Rosehill v. Land Use Comm'n*, 556 P.3d 387, 405 (2024) (“We do not believe the expertise of courts outstrips that of the agencies charged with implementing complex regulatory schemes on a day-to-day basis.”).

294. *See discussion supra* Part IV.

295. *See Kinsella & Lerude, supra* note 291.

296. *See, e.g., Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 412 (2024) (overturning *Chevron* Doctrine); *Dobbs v. Jackson Women's Health Org.*, 597 U.S. 215, 292 (2022) (overturning *Roe v. Wade*, 410 U.S. 113 (1973)).

297. *Dobbs*, 597 U.S. at 231.

298. Ivette Gomez et al., *10 Things to Know About Abortion Access Since the Dobbs Decision*, KAISER FAM. FOUND. (June 20, 2024), <https://www.kff.org/policy-watch/10-things-to-know-about-abortion-access-since-the-dobbs-decision/> [<https://perma.cc/H2DW-72NZ>].

299. *State Constitutions and Abortion Rights*, CTR. REPROD. RTS., <https://reproductive.org/maps/state-constitutions-and-abortion-rights> [<https://perma.cc/3AK5-5MMA>].

300. *See id.*

rights in 2024, the Arizona Supreme Court in *Planned Parenthood v. Mayes* successfully resurrected a total abortion ban from 1864.³⁰¹ Although the Arizona legislature quickly repealed the 1864 law, they had to rush to do so in the month following the Arizona Supreme Court decision.³⁰² Additionally, in Alabama, the Alabama Supreme Court's decision in *LePage v. Center for Reproductive Medicine, P.C.* recognized fetal personhood, finding that embryos at an in vitro fertilization ("IVF") clinic were children.³⁰³ Like in Arizona, the Alabama legislature had to scramble to enact protective legislation for IVF clinics.³⁰⁴

While some degree of reactionary legislation is inevitable due to unintentional gaps,³⁰⁵ leaving old laws alone because they have been replaced by newer legislation or rendered ineffective by court precedent should not continue to be standard practice, especially not on known controversial topics with significant risk for inherent biases. Rather than scrambling when judicial precedent changes, state legislatures must affirmatively define agency deference standards in their states and repeal existing legislation that is antithetical to state public health priorities.

C. Scientific and Health Literacy Research and Education

To promote public health interests, states should prioritize scientific and health literacy research and improved science and health education. Though scientific literacy has recently been studied on the national level,³⁰⁶ the last national data available for health literacy is from 2003.³⁰⁷ While national data can provide a strong starting point for developing interventions, massive

301. *Planned Parenthood Ariz., Inc. v. Mayes*, 545 P.3d 892, 895 (Ariz. 2024).

302. Jack Healy & Elizabeth Dias, *Arizona Lawmakers Repeal 1864 Abortion Ban, Creating Rift on the Right*, N.Y. TIMES (May 1, 2024), <https://www.nytimes.com/2024/05/01/us/arizona-senate-house-abortion-ruling.html>.

303. See *LePage v. Ctr. for Reprod. Med., P.C.*, 408 So. 3d 678, 683 (Ala. 2024); Odette Yousef, *How 'Fetal Personhood' in Alabama's IVF Ruling Evolved from Fringe to Mainstream*, NPR (Mar. 14, 2024), <https://www.npr.org/2024/03/14/1238102768/fetal-personhood-alabama-ivf> [<https://perma.cc/GWH3-SPSZ>].

304. Edelman, *supra* note 267.

305. See Frankfurter, *supra* note 289, at 528; *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 448–50 (2024) (Kagan, J., dissenting).

306. See discussion *supra* Part I.

307. See discussion *supra* Part I; KUTNER ET AL., *supra* note 14, at 2–3.

variation in science and health education by state³⁰⁸ suggests that the same interventions may not be necessary or effective across populations.³⁰⁹

Further, even if states could rely on national data and federal government interventions, while health literacy is prioritized in *Healthy People 2030*, the report indicates that no evidence-based interventions are currently available.³¹⁰ Therefore, states should prioritize funding for research on the scientific and health literacy of their populations to identify localized knowledge gaps. Once gaps are identified, relevant interventions can be explored. A variety of health literacy interventions have been implemented in the states over the last several years, and many more have been proposed.³¹¹

Many states could benefit from improved health and science education in their schools. Few schools teach two or more health education courses,³¹² and only three states require their schools to teach comprehensive sexual health education in all schools.³¹³ Studies suggest that abstinence-only education, required in thirty-five states, increases the rate of sexual risk behaviors and negative health outcomes.³¹⁴ Comprehensive sexual health education,

308. *State Profiles: Detailed Oversight on U.S. Sex Education Policies*, SIECUS: SEX ED FOR SOC. CHANGE, <https://siecus.org/siecus-state-profiles> [<https://perma.cc/M7V9-QSKE>] [hereinafter *State Profiles*]; Megan Lowry, *Science Education Should Be National Priority: New Report Calls on Federal Government to Encourage Focusing Resources on High-Quality Science for All Students*, NAT'L ACADS. SCIS. ENG'G & MED. (July 13, 2021), <https://www.nationalacademies.org/news/2021/07/science-education-should-be-national-priority-new-report-calls-on-federal-government-to-encourage-focusing-resources-on-high-quality-science-for-all-students> [<https://perma.cc/9SXA-ANT4>].

309. CLAUDE LOPEZ ET AL., MILKEN INST., *HEALTH LITERACY IN THE UNITED STATES: ENHANCING ASSESSMENTS AND REDUCING DISPARITIES* 22 (2022); see Swapna Reddy et al., *Moving the Needle Towards Health Equity: A Policy-Driven Transdisciplinary Approach to Address Health Disparities for Vulnerable Communities*, 77 HEALTH EDUC. J. 1018, 1019–20 (2018).

310. *Healthy People 2030: Increase the Health Literacy of the Population — HC/HIT-R01*, OFF. DISEASE PREVENTION & HUM. SERVS., <https://odphp.health.gov/healthypeople/objectives-and-data/browse-objectives/health-communication/increase-health-literacy-population-hchit-r01> [<https://perma.cc/5F33-5D98>].

311. See, e.g., LOPEZ ET AL., *supra* note 309, at 13–22. For proposed science education interventions, see COMM. ON THE CALL TO ACTION FOR SCI. EDUC., NAT'L ACADS. OF SCI., ENG'G, & MED., *CALL TO ACTION FOR SCIENCE EDUCATION* 36–49 (2021) [hereinafter *NASEM, CALL TO ACTION*], <https://nap.nationalacademies.org/read/26152/chapter/1> [<https://perma.cc/7WQM-XHE7>].

312. LOPEZ ET AL., *supra* note 309, at 12.

313. *State Profiles*, *supra* note 308.

314. See Eva S. Goldfarb & Lisa D. Lieberman, *Three Decades of Research: The Case for Comprehensive Sex Education*, 68 J. ADOLESCENT HEALTH 13, 13–19 (2021); GUTTMACHER INST., *FEDERALLY FUNDED ABSTINENCE-ONLY PROGRAMS: HARMFUL AND INEFFECTIVE*, (2021), <https://www.guttmacher.org/sites/default/files/factsheet/abstinence-only-programs-fact->

however, has been shown to improve health outcomes, learning, and media literacy.³¹⁵ For science education, as of 2021, “only 22 percent of American high school graduates [were] proficient in science” with noted socioeconomic disparities in education quality.³¹⁶

Scientific and health literacies are important tools for improving health outcomes.³¹⁷ While research on population-specific knowledge is ongoing, states should start by improving health and science education in their schools, as gaps in education quality have already been studied. As additional areas for improvement are identified, new interventions can be implemented.

VI. CONCLUSION

Under the current Trump administration and SCOTUS leadership, science is unlikely to lead decision making at the federal level. Prevailing and forthcoming misinformation may be relied on to sustain federal interventions, to the detriment of the general population lacking in scientific and health literacy. While public trust in science is relatively high, it is increasingly split along political lines and is complicated by emotional decision making that furthers ideological divides on key public health issues, regardless of the evidence. Where *Chevron* previously provided some degree of insulation from judicial decision making along political lines, post-*Loper*, these protections are limited.

States must take action to protect the health of their people. By enforcing and encouraging content moderation, states can protect their people from misinformation on social media. By proactively determining regulatory agency deference standards and repealing state laws antithetical to public health, states can empower those with the most relevant knowledge and expertise to protect the public from misinformation. And by conducting research on scientific and health literacies, states will know what gaps they need to address to promote their population’s health.

sheet.pdf [https://perma.cc/YJ5C-C3NJ]; COMPREHENSIVE SEXUALITY EDUCATION, AM. COLL. OBSTETRICIANS & GYNECOLOGISTS (2024), <https://www.acog.org/-/media/project/acog/acogorg/files/advocacy/issue-briefs/comprehensive-sexuality-education.pdf> [https://perma.cc/PGD6-RFZX]; *Health Education: Sexuality Education, Sexual Violence Prevention, Abstinence, and Distribution of Condoms in Schools H-170.968*, AM. MED. ASS’N (2024), <https://policysearch.ama-assn.org/policyfinder/detail/Sexuality%20Education,%20Sexual%20Violence%20Prevention,%20Abstinence,%20and%20Distribution%20of%20Condoms%20in%20Schools%20H-170.968?uri=%2FAMADoc%2FHOD.xml-0-993.xml> [https://perma.cc/8PJD-NGKK].

315. Goldfarb & Lieberman, *supra* note 314, at 13.

316. NASEM, *CALL TO ACTION*, *supra* note 311, at 27–28.

317. *See* discussion *supra* notes 98–101 and accompanying text.