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Yellow Fever and Institutional Development: The Rise and Fall of the National Board of Health

Thomas R. Gray[1] and Jeffery A. Jenkins[2]

[1] *School of Economic, Political and Policy Sciences, University of Texas at Dallas, Richardson, TX 75080, USA; thomas.gray1@utdallas.edu*
[2] *Price School of Public Policy, University of Southern California, Los Angeles, CA 90089, USA; jajenkins@usc.edu*

ABSTRACT

We examine the rise and fall of the National Board of Health (NBH), which was a federal institution created in response to the yellow fever epidemic of 1878 to direct national disease policy. Historical accounts suggest a number of reasons why the NBH was not reauthorized in 1883, four years after it was created and granted significant quarantine authority. We examine these arguments through an analysis of roll-call voting in Congress. We find that the creation and empowerment of the NBH in 1879 is best seen as an emergency action. Republican members of Congress — and conservative members outside the South, more generally — were willing to put the country's interests ahead of their own for a time. But as relatively epidemic-free years followed, Republicans and more conservative members of Congress — conditional on the recency of their state being affected by yellow fever — were largely unwilling to maintain a federal entity with power to significantly affect commercial activity.

Keywords: Yellow fever; National Board of Health; roll-call votes; Congress

Introduction

In the year 2020, the world grappled with the devastating effect of the COVID-19 pandemic. By January 1, 2021, nearly 1.83 million deaths worldwide had been attributed to the novel coronavirus, with the United States accounting

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for nearly 348,000.[1] In the United States, the Centers for Disease Control (CDC) has played a leading role in responding to COVID-19, by preparing first responders, health care providers, and health systems; advising businesses, communities, and schools; sharing knowledge; and protecting the health of travelers and communities in a globally mobile world.

While COVID-19 presented the CDC — a federal agency housed within the Department of Health and Human Services — and health agencies around the world with a historically unique case, disease and epidemics have been a mainstay of the modern world for centuries. The CDC was formed in 1946, as a successor to the World War II Malaria Control in War Areas program. Prior to that, disease control and prevention in the United States were concentrated in the Public Health Service (PHS; 1912) and the Marine Hospital Service (MSH; 1870). Amid the transition from the MHS to the PHS, another institution was created in the wake of a major yellow fever epidemic: the National Board of Health (NBH) in 1879.

The NBH was a short-lived institution, operating between 1879 and 1883, but its creation was in keeping with early attempts by Congress — in the decades after the Civil War — to create independent governmental agencies and commissions to deal with vexing policy problems (Hoffer, 2007; Mashaw, 2012). The NBH was to combine the best health experts in the country — within the Army, Navy, and Marine Hospital Service, the Justice Department, and the state governments — to stop the introduction of contagious or infectious diseases into the United States. Shortly after its creation, the NBH was provided with quarantine power, previously housed (in a weaker form) in the MHS, to direct national disease policy. But this power was temporary — provided for only four years — and Congress did not reauthorize it. As a result, the NBH faded away shortly thereafter.

Accounts of the NBH's demise have typically focused on states' rights (principally state health boards and business interests who resented the NBH's quarantine authority) and political jockeying between the NBH and the MHS. None of these accounts examine the congressional voting coalitions — around the creation of the NBH, the decision not to reauthorize, and the many other votes expanding or constraining its authority — and what might have driven individual members of Congress to vote as they did. In this article, we do this, and based on those findings argue that members of Congress established the NBH based on a present emergency (the yellow fever epidemic of 1878), but vested it with only temporary powers of quarantine — as a way to monitor how things progressed and then re-evaluate. In time, as the spread of the disease abated, members of Congress from unaffected states were not willing to continue the NBH in force. More generally, support for the NBH (and strong

[1] Numbers taken from https://coronavirus.jhu.edu/map.html.

federal authority) was associated with recency of a yellow fever epidemic and broke down strongly (all else equal) by party and ideology.

The remainder of the article proceeds as follows. In the next section, we provide a short history of yellow fever in the United States and the congressional dynamics associated with the National Board of Health. We then describe our data — 23 congressional roll-calls on federal health authority and a variety of ideological, partisan, and state-level yellow fever data — and estimate a series of models to examine vote choice in Congress. Finally, we conclude.

A Short History of Yellow Fever and the National Board of Health

Yellow fever — as we know today — is a viral disease, spread by mosquitoes. While it was not as deadly as contemporary diseases like cholera and smallpox, it was considered "the most dreaded disease in North America" during the 18th and 19th centuries because of the panic and fear that it created (Crosby, 2006, p. 12). Likely originating in Africa, it was brought to the Caribbean by European powers by the early 17th century, and the slave trade moved it north to the American colonies. Over its time in the United States, yellow fever would be responsible for around half a million cases and 100,000 deaths.

Yellow fever is a disease of the liver, which produces a high fever and ultimately a yellowing of the skin (jaundice), which gives the disease its name. Other symptoms include chills, headaches, muscle pains, loss of appetite, and nausea. It is a disease of short duration — typically a patient's symptoms improve within five days or they die in about a week to ten days. In the latter case, once jaundice sets in, kidney problems emerge, urine output decreases, and internal hemorrhaging (resulting in black vomit) and bleeding in the nose, mouth, and eyes begin (Troesken, 2015). Eventually the liver and kidneys fail altogether, and death follows.

Yellow fever epidemics in the 1700s and 1800s were frequent, especially in coastal port towns like Charleston, SC, and New Orleans, LA (Patterson, 1992). And while many of these epidemics were localized to cities and surrounding towns in individual states, several spread widely and were more lethal. During the nation's first century, these "great epidemics" occurred in 1793 (which ravaged Philadelphia, and led to the capital being moved to Washington, D.C.), 1797 (which struck Philadelphia, but with fewer fatalities than four years earlier), 1798 (which traveled up the eastern seaboard, and affected Charleston, Boston, New York, Wilmington, DE, New London, CT, Newport, RI, and especially Philadelphia), 1802 (which struck Boston, Philadelphia, Wilmington, and Charleston), 1853 (which spread through portions of Alabama, Arkansas, Florida, Louisiana, Mississippi, and Texas), 1867 (which hammered New

Orleans and traveled widely throughout the state of Texas), and 1873 (which struck Alabama, Florida, Louisiana, Mississippi, and Texas).[2]

None of the aforementioned great epidemics would compare to the yellow fever epidemic of 1878. Numbers vary — as statistical data were less than precise during this time — but the Surgeon General of the Marine Hospital Service estimated up to 100,000 cases and 20,000 deaths (Humphreys, 1992, p. 61).[3] And while it would inflict the most harm in the Mississippi Valley states, it would travel as far northeast as Illinois and stretch into much of the Ohio Valley. New Orleans — where it originated — and Memphis were hit especially hard, with around 10,000 deaths between them. As a result of the virulence and spread of the 1878 epidemic, Warner (1984, p. 411) notes:

> Trade was paralyzed by community and state-wide quarantines, and frightened citizens organized shotgun quarantines to prevent passengers and trains from stopping, or even passing through, towns. Some groups burned railroad bridges and tore up tracks. The dramatic images of panic and death generated a nationwide sentiment favoring strong federal enforcement of a national quarantine against yellow fever.

Congress had passed quarantine-related laws in the past, as early as 1796 (with an Act Relative to Quarantine), which gave the president authority to aid in the execution of quarantines and the health laws of the states; 1798 (with an Act for the Relief of Sick and Disabled Seamen), which led to the establishment of the Marine Hospital Service (MHS); and 1799 (with the First National Quarantine Act), which authorized the federal government to assist the states in enforcing their own quarantine laws.[4] More recently, in 1866 and 1872, Congress enacted laws to aid in the battle against cholera and yellow fever, respectively. By early 1878, as yellow fever spread up the Mississippi River from New Orleans, voices throughout the country called on Congress to do more.

The 45th Congress acted quickly, based on bills sponsored by Rep. Julian Hartridge (D-GA) and Sen. Roscoe Conkling (R-NY). On April 29, 1878, the

[2] See Sternberg (1890, pp. 44–48) for more details.

[3] The Yellow Fever Relief Commission (organized at Washington, DC, on September 11, 1878) reported 13,536 deaths and 64,403 cases across nine states, but noted that "this statement probably falls considerably below the actual number of cases and deaths" (26). See *Report of the Yellow Fever National Relief Commission* (Washington: Government Printing Office, 1879). Sternberg (1890, p. 48) provides a systematic breakdown by state, based on a "board of experts, authorized by Congress," estimating that yellow fever "invaded 132 towns and caused a mortality of 15,934 out of a total number of cases exceeding 74,000."

[4] Excellent short histories of national quarantine legislation appear in Vanderhook (2002) and Cliff and Smallman-Raynor (2013). The Centers for Disease Control and Prevention website provides a succinct definition of "quarantine": a quarantine "separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick." See https://www.cdc.gov/quarantine/index.html

National Quarantine Act of 1878 was adopted, which created the Division of Quarantine within the MHS, officially assigning federal quarantine responsibility to that agency.[5] The MHS was thus strengthened in its ability to monitor ships coming from infected ports or carrying infected passengers. Congress's move to centralize, by placing the coordination of quarantine authority in federal hands, was done with the hopes of solving interstate communication and enforcement problems. The 1878 Act also began to shift regulatory control of actual quarantine regulations to the federal government, by authorizing the Surgeon General, the operational head of the MHS, to create rules and regulations for the purpose of aiding in quarantine enforcement.

This centralization notwithstanding, the 1878 Act also made sure that the delicate balance between federal and state power remained intact.[6] MHS officers and agents could enforce quarantine rules and regulations as assigned to them by the Surgeon General "*Provided*, That there shall be no interference in any manner with any quarantine laws or regulations as they now exist or may hereafter be adopted under State laws." This stipulation was prohibitive, as Vanderhook (2002, p. 18) notes: "The inability to interfere or conflict with state and municipal quarantine regulations tied the hands of federal health officers too much to create a uniform system of quarantine." Perhaps as important, the MHS was given no appropriation to carry out its new duties, which handcuffed it from the outset (Ellis, 1992).

Throughout the summer and fall of 1878, yellow fever deaths piled up, and the virus traveled as far north as Ohio. Business leaders, sanitary experts, and local chambers of commerce in the South — anticipating persistent shotgun quarantines based on fear and rumors (often floated by cutthroat competitors) — called on Congress for more forceful federal legislation, lest the region fall into economic ruin. On December 2, 1878, President Rutherford Hayes weighed in on the epidemic in his second annual message, also impressing upon Congress to do more:

> The fearful spread of this pestilence has awakened a very general public sentiment in favor of national sanitary administration, which shall not only control quarantine, but have the sanitary supervision of internal commerce in times of epidemics, and hold an advisory relation to the State and municipal authorities, with power to

[5] 20 *Stat.* 37–38. There were no recorded roll-call votes in either the House or Senate. Stathis (2014) considers the National Quarantine Act of 1878 to be a "landmark law," and one of only eight adopted by the 45th Congress (1877–1879).

[6] The tension between greater federalization and the protection of states' rights was ever present through the 1870s, as the Republican-led Congress early in the decade sought to expand the enforcement of civil and voting rights for African Americans in the South. By the middle of the decade, many Republicans had felt their "radical" co-partisans had pushed too far in the direction of centralization and began holding the line against further expansions of federal authority. For more details, see Jenkins and Peck (2021).

> deal with whatever endangers the public health, and which the municipal and State authorities are unable to regulate. The national quarantine act approved April 29, 1878, which was passed too late in the last session of Congress to provide the means for carrying it into practical operation during the past session, is a step in the direction here indicated. In view of the necessity for the most effective measures, by quarantine and otherwise, for the protection of our seaports and the country generally from this and other epidemics, it is recommended that Congress give to the whole subject early and careful consideration.[7]

Finally, a board of experts authorized by Congress to investigate the epidemic reported in late-January 1879 that the epidemic had likely led to losses for the country in the $100 to $200 million range.[8]

Congress responded to the calls, as multiple bills were presented in both the House and Senate.[9] Ultimately, two bills rose to the top: one offered by Sen. Isham Harris (D-TN) and one by Rep. Jonas McGowan (R-MI). The Harris bill — based on the Constitution's Commerce Clause — sought to establish a Bureau of Health within the Treasury Department, headed by a Director General, which would have authority to formulate uniform quarantine rules and regulations. A seven-member Board of Health — appointed by the president, with the advice and consent of the Senate — would also be established, and placed under the leadership of the Director General. The McGowan bill sought to establish a National Board of Health (NBH) — appointed by the president with the advice and consent of the Senate — consisting of seven civilians (each from different states), along with medical officers from the army, navy, and MHS, and one officer from the Department of Justice. The NBH's duties would be to obtain information on all matters affecting the public health, to provide advice to both federal departments and state governments, and to report to Congress a plan for national health administration.

The Harris bill was clearly the more ambitious of the two, as it would establish a strong federal agency. It became a flashpoint in congressional debate between those who sought to centralize the health issue (led by the bulk of Southern members) and those who fought to maintain state control (mostly members from the northeast). It was an odd constellation of forces, completely opposite of the usual political alignment. As Ellis (1992, p. 81) notes: "the struggle found the southern proponents of a strong federal health agency in the role of nationalists contending against northern defenders of states'

[7] Rutherford B. Hayes, Second Annual Message Online by Gerhard Peters and John T. Woolley, The American Presidency Project. https://www.presidency.ucsb.edu/node/204246

[8] *Conclusions of the Board of Experts Authorized by Congress to Investigate the Yellow Fever Epidemic of 1878* (Washington: Judd and Detweiler, 1879).

[9] The congressional dynamics are discussed in more detail in Ellis (1992) and Winston (2020).

rights." The coalitions also sorted along the two competing theories of disease transition of the time: "contagionists" believed yellow fever was an imported — and thus transportable — disease (and thus supported national quarantines), while "anticontagionists" (or "sanitarians") believed it arose locally from filthy, unsanitary conditions (and thus opposed national quarantines).[10] Ellis (1992, p. 80) summarizes the coalitions across multiple dimensions nicely:

> Southern debt, poverty, and the retrenchment policies of the Redeemer governments recommended the contagionist theory of disease causation and a national quarantine at federal expense. The anticontagionist theory, on the other hand, implied support for state and local boards of health as well as environmental sanitation projects, outlays appropriate to a prosperous region whose people and their representatives in Congress desired that the South pay its own way.

Northern opposition, too, stemmed from "the fact that local quarantine systems were a lucrative source of income for cities and states and an equally valuable source of political patronage" (Duffy, 1992, p. 163).[11]

While Harris was able to successfully steer his bill through an amendment gauntlet in the Senate, his allies in the House could not match his efforts — as the bill was tabled on March 1, 1879. Two days later, on the final day of the Congress, the House voted to suspend the rules and pass the McGowan bill. The Senate followed in a voice vote shortly thereafter, and Hayes affixed his signature. Thus, given the resistance in Congress to a stronger federal entity in health matters, the less ambitious of the two bills was adopted. Nevertheless, medical experts saw this as an improvement upon the status quo, as a National Board of Health (NBH) was now a reality.[12]

In the spring of 1879, yellow fever appeared in New Orleans once again and threatened to move up into the Mississippi Valley. This gave proponents of a stronger federal role in health matters the ability to strengthen the NBH's hand. Isham Harris led this new initiative in the 46th Congress, and this time he was successful in his efforts. In May, after intense congressional debates, a new law was adopted that gave the NBH the ability to create maritime rules and regulations in areas where contagious or infectious disease existed. The law also provided the NBH with new quarantine powers (and thus negated the grant of quarantine powers to the MHS in the Quarantine Act of 1878).[13] An

[10] See Humphreys (1992, pp. 24–27) for a lucid overview of these competing theories.

[11] Indeed, Warner (1984, p. 412) goes so far to say that northeastern members of Congress were "acting under orders from their states' well-paid quarantine officials."

[12] 20 *Stat.* 484–85. As with the National Quarantine Act of 1878, Stathis (2014) considers the NBH to be a "landmark law," and only one of eight adopted by the 45th Congress (1877–79). Scholarly analyses of the NBH include Allen (1900), Smillie (1943), Bruton (1974), and Michael (2011).

[13] 21. *Stat.* 5–7.

appropriation of $500,000 was given to the NBH to prevent the importation and spread of disease — either through grants to state and municipal boards to prevent the introduction of contagious or infectious diseases or by assuming quarantine powers in cases where states were not willing or competent to do so. The one caveat was that a "sunset" provision was added to the bill as an amendment before it passed, which limited the NBH's new powers and authority to four years.[14]

Led by Dr. John L. Cabell of the University of Virginia, the NBH immediately began pursuing various public health efforts throughout the country, especially in the South. Their focus, as Humphreys (1992, p. 67) notes, was clear from the start: "Although the National Board warned southerners not to ignore sanitation while hiding behind the ephemeral safety of quarantine, the chief thrust of its energies [was spent] on developing a self-consciously modern and scientific method of quarantine to replace the archaic system that merely detained ships for a given period of time or denied them entry altogether." Thus, the NBH sponsored disease-based studies and tests of air and water purity, underwrote and carried out various sanitary surveys, and paid for hospital repairs throughout the country. It sent a yellow fever commission to Havana, Cuba, to study local conditions, and devoted considerable time and resources on epidemic disease control in Tennessee and Louisiana (the "hot spots" of 1878, which saw recurrences of yellow fever in 1879.) It employed eight quarantine inspectors covering the coast from Maine to the Rio Grande, and established quarantine stations on the Gulf of Mexico, on the Atlantic Coast, and on the Mississippi River. The NBH also issued a weekly bulletin on health conditions throughout the country, along with other sanitary advice. Given the energy with which the NBH attacked the problem, much of its initial appropriation was spent in just the first two years, which forced Cabell to seek additional funds from Congress earlier than expected (Smillie, 1943).

In May 1882, during the 47th Congress, Isham Harris — in anticipation of the 1879 Act's sunset provision expiring in March 1883 — sought to extend the previous powers granted to the NBH (while slightly shoring them up), by making such powers permanent. After discussing the NBH's successes and the advances made to the nation's public health under its stewardship, he stated:

> The practical question . . . is, the country being now free from yellow fever and cholera, shall we use the necessary means to keep it so, or relax into indifference, withhold the powers and the necessary

[14]The amendment was offered by Sen. John T. Morgan (D-AL), who argued that "there ought to be some limitation upon the time that this experiment is to run. I think the difficulties we are going to experience hereafter in getting rid of a measure like this, if it shall be desirable to get rid of it, will be such as are very often experienced in getting rid of salaried officers and bureaus." *Congressional Record*, 46-1, 5/23/1879, 1539. The amendment passed 30-13, and the amended bill was then adopted 36-14. It passed in a voice vote in the House.

> means to prevent their importation, and await the outbreak of another epidemic, which will cost the country hundreds of millions of dollars and thousands of lives of our people, to awaken us to the importance of preventive measures in which . . . we can find absolute security?

The decision before the Senate was whether to proceed to the consideration of Harris's bill.[15] A number of senators, including John McPherson (D-NJ), John Ingalls (R-KS), Thomas Bayard (D-KS), John Sherman (R-OH), and William Allison (R-IA), all believed the allotted time that morning (roughly two hours) was insufficient, given the importance of the bill and the range of details in it. Matthew Butler (D-SC) noted that the Senate routinely took up bills of this nature in the same procedural context, while Harris reminded his colleagues that his bill was almost identical to the NBH bill that passed just three years earlier.[16] It was clear that a number of senators simply did not wish to move forward on the bill, and this was evident when the president pro tempore called for the yeas and nays and the motion to proceed failed, 24–27.[17]

At the same time that Harris was trying to push the Senate to consider a bill to reauthorize the NBH's quarantine powers, several members of the House were actively working on a similar initiative. No fewer than six bills — offered by Joseph Wheeler (D-AL), Henry van Aernam (R-NY) twice, John King (D-LA), David Richardson (R-NY), and George Black (D-GA) — were introduced that would have produced the same result that Harris sought. Each bill was referred to a committee and died there — never being reported out. Finally, Harris tried again in the second session of the 47th Congress, this time simplifying the matter to its core: he introduced a new measure that would solely repeal the tenth section of the 1879 Act (the "sunshine provision").[18] It was referred to a select committee and later reported out without amendment. But it was never brought to the Senate floor for consideration.

The 47th Congress came to end on March 3, 1883. The first session of the 48th Congress would not convene until December 3, 1883. Thus, the 1879 Act's four-year sunshine provision expired during the congressional adjournment, on June 2, 1883, and the quarantine powers of the NBH were no more — and they

[15]The bill was considered under the "Anthony Rule" — named after President pro tempore Henry B. Anthony (R-RI) — in which measures could be disposed of under a time limit. This was an early attempt to limit debate in the Senate in the days before cloture.

[16]For the debate, see *Congressional Record*, 47-1, 5/12/1882, 3859–62.

[17]Five senators who had voted to grant the NBH quarantine authority in the prior Congress voted against reauthorizing the NBH's quarantine authority: John Ingalls (R-KS), Samuel McMillan (R-MN), John McPherson (D-NJ), Angus Cameron (R-WI), and Charles Jones (D-FL).

[18]This was the same tactic that George Black used too in the previous session in the House.

reverted, per the stipulations of the Quarantine Act of 1878, to the Marine Hospital Service (MHS). The restrictions in the 1878 Act — prohibiting the MHS from interfering or conflicting with state and municipal quarantine regulations — once again prevented the implementation of uniform, effective national quarantines (Winston, 2020).

Why did the movement to renew the National Board of Health fail? Several reasons have been offered. Michael (2011, p. 128) suggests that "the NBH, in its moves to control infectious diseases, encroached upon the health powers of the individual states, and political sentiment at that time did not entertain the idea of centralization of power." Humphreys (1992) agrees that the NBH was inept at public relations, documents the repeated clashes between the NBH and the Louisiana State Board of Health, and notes that an alliance of public health officials from Alabama, Georgia, Louisiana, New Jersey, and New York came together to protect the nation's seaports from NBH domination. Smillie (1943, p. 930) echoes these views, arguing that "the defenders of the National Board of Health were good sanitarians but poor politicians. . . . They had made the fatal mistake of encroaching on the prerogatives of the individual states, and the representatives of these states in Congress did not relish this taste of federal centralization of power."

Smillie and Humphreys also note that the country was largely epidemic free for three years, which created no urgency for Congress to continue the NBH experiment. Michael and Smillie, along with Burton (1974) also contend that lobbying by John B. Hamilton, Surgeon General of the MHS, played a sizable role in the NBH's fall. As quarantine authority would return to the MHS if the NBH were not renewed, Hamilton actively worked to undermine the NBH. As Smillie (1943, p. 929) notes: "Quietly and effectively [Hamilton] did his utmost to bring discredit upon the National Board of Health and its activities. He accused the member of the Board of misuse of funds, of extravagance, and incompetence."

Members of Congress became aware of these various arguments, and echoed them in their statements and behaviors. For example, in June 1880, a supplemental appropriation for the NBH was being considered. The Treasury had approved $100,000 to be used in case of epidemic. The Board estimated its cost to be $164,860, and there was a push by some in the Senate to add that difference ($64,860) via an amendment. Amid the debate, James Beck (D-KY) noted:

> The great bulk of the money, it seems, goes in their own machinery. Any amount of money that is necessary if the yellow fever breaks out at New Orleans, breaks out at Memphis, breaks out at Charleston, breaks out anywhere, I am perfectly willing to give; but it seems to me we have given them as much as it is fairly safe to give men who do not seem to me to be practicing any sort of economy in

> the matter, and who constitute a board that is to become greater and greater. I suppose it will not be two years before this National Board of Health . . . will be running every city, every neighborhood, entering houses where they like, breaking up State organizations as they please, and demanding any amount of money.[19]

And, in the end, the Senate voted down the amendment, 20–26, foreshadowing the political problems that the NBH would have in the succeeding years.[20]

Data and Analysis

The historical accounts of the NBH provide several explanations for its rise and fall. But none of them look explicitly at the role that Congress played in the process. We do that here, by examining the determinants of members' vote choices on roll-calls that dealt explicitly with the NBH (or federal health authority more generally).[21] In doing so, we test whether variables associated with historical explanations — as well as other explanatory factors we believe are important — are significantly associated with congressional vote choice.

In all, there were 23 recorded roll-call votes — 18 in the Senate and 5 in the House — across the three Congresses (the 45th–47th) in which the NBH was created, maintained, and, ultimately, allowed to lapse. The details for these 23 roll-calls are listed in the Appendix. For each, we identify whether voting for the bill expanded or reduced NBH (or federal health) capacity. We consider perpetuation of the NBH to be expansive (relative to the status quo of lapsing). For each vote, we then code whether each member of Congress voted to expand or not. For example, the act initially creating the NBH passed in the House in March 1879. This is a clear case of expansion. A Senate amendment vote in May of that year, which would have reduced funding from $500,000 to $250,000, is a clear example of a restrictive policy. Ultimately, each member-vote is coded as either being a Pro-Vote (1) or an Anti-Vote (0), relative to the power of the federal health board. Pro-Votes come about either by supporting an expansive proposal or opposing a restrictive proposal, while Anti-Votes are the opposites of each.

We consider four possible contributors to vote choice: ideology, party, protecting state institutions, and state risk of yellow fever outbreaks. First, we include ideology, as conventionally measured with Common Space DW-NOMINATE scores (Poole and Rosenthal, 2007). In this period, we broadly

[19] *Congressional Record*, 46-2, 6/10/1880, 4365.

[20] *Congressional Record*, 46-2, 6/10/1880, 4368-69.

[21] We also include votes to create a Bureau of Health — which failed and led ultimately to the creation of the NBH.

consider the **First Dimension** to be general ideological belief in the role of the state in the economy, while the **Second Dimension** captured particular divergences around currency and banking policy. Second, we consider party, with **Republican** as a dummy variable indicating that the member was a representative of the Republican Party. We utilize separate dummy variables for all non-Democratic parties, with **Democrat** as the base category. Thus, the coefficients we report on Republican are interpretable as the differences between Republicans and Democrats. While we include them, we do not present the results for the rare third parties. In alternative specifications, we consider **Southern Democrat** — coded as representing the 11 states of the Confederacy — separately from Democrats in the rest of the country.

Third, we consider the possibility that members of Congress were interested in turf protection. Specifically, when their states already had boards of health with similar powers, creating a federal board risked ceding power and authority to the federal board at the expense of their existing state board. Some may have been reluctant to do this, especially in the post-Civil War period of intense polarization over federal and state powers. Thus, we include a dichotomous measure of whether the member's state had a **State Board** when the vote occurred.[22]

Finally, we assess whether the actual local experience of yellow fever outbreaks drove support for the NBH. It may be that members were willing to give the federal government power over health and quarantine because they feared the risk of deadly outbreaks in their states. We conceive of this possibility in a variety of different ways. In the first, we include a dichotomous variable for whether the state had ever experienced a **Prior Outbreak** of yellow fever.[23] The prior presence of a yellow fever outbreak is an approximation of the places that were susceptible to having one, in a way very close to the human thinking process: has it happened before? We argue that members representing areas that could experience outbreaks, evidenced by having had one at any point, were more supportive of the NBH, with the mandate to help prevent outbreaks.

Second, we include a variable to measure the overall propensity of the state to experience outbreaks, which we call **Outbreak Frequency**. Given differing data quality and lengths of time in the union, as well as the fact that some states never had an outbreak at all, we utilize categories for this variable. Specifically, we created an ordered categorical variable with "Never"

[22]State board origination dates are taken from Kerr and Moll (1912, p. 12).

[23]Yellow fever data for this variable, as well as the succeeding ones, are drawn from Augustin (1909). We establish a threshold for an "outbreak" that excludes cases where refugees or individual visiting sailors had yellow fever but were confined and no local spread occurred. For example, Michigan is listed as having a single case in one single year — a refugee who arrived at the city sick, and immediately died, without any other cases. We do not count this as an outbreak.

taking the base value, 0. This is for states with no recorded outbreaks. In the second level, states with value 1 are those states with "Rare" outbreaks, which is for states with recorded outbreaks, but very few relative to the length of their time series. In the third level, states with value 2 are those states with a "Moderate" outbreak history. These are states with more than a few outbreaks, recurring across time, but infrequently. Finally, in the fourth level, states with value 3 are the set of states with "Frequent" outbreaks, which are those with regular significant outbreaks, typically once a decade or more. In Figure 1, we present a map of the level each state was coded.[24] This variable gives a more nuanced assessment of propensity to have outbreaks. While a dichotomous variable includes those states with a single outbreak in the 1790s just the same as Louisiana, which experienced continuous outbreaks in the 19th century, our ordered propensity variable differentiates states such as Louisiana from those such as Maine. As the map illustrates, yellow fever was found most frequently in coastal areas with warmer weather, and places with major port cities.

Third, we consider the possibility that it was not so much the propensity for a potential outbreak prospectively that drove congressional response, but rather the intense response to recent outbreaks. We create a second ordered categorical variable, **Outbreak Recency**, based on how recently an outbreak

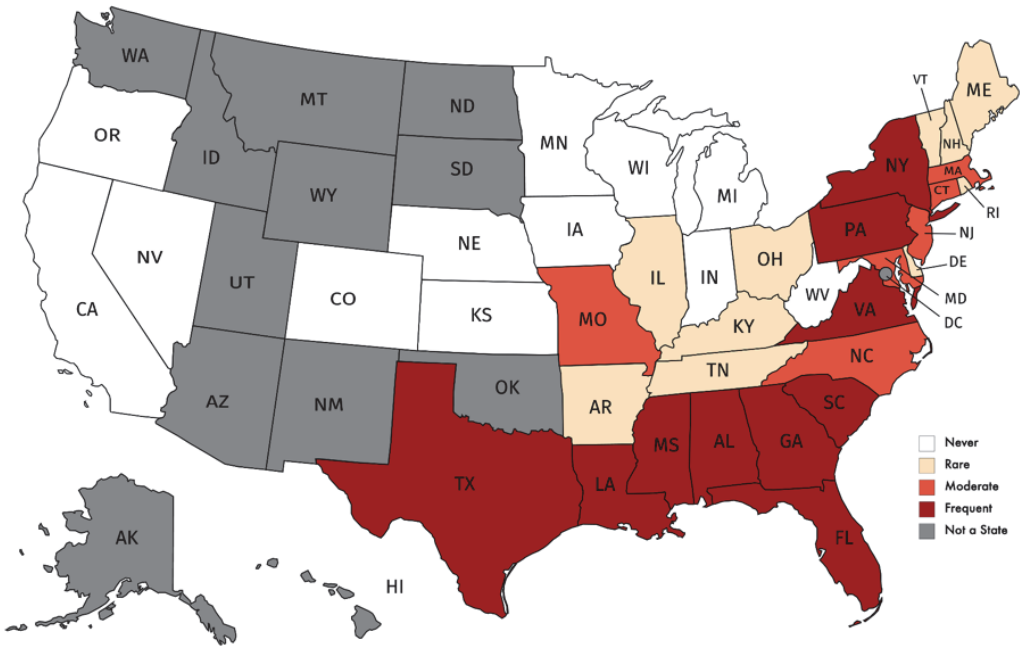

Figure 1: Historical propensity for yellow fever outbreaks, as of 1879.

[24]This map and the one in Figure 2 were made using https://mapchart.net/

had occurred in a state. In the base category, again, are those places that never had an outbreak. Next are those with a most recent outbreak 76 or more years prior. Then, 51–75 years, 26–50 years, and 6–25 years, respectively. Finally, in the highest category, are those with outbreaks in the prior five years, which includes all of those from the 1878 super outbreak. These are updated for the year of the vote, and thus several states move between categories between the first (1879) and last vote (1883) in the set. In Figure 2, we present a map of the categorical values for each state, as of the first vote in 1879. As the map illustrates, yellow fever had faded as a recent concern in much of the far northeast, but remained a recent concern in much of the mid-Atlantic, the lower Midwest, and the South.

We estimated Linear Probability (OLS) Models, with similar results obtained using logistic regression. We include fixed effects for each recorded roll-call, capturing the specific attributes of that proposal. Because the independent variables are invariant within members of Congress (MCs), MC-fixed effects are inappropriate. However, we do cluster our standard errors on MCs, given that errors are likely to be correlated within MCs. As we estimate models with and without party (and sometimes with Democrats broken down by region) and different outbreak variables, we end up with 12 different sets of results as shown in Table 1.

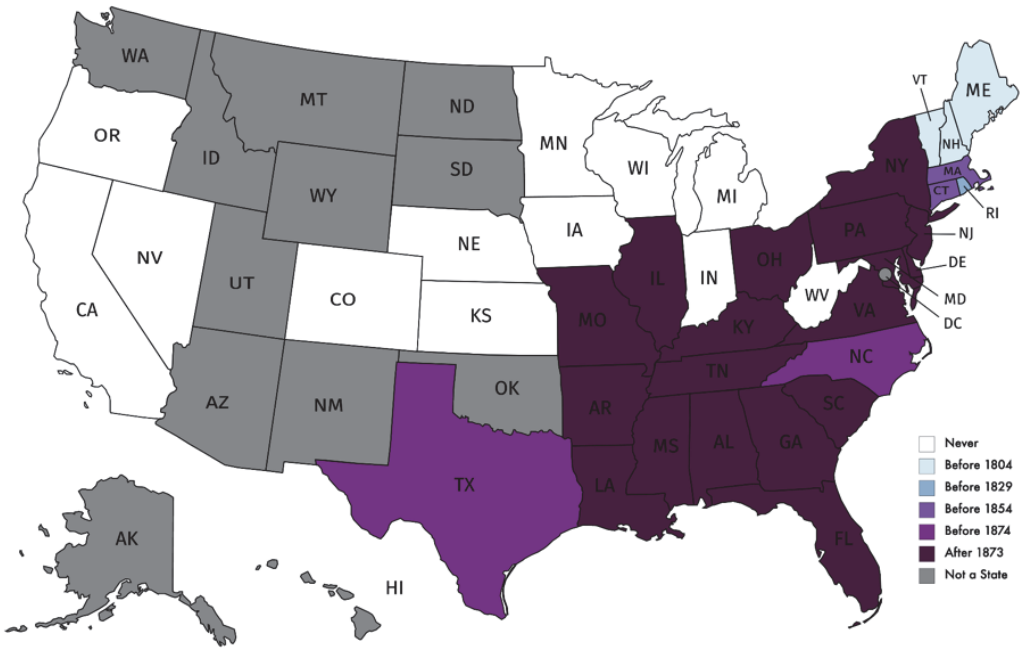

Figure 2: Date of the most recent yellow fever outbreak, as of 1879.

Table 1: Estimating member support for federal health authority and the National Board of Health.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NOMINATE 1	-0.58^{**}	$-0.25^{\wedge}$	-0.23	-0.58^{**}	$-0.26^{\wedge}$	$-0.24^{\wedge}$	-0.55^{**}	-0.22	-0.20	-0.55^{**}	-0.22	-0.18
	(0.04)	(0.15)	(0.15)	(0.04)	(0.15)	(0.15)	(0.04)	(0.14)	(0.15)	(0.04)	(0.14)	(0.15)
NOMINATE 2	0.14^{**}	0.17^{**}	0.16^{**}	0.12^{**}	0.15^{**}	0.15^{**}	0.12^{**}	0.15^{**}	0.15^{**}	0.11^{*}	0.14^{**}	0.13^{**}
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
Southern			0.03			0.04			0.03			0.06
Democrat			(0.04)			(0.05)			(0.04)			(0.05)
Republican		-0.27^{*}	-0.27^{*}		-0.26^{*}	-0.26^{*}		-0.26^{*}	-0.27^{*}		-0.27^{*}	-0.28^{*}
		(0.12)	(0.12)		(0.12)	(0.12)		(0.11)	(0.11)		(0.11)	(0.11)
State board	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Prior outbreak	0.09^{*}	0.09^{*}	$0.08^{\wedge}$									
	(0.04)	(0.04)	(0.04)									
Outbreak				0.02	0.02	0.01				-0.02	-0.01	-0.02
frequency				(0.01)	(0.01)	(0.02)				(0.02)	(0.02)	(0.02)
Outbreak							0.02^{**}	0.02^{*}	0.02^{*}	0.03^{**}	0.03^{*}	0.03^{**}
recency							(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915	1,915
			Non-South			Non-South			Non-South			Non-South
Base party	N/A	Dems.	Dems.	N/A	Dems.	Dems.	N/A	Dems.	Dems.	N/A	Dems.	Dems.
R^2	0.33	0.33	0.34	0.32	0.33	0.33	0.33	0.34	0.34	0.33	0.34	0.34

Note: Entries are LPM estimates with standard errors (clustered by member of Congress) in parentheses. Roll-call-vote fixed effects are included in all models but not reported.
$^{\wedge}p < .10$, $^{*}p < .05$, $^{**}p < .01$

Conveniently, these numerous specifications yield a highly consistent set of substantive results. There is a significant difference between Democrats (either as a group or separated into southern and non-southern versions) and Republicans in support, with Republicans consistently about 27 percentage points less likely to support. Unsurprisingly, there is an analogous relationship between Pro-Votes and the First Dimension NOMINATE score, with more "conservative" — or pro-business — members less likely to support. The specifics of these relationships are hard to define precisely, given the strong correlation between party and NOMINATE scores. Regardless of party, the Second Dimension NOMINATE score is consistently positive and significant, corresponding to about a 13-percentage point greater likelihood of voting expansively for the NBH. It can be difficult to discern exactly what this Second Dimension corresponds with, but may reflect a correlation of this issue with some of the other important financial "side questions" of the 1870s.

We find no evidence that having a state board was correlated with vote choice. Our estimate is of a positive association, but one not distinguishable from zero. This strongly implies that there was no systematic turf protecting. Plenty of members representing states with boards of health voted to create, sustain, or expand the federal Board and potentially undermine the power of their state institutions.

Finally, when we analyze the relationship between voting and the state's history with yellow fever, we find two consistent associations. Overall, states with a past outbreak were about nine percentage points more likely to support the NBH. Past outbreak frequency was not significantly associated with vote choice, but the recency of an outbreak was significantly associated, with about a two- or three-percentage point increase for each additional level, or an approximately 14-percentage point greater likelihood for support between those in states that had a recent outbreak (within the last five years) compared to those in states that had never experienced an outbreak. This indicates that part of the support for the NBH was driven by a reaction to recent outbreaks, which raised the salience of the issue. As these events declined, with many fewer outbreaks in the early 1880s, it is not surprising that the urgency for the NBH faded, and it was allowed to lapse.

In sum, we contend that the initial creation of the NBH in March 1879, and the grant of temporary quarantine power to it several months later, is best seen as an emergency action. The yellow fever epidemic of 1878 was the most severe such outbreak in the nation's history to that point, and Republican members of Congress — and conservative members outside the South, more generally — were willing to put the country's interests ahead of theirs for a time. But as relatively epidemic-free years followed, more "ordinary" political decision-making returned. Republicans and more conservative members of Congress were, on the whole, unwilling to maintain a federal entity with power

to significantly affect commercial activity. With their reversal — conditional on the recency of their state being affected by yellow fever — the NBH's days were numbered.

Conclusion

After Congress declined to reauthorize the National Board of Health's quarantine power, and that authority reverted to the Marine Hospital Service, the NBH limped along for a few years. Congress provided a small grant of $10,000 to the NBH to continue its investigatory and advisory functions (Smillie, 1943), but that merely allowed it to publish an annual report through 1885. The NBH officially discontinued functions shortly thereafter. However, the 1879 Act that established the NBH was not formally repealed until 1893, by the Quarantine Act of that year — in response to a cholera epidemic in Europe. The Quarantine Act of 1893, passed in the lame-duck session of the 52nd Congress during the last weeks of unified Democratic government, was a step forward in terms of federal disease authority, as it explicitly gave the federal government the predominant right of quarantine inspection at the several ports (Williams, 1951). Eventually more power would be vested in the Public Health Service (created in 1912), and federal authority would expand yet again in 1939 with the creation of the Federal Security Agency, which brought together in one agency all federal programs in the fields of health, education, and social security.

Thus, federal health authority grew piecemeal — in fits and starts — across time in the United States. While the creation of the National Board of Health is typically seen as the starting point in moving quarantine authority from the states to the federal government, the time was not yet right for a strong federal presence in health affairs. Federal authority had expanded in the early 1870s, during the early years of Reconstruction to protect the voting rights of African Americans in the South, but by mid-decade the Republicans had blanched at further forays — in Southern affairs or otherwise. By 1879, Republicans (and conservative members of Congress, more generally) were willing to support temporary grants of authority during an emergency — in this case, in response to the yellow fever epidemic of 1878 — but pulled back from anything more. Thus, by 1883, as the health scene in the United States had improved considerably in the prior years, they withheld their support and the NBH's quarantine power was not reauthorized. This effectively killed the NBH. As Ellis (1992, p. 82) observes: "Only in later times, and under different political circumstances, would the idea of a strong federal agency having broad responsibility for public health receive national acceptance."

Appendix. Roll-call votes on federal health authority and the National Board of Health, 45th–47th Congresses.

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
45	House	S1784	359	1879-03-01	128–114	1	Establish Bureau of Public Health & Prevent Introduction of Diseases	To amend S. 1784, a bill preventing introduction of contagious or infectious diseases into the United States and establishing a Bureau of Public Health, by authorizing the president to appoint seven to the Board of Health, under the Treasury Department, to study methods of preventing introduction and spread of contagious and infectious diseases into the United States
45	House	S1784	360	1879-03-01	112–130	1	Establish Bureau of Public Health & Prevent Introduction of Diseases	To order a third reading of S. 1784.
45	House	S1784	361	1879-03-01	134–100	0	Establish Bureau of Public Health & Prevent Introduction of Diseases	To table S. 1784.
45	House	HR6500	376	1879-03-03	170–65	1	Establish Bureau of Public Health & Prevent Introduction of Diseases	To suspend the rules and pass H.R. 6500 (20 Stat. 484, 3/3/1879), a bill preventing the introduction of infectious or contagious diseases into the United States, and establishing a National Board of Health.

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
45	Senate	S1784	492	1879-02-24	45–14	1	Control of Infectious Diseases — Establish Bureau of Public Health	To proceed to the consideration of S. 1784, a bill preventing the introduction of contagious or infectious diseases into the United States and establishing a Bureau of Public health.
45	Senate	S1784	493	1879-02-24	24–24	0	Establish Bureau of Public Health	To amend S. 1784, by eliminating the provision that the Bureau of Health shall also be charged with the execution of all laws and orders, rules and regulations, made in pursuance of law, for the improvement of the sanitary conditions of the District of Columbia.
45	Senate	S1784	494	1879-02-24	13–26	0	Establish Bureau of Public Health	To amend S. 1784, by inserting therein that said board shall personally visit all afflicted places of and during epidemics, to remain there, unless imperatively required elsewhere.
45	Senate	S1784	496	1879-02-24	15–16	0	Establish Bureau of Public Health	To amend S. 1784, by eliminating there from the provision that the bureau of health shall be charged with the supervision of all matters connected with the Marine Hospital Service.

(*Continued*)

Appendix. (*Continued*)

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
45	Senate	S1784	497	1879-02-24	17–23	0	Establish Bureau of Public Health — Supervise Marine Hospital Service	To amend S. 1784, by eliminating there from the provision that the Bureau of Health shall be charged with the supervision of all matters with the Marine Hospital Service.
45	Senate	S1784	498	1879-02-24	19–18	0	Establish Bureau of Public Health — Establish Powers	To amend S. 1784, by eliminating the penalty for the failure of a health officer appointed by local authority to observe the rules and regulations prescribed by the Bureau of Health for inspection of vessels, because the state authorities have been most careful in the promulgation of efficient statutes and regulations concerning same.
45	Senate	S1784	499	1879-02-24	16–20	0	Establish Bureau of Public Health — Establish Powers	To amend S. 1784, by eliminating the penalty for the failure of a health officer appointed by local authority to observe the rules and regulations prescribed by the Bureau of Health for inspection of vessels, because the state authorities have been most careful in the promulgation of efficient statutes and regulations concerning same.

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
45	Senate	S1784	507	1879-02-24	32–10	1	Require the Presence of Absent Senators	To amend the motion calling for the senators, by instructing the sergeant-at-arms to use all necessary means to execute the order to bring in absent senators, motion made during discussion on S. 1784.
45	Senate	S1784	509	1879-02-24	17–24	0	Establish Bureau of Public Health	To amend S. 1784, by eliminating the penalty for the failure of a health officer appointed by local authority to observe the rules and regulations prescribed by the Bureau of Health for the inspection of vessels, because the state authorities have been most careful in the promulgation of efficient statutes and regulations concerning same.
46	House	S675	132	1879-06-30	143–16	1	Provide Office Room & Print Reports of National Board of Health	To suspend the rules and pass S. 675, (21 Stat. 46, 7/1/79), providing office room for the National Board of Health and for the publication of its reports and papers.
46	Senate	S108	48	1879-05-05	31–20	0	Infectious Disease Agency	To recommit S. 108, (21 Stat. 5) a bill preventing the introduction of contagious or infectious diseases into the United States to the select committee, with instructions to report a code of regulation.

(*Continued*)

Appendix. (*Continued*)

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
46	Senate	S108	79	1879-05-22	20–30	0	Control of Diseases Carried on Ships into U.S.	To amend S. 108 (21 stat 5, June 2, 1879), preventing the introduction of contagious diseases into the United States, by making it unlawful for ships to enter U.S. ports if they embarked from foreign ports where cholera, yellow fever, plague, smallpox, or ship fever rages, except in accordance with this act's provisions.
46	Senate	S108	80	1879-05-22	17–29	0	Controls to President to Stop Spread of Diseases	To amend S. 108 by authorizing the president, at his discretion, to order more stringent health regulations if he thinks imminent the danger that cholera or yellow fever may be brought to the United States or spread from state to state.
46	Senate	S108	81	1879-05-22	19–33	0	Appropriations for Controlling Diseases	To amend S. 108 by reducing from $500,000 to $250,000 the appropriation for executing this act.
46	Senate	S108	83	1879-05-23	30–13	0	Control of Diseases	To amend S. 108 by providing that this bill shall be operative only four years after its passage.
46	Senate	S108	84	1879-05-23	36–14	1	Control of Diseases	To pass S. 108.
46	Senate	HR6266	394	1880-06-10	20–26	1	Appropriations for National Board of Health	To amend H.R. 6266 by increasing the appropriation for the national board of health from $100,000 to $164,860.

Congress	Chamber	Bill number	Roll-call	Date	Result	Expand?	Short description	Long description
47	Senate	S1049	389	1882-05-12	24–27	1	Bill to Stop Spread of Infectious Disease	To proceed to the consideration of S. 1049, a bill amending an act to prevent the introduction of contagious or infectious diseases into United States.
47	Senate	HR7595	974	1883-03-01	22–19	1	Appropriations for Health Inspection Service	To amend H.R. 7595 by appropriating $25,800 for salaries, sundry expenses and investigations of the National Board of Health, and authorizes expenditure of not more than $100,000 for maintenance of the inspection service.

Note: Roll-call information taken from https://voteview.com/.

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