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VACCINE LEGISLATION IN TEXAS AND THE RISE OF THE STATE ANTI-VACCINE MOVEMENT:

A SURVEY OF VACCINE-RELATED BILLS FILED AND PASSED IN THE TEXAS STATE LEGISLATURE FROM 2009 TO 2019

Sarah E. Lasater
Research Assistant

Rekha Lakshmanan
Contributing Expert

Kirstin R.W. Matthews, Ph.D.
Fellow in Science and Technology Policy

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Rekha Lakshmanan
Kirstin R.W. Matthews, Ph.D.
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Abstract

Over the past decade, a resurgence of anti-vaccine rhetoric and activity has increased in the United States, resulting in decreased vaccination rates and more frequent outbreaks of vaccine-preventable diseases. Texas is one of several states at the heart of the anti-vaccine movement, with much of the anti-vaccine activity focused on state policies. Texas serves as a good case study to determine if vaccine-related legislation became a partisan issue over the past decade. For this study, researchers analyzed vaccine-related bills filed in the Texas legislature from 2009 to 2019. Bills were categorized by the sponsor's political affiliation, the effect the legislation had on immunization rates (pro, anti, or neutral), and what the bill was trying to achieve (e.g., increase access to the state vaccine registry). Texas lawmakers filed 104 vaccine-related bills between 2009 to 2019; of these bills, 31 (30%) received floor votes, and 21 became state laws (a 20% passing rate). Overall, the bills that became state laws were more likely to have bipartisan sponsorship (13 bills, 62%) and be neutral toward vaccines (10 bills, 48%), with only two anti-vaccine bills passing. These findings suggest that vaccine bills are not seen by legislators as a partisan issue. Texas legislators will vote for vaccine-related bills despite the sometimes-vocal opposition. As we look toward future sessions and potential issues associated with a COVID-19 vaccine, promoting vaccines and vaccine-related bills as nonpartisan public health measures will be increasingly important.

Introduction

Vaccinations are regarded as one of the most important medical and public health developments in human history and currently prevent 2–3 million deaths each year (World Health Organization [WHO] 2019). Vaccines protect not only the individuals who directly receive them but also those who cannot be vaccinated due to their age or other medical issues, such as a compromised immune system (WHO 2020).

For example, before the measles vaccine was introduced in the 1960s, approximately 530,000 cases were identified annually in the United States (Roush et al. 2007). Serious measles epidemics among children occurred every two to three years in the United States, causing various and widespread health complications and costing society billions of dollars due to lost productivity and medical costs (Lo and Hotez 2017; Orenstein, Papania, and Wharton 2004). In the 20 years from 1990 to 2010, vaccines and vaccination programs for measles resulted in an 80% reduction in mortality (Lozano et al. 2012). By 2016, the number of annual measles cases in the U.S. had fallen to fewer than 100, with the last reported measles death occurring in 2015 (Tan and Matthews 2019).

However, as the prevalence of vaccine-preventable diseases decreases due to widespread vaccine use, concerns about the safety and necessity of vaccines have emerged (WHO 2020). Individuals and organizations wary of vaccines are promoting vaccine misinformation and creating hesitancy by influencing others though small groups and channels over social media (Johnson et al. 2020). These voices of vaccine opponents, if loud and repeated enough, can create a societal perception that vaccines are harmful and risky, influencing others to avoid vaccinations (Poland and Jacobson 2001).

Though the anti-vaccine movement has grown in recent years, the movement is not a new one, dating as far back as the 1800s when the first vaccines were distributed (Kaufman 1967). During the 1970s, anti-vaccine groups became suspicious of perceived negative effects of whole-cell pertussis vaccines, even while the disease infected millions and caused hundreds of thousands of deaths globally (Phadke et al. 2016). In 1998, Andrew Wakefield and colleagues drew false links between the measles-mumps-rubella (MMR) vaccine and autism in a paper that was later retracted due to fraud. There is no substantial evidence supporting Wakefield's claims and plentiful evidence that no such link exists between the MMR vaccine and autism (Institute of Medicine 2012; DeStephano and Thompson 2004). In fact, lower vaccination rates are linked to higher risks of outbreaks of vaccine-preventable diseases, including measles (Olive et al. 2018; Phadke et al. 2016). A decrease in MMR vaccination rates in the U.S. by as little as 5% could result in a threefold increase in annual measles cases and $2.1 million in public sector costs (Lo and Hotez 2017). Despite this, distrust among vaccine deniers has persisted.

Often the arguments for and against vaccines can be contextualized as a clash of ideals. The different arguments pit health benefits for the majority of a population against individual rights and the right to decide what is best for one's body or one's children (Matthews and Tan 2018). This polarization is enhanced by broad distrust of "Big Pharma" and doubts about medicine (Hamilton, Hartter, and Saito 2015). Research also suggests conspiracist ideation supported by anecdotes is connected to rejection of science, including vaccination (Mavragani and Ochoa 2018; Bricker and Justice 2018). These ideas are perpetuated by small but vocal groups organized on social media that promote anti-vaccine ideology regardless of the information's source, whether it was properly vetted, or if the information has been proven untrue (Johnson 2020).

State legislatures have seen the number of anti-vaccination bills increase as a result of more anti-vaccination activism. Of the 175 vaccine exemption-related bills proposed from 2011 to 2017 by state legislators nationwide, more than half were anti-vaccine bills promoting expanded access to exemptions (Goldstein, Suder, and Purtle 2018). Anti-vaccine activism has ranged from advocating to expand school vaccine exemptions and prohibit employers from requiring vaccinations for employees to opposing the publication of immunization coverage rates. Since there are no federal vaccination requirements, the states are primarily responsible for determining vaccine policies, including school vaccine mandates and exemption policies (Bradford and Mandich 2015).

Texas and Vaccines

Like the U.S. Congress, the Texas Legislature is a bicameral system of elected officials. The Texas House of Representatives is composed of 150 seats, and the Texas Senate has 31 seats. Texas is one of four states (along with Montana, Nevada, and North Dakota) to operate under a biennial system wherein both houses hold legislative sessions every two years. During each session, the Texas Legislature considers resolutions and bills, creates amendments, and ultimately appropriates funds for the state budget. In Texas, the regular session runs from January through May on odd-numbered years. The Republican Party currently controls both chambers of the Texas Legislature, as well as the offices of the governor and lieutenant

governor. The party has maintained a majority in the Texas Senate since 1997 and gained control of the House in 2011 (Texas Legislative Reference Library).

The biennial system has benefits and drawbacks. The interim offers more time for meetings, to study issues, and for legislators to connect with their constituents while reducing operating costs during the off year. However, the system may lack the flexibility to respond quickly to changing events, adapt to frequent federal checks of power, and pursue a more efficient and timely legislative process—all prominent characteristics of the annual system (National Conference of State Legislatures [NCSL]). Focusing on legislative issues and reform to respond to the 2020 COVID-19 pandemic in real time, for example, illustrates the constraints of the biennial system. Regardless, the Texas Legislature must decide every two years how to best address the state's public health system and vaccine- and infectious disease-related concerns.

Texas is notable for the high number of vaccine-related bills enacted by state lawmakers. Texas was the first state in the country to pass a mandatory meningitis vaccine requirement for college students (Texas SB 819 2011) and passed legislation requiring schools to post immunization and influenza information on their websites (Texas HB 1059 2007). Yet, since 2003, Texas has permitted non-medical vaccine exemptions (one of only 15 states to do so), which has led to a more than 2,700% increase in exemptions (NCSL 2020; TX DSHS 2020). In 2007, then-Texas Gov. Rick Perry issued an executive order requiring HPV vaccinations for girls in middle school without public discussion, which the state legislature quickly repealed (Texas HB 1098 2007). As a consequence, over 10 years later, Texas does not have an HPV vaccination requirement, and advocates struggle to introduce legislation to improve HPV vaccination rates (Matthews and Matsumoto 2014).

Though the anti-vaccine movement has had a variable presence in other states, efforts in Texas are some of the most organized and politically engaged, with some scholars suggesting that Texas is the epicenter of the recent anti-vaccine movement (Lakshmanan and Sabo 2019; Wootton, Hotez, and Boom 2019). At the heart of this effort is a Texas-based anti-vaccine political action committee, Texans for Vaccine Choice. Furthermore, Wakefield, the former physician who falsely linked autism and the MMR vaccine, moved to Austin, Texas, around 2005 to work with autistic children. There he continued to support the local and national anti-vaccine movement and broadened its visibility through the 2016 movie *Vaxxed* (Glenza 2018; Hotez 2016).

With the emergence of a vocal anti-vaccine movement in Texas and a number of anti-vaccine bills filed in recent years, it is unclear whether vaccination policies have moved from being a public health issue to a partisan issue with limited support from the Republican majority. To better understand whether recent vaccine policies are partisan, we reviewed and analyzed vaccine-related bills filed and passed in the 2009, 2011, 2013, 2015, 2017, and 2019 state legislative sessions. Bills were categorized based on their political sponsorship (Republican, Democratic, or bipartisan), vaccine stance (pro, neutral, or anti), and the intent of the legislation (e.g., providing education materials). Researchers examined bill progression in the Legislature as well as the legislators' voting records.

While the majority of bills filed failed to become laws, they failed at a similar rate to the overall average. A review of the voting records for bills passed demonstrated vaccine bills had bipartisan support. As we look toward future sessions, and potential challenges associated with a COVID-19 vaccine, it will be important for vaccines to remain a nonpartisan public health issue.

Methods

The goal of this study was to determine whether vaccine-related bills filed and passed in the Texas Legislature were partisan. We reviewed bills filed in the Texas House and Senate in regular legislative sessions from 2009 to 2019 and explored how the content and partisan association of those bills might have affected their passage (for this paper, we will refer to passage out of the legislature and signing into law as *passing*). A 10-year window comprising six legislative sessions was chosen to provide enough data for robust analysis. The 2009–2019 window was chosen specifically because it covers the emergence of the Tea Party movement and the Texas Freedom Caucus (which both which stress reduced government and individual freedoms), the recent vaccine-preventable disease outbreaks (such as the 2015 Disneyland measles outbreak), and the emergence of a large and vocal anti-vaccination advocacy movement within the state (Halsey and Salmon 2015; Hotez 2016).

To identify and obtain the bill sample, the key words *vaccine*, *vaccination*, and *immunization* were searched on the Texas Legislature Online (TLO) database (https://capitol.texas.gov/). A list of associated bills from the 2009 to 2019 regular sessions was created. *Vaccine bills* were defined as those related upon initial filing to the delivery of, the development of, or support for or against vaccines for humans. The content of the bills was reviewed to confirm they fit the vaccine bill definition, with researchers removing those that did not. Bills from the initial list excluded from this analysis were related to animal vaccinations, veterinary law, or amendments that did not impact vaccine policy but were added to laws where vaccine policy is located. For example, HB 3667, filed in 2009, included the word *vaccine* but was related to vaccination in the context of veterinary services.

The list of bills created using the TLO database was compared with existing lists of vaccine bills from The Immunization Partnership (TIP, https://immunizeusa.org) and the National Vaccine Information Center (NVIC, https://www.nvic.org). TIP is a nonprofit education and advocacy organization that promotes pro-vaccine legislation in Texas. The NVIC is a national anti-vaccine nonprofit group based in Virginia that monitors state and federal vaccine legislation. Bills missing from the original list but recognized by these organizations were reviewed and added if appropriate. A total of 104 bills were identified over the 10-year period (2009–2019).

For each bill, the following information was identified and cataloged in a database: bill number, year filed, author(s), sponsor(s), a description of bill content, the committee(s) the bill entered, bill partisan affiliation based on parties of author(s)/sponsor(s), bill category alignment (pro/neutral/anti), bill content subcategory and description, and progression of the bill.

According to the Texas Legislative Glossary (https://tlc.texas.gov/docs/legref/Glossary.pdf), a bill's author (also called the primary author) files it and guides it through the legislative process. Coauthors can join in the authorship of the bill or measure. The primary bill sponsor guides it through the legislative process after the bill has been passed in the original chamber, joined by any cosponsors. For the purpose of this study, any legislative member who was a primary author or primary sponsor will be referred to as a *champion* of the bill to indicate their status as a primary bill carrier or creator. All primary authors, coauthors, primary sponsors, and cosponsors will be considered *sponsors*. Political party affiliation was assigned to each bill based on the affiliated party of the sponsor(s) or its companion bill's sponsor(s) (defined below). If a bill had sponsors affiliated with both the Republican and Democratic parties, then the bill was considered bipartisan.

After the database was assembled, researchers determined *unique bills* and *companion bills*. Companion bills refer to bills filed in both chambers in the Legislature during the same session with identical language. The bill could have been filed at the same time as its companion or at a later time during the legislative session. Companion bills were considered one bill for research purposes.

In addition, each lawmaker's voting record on vaccine-related bills was reviewed. A second database of Texas state legislators serving from 2009–2019 was created using data from the Texas Legislative Reference Library website (https://lrl.texas.gov/). The legislator database included: 1) the years the state legislators served, 2) the counties and cities represented, 3) committee positions, 4) the chambers they served in, and 5) their affiliated political party. The TLO database provided information on Texas congressional member committee and floor votes on vaccine bills.

After the databases were completed, each bill was categorized based on vaccine position: Pro Vaccine (supported vaccines), Anti Vaccine (opposed or restricted vaccines), or Neutral Vaccine (did not take a side). (See Table 1 for full definitions of the alignment categories.) Bills were then coded into one of eight descriptive categories based on their directed content: Mandate, Availability/Access, Exemption, Information, Vaccination Rates, Registry, Process, and Other (Table 1). Finally, legislative champion(s) of vaccine bills were represented geographically using legislators' county affiliation on the Texas Legislature Online database.

Table 1. Bill Categories and Their Definitions

Label	Definition
Sponsor(s) Affiliated Party	
Republican	When the bill is filed, all sponsor(s) are members of the Republican Party.
Democrat	When the bill is filed, all sponsor(s) are members of the Democratic Party.
Bipartisan	When the bill is filed, sponsors are members of both the Republican and Democratic parties.
Alignment Category	
Pro Vaccine	These bills promote vaccinations and/or development of vaccine promotional materials, tighten the vaccine exemption process, share exemption rates, and/or enable access to vaccinations.
Neutral Vaccine	These bills are related to immunization data collection and availability, storage, and/or creation of immunization-related plans or studies.
Anti Vaccine	These bills restrict availability of, access to, and/or information about vaccines or promote loosening the vaccine exemption process.
Sub-Categories	
Mandate	Requirements of or by schools for student and/or employee vaccinations or dissemination of an individual student's vaccine status within schools.
Availability/Access	The ability of patients to access and obtain vaccinations, of providers to administer or provide vaccines, and rules dictating how professionals engage with immunized or non-immunized persons.
Exemption	The ability to access and obtain non-medical exemptions for vaccinations.
Information	Collecting and disseminating vaccine and vaccine-related disease information.
Vaccination Rates	Informing the community of the collective vaccine status of its members.
Registry	The process of inputting and accessing immunization data within the Texas Immunization Registry.
Process	Guidelines for compliance with vaccine policy.
Other	Vaccine-related bills that do not fit into the above categories.

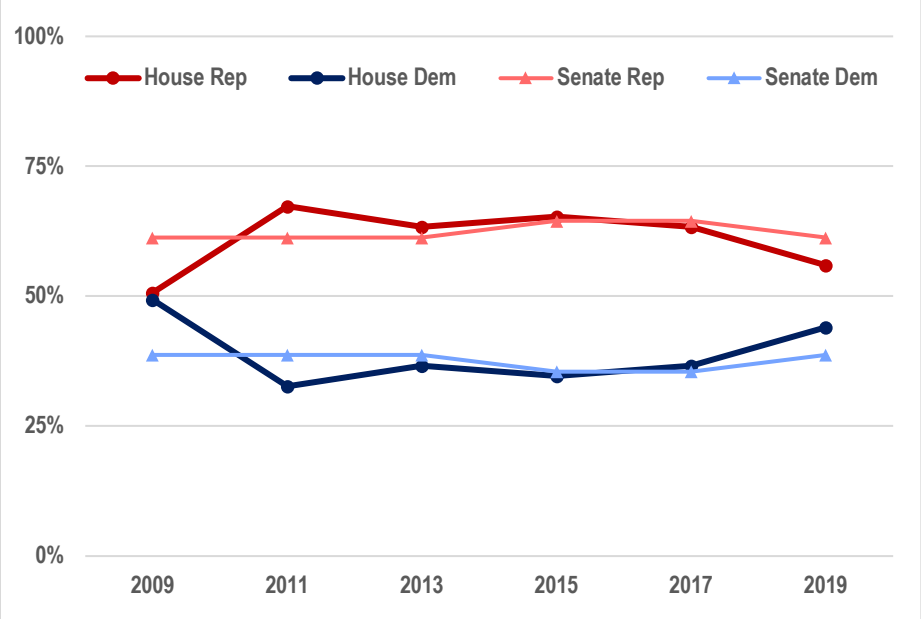
The number of bills in each category, along with their passing rates, was analyzed using descriptive statistics and linear regression. The voting and party affiliation statistics were also aggregated and analyzed. Descriptive statistics and logistic regressions (95% confidence interval [CI]) were calculated to represent relationships between affiliated political party, political party support of a bill, and bill passing rate.

Results

Texas Legislative Composition

In the six state legislative sessions from 2009 to 2019, the distribution of Republicans and Democrats in the Texas House and Senate remained relatively stable, with Republicans holding the majority in both chambers throughout this period. Republicans held between 50% and 67% of the seats in the Texas House (an average of 61%) and 61% to 65% of the Senate (an average of 62%). The largest change occurred from 2009 to 2011, when Republicans flipped 20% of the seats held by Democrats in a previously equally-split House (Figure 1). No state legislative members identified as independent or were affiliated with a third party during the 10-year period.

Figure 1. Distribution of the Texas Legislature by Party. With the exception of the 2009 House, the Texas State Legislature was under Republican control for the entirety of the period studied.



Source: Texas Legislative Reference Library website (https://lrl.texas.gov/).

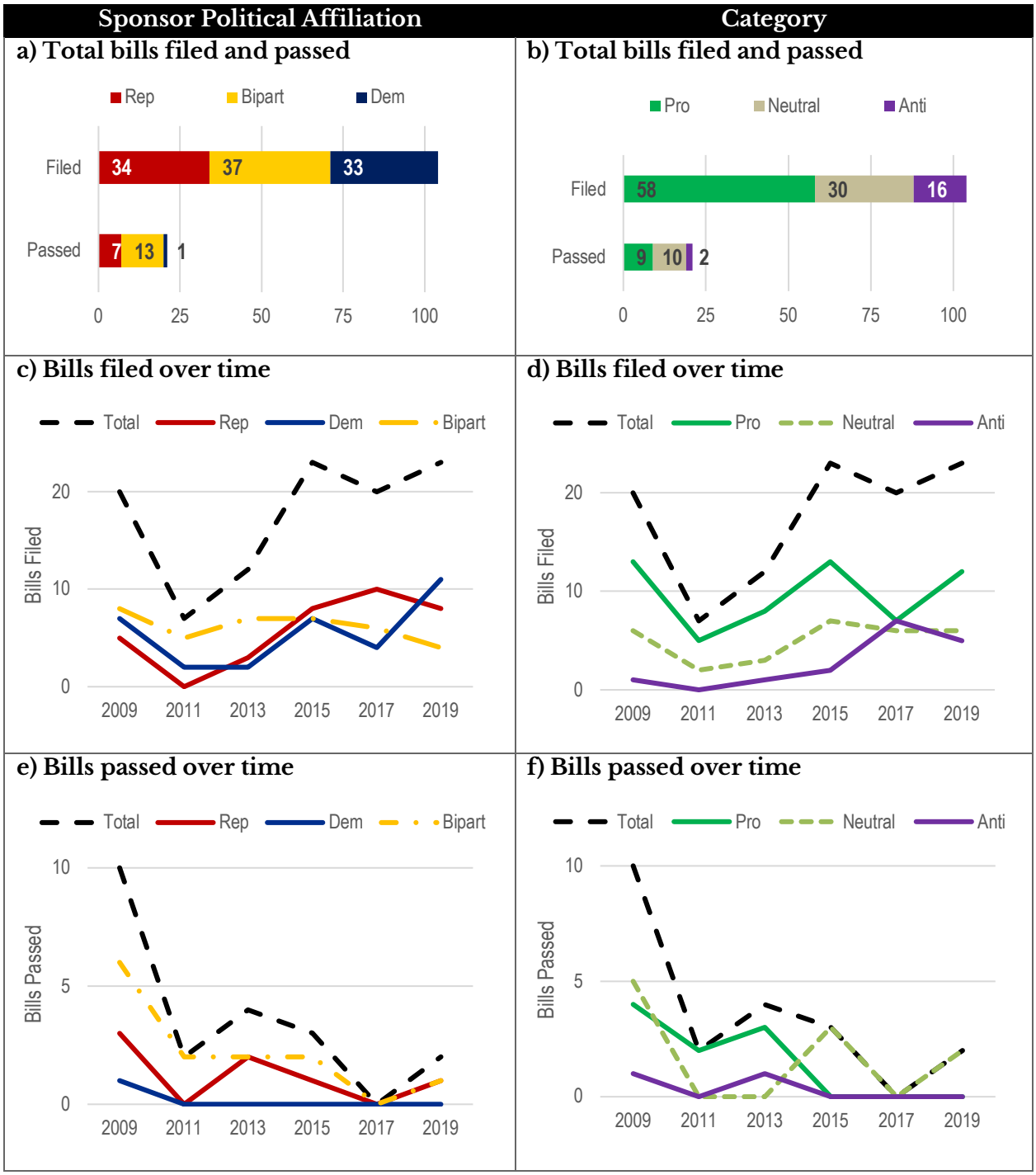
Parties and Vaccine Bill Passing Rates

Between 2009 and 2019, 104 vaccine-related bills were filed and 21 bills passed. Vaccine bills filed in 2009 had the highest passing rate (50%) over this period, with 10 bills passed out of 20 filed. The number of vaccine bills filed dropped in 2011 but had nearly tripled by 2015 and remained steady in 2017 and 2019 (Figures 2a and 2b). Overall, 16% of Pro Vaccine bills, 33% of Neutral Vaccine bills, and 13% of Anti Vaccine bills passed.

Partisan sponsorship of vaccine bills filed was nearly evenly split between the three groups (33% Republican, 32% Democrat, and 36% Bipartisan [Figure 2a]). The majority of Pro Vaccine bills were either filed by Democrats or had bipartisan sponsorship (37% each) (Figure 3a). Neutral Vaccine bills had mostly bipartisan sponsorship (43%), while most of the Anti Vaccine bills were Republican-sponsored (81%). Republican lawmakers filed an equal number of Pro Vaccine and Anti Vaccine bills (38%). Of bills filed by Republicans, only 24% were neutral toward vaccines. Bills filed by Democrats were primarily Pro Vaccine bills (67%). The majority of bipartisan-sponsored bills filed were Pro Vaccine bills (60%).

Of the 21 bills passed during the 2009 to 2019 time period, 33% were Republican-sponsored, five percent were Democrat-sponsored, and 62% were bipartisan-sponsored (Figure 2b). In 2009, the only Democrat-sponsored bill was passed (Figure 2e). In the last three sessions (2015, 2017, and 2019), only Neutral Vaccine bills were passed, with none passing in 2017 (Figure 2f). Of the Pro Vaccine bills that passed, six were bipartisan-sponsored and three were Republican-sponsored, but none were sponsored by Democrats alone (Figure 3b). Of the two Anti Vaccine bills that passed, one was bipartisan-sponsored and the other was Republican-sponsored.

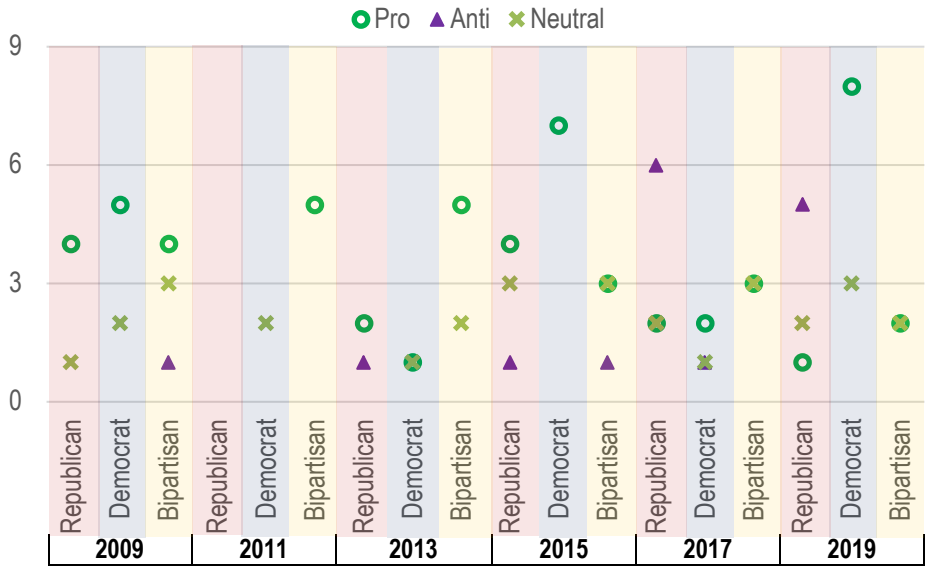
Figure 2. Texas State Bills Filed and Passed, 2009–2019. One hundred and four vaccine bills were filed and 21 passed from 2009 to 2019. Bills were categorized by sponsor political affiliation (a, c, and e) and bill stance (b, d, and f). While bills filed were split evenly by political affiliation, the majority passed had bipartisan sponsorship. Pro and Neutral bills were filed and passed more often than Anti bills, with only Neutral bills passing from 2015 to 2019.



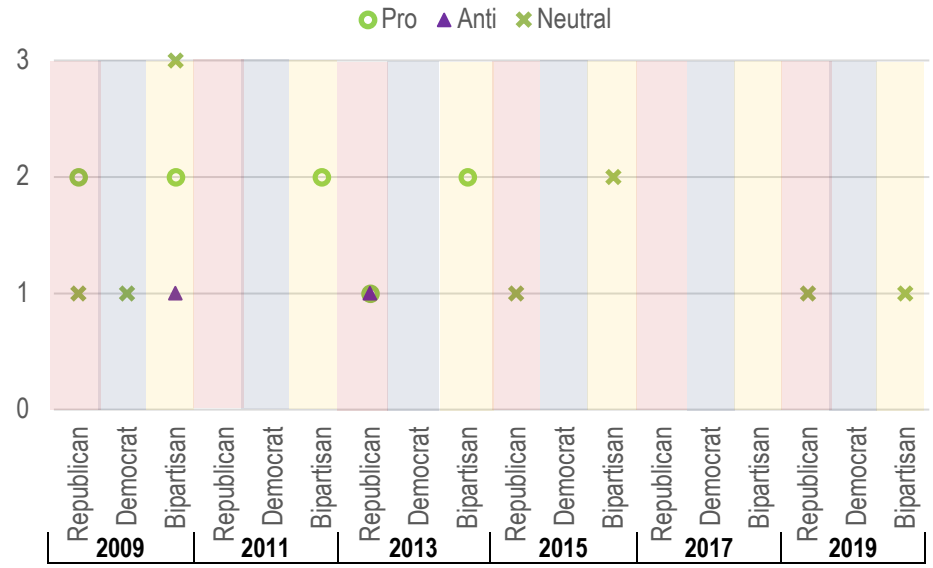
Source: Author's own work.

Figure 3. Number of Bills Filed by Affiliation, Alignment, and Year, 2009–2019. Bills filed (a) and passed (b) from all three alignments (Pro, Anti, and Neutral) were reviewed based on the political affiliation of their sponsor(s). While Anti bills were more often sponsored by Republicans, Pro and Neutral bills were sponsored by all three groups (Republicans, Democrats, and Bipartisan).

a) Bills Filed



b) Bills Passed



Source: Author's own work.

Relationships between Bill Passage, Alignment, and Affiliation

Using logistic regression, some significant relationships were found between the probability of a bill passing, its alignment, and the sponsor party affiliation (Table 2). A Neutral bill was more likely to pass and be signed into law than a Pro or Anti bill ($p<0.05$, OR=2.863). There were no significant partisan relationships found associated with Neutral or Pro Vaccine bills passed. Anti Vaccine bills passed were not analyzed due to their very small sample size (n=2).

Table 2. Logistic Regression Analysis of Bill Passage Based on Alignment and Partisan Affiliation. Bills were more likely to pass if they were Neutral or Pro with Republican sponsorship.

Status	Category	Republican	Democratic	Bipartisan	Overall Passed
Filed	Pro	p=0.0135*; OR=.344	p=0.042*; OR=.117	p=0.573; OR=1.26	p=0.186; OR=0.520
Filed	Neutral	p=0.405; OR=0.671	p=0.809; OR=0.892	p=0.295; OR=1.593	p=0.0379*; OR=2.863
Filed	Anti	p=0.000134*; OR=13.825	p=0.0419*; OR=0.116	p=0.0516; OR=0.216	p=0.412; OR=0.519
Passed	Pro	p=0.966; OR=1.032	p=0.998; OR=1.16E^{-09}	p=0.0554; OR=4.129	NA
Passed	Neutral	p=0.849; OR=0.871	p=0.154; OR=0.215	p=0.102; OR=3.484	NA
Passed	Anti†	NA	NA	NA	NA
Passed	Overall	p=.944; OR=1.037	p=0.0159*; OR=0.0797	p=0.0067* OR=3.995	NA

Notes: †Not enough bills were passed to do regression analysis. *Significant correlation, $p < 0.05$, 95% CI.
Source: Author's own work.

Geographic Analysis

To determine if there were "hot spots" of anti- or pro-vaccine bill champions, the geographic locations of Pro and Anti Vaccine bill champions in Texas were analyzed. The geographical representation was determined for legislators who were the champions of Pro and Anti bills (primary authors or sponsors), and the number of times legislators were champions of Anti and Pro bills from 2009 to 2019 was counted. The tally for each legislator was totaled and organized with other legislators representing the same

geographical or metropolitan area, resulting in an aggregate total number of times a legislator from that area championed or supported legislation.

Over this period, legislators championed Anti Vaccine bills a total of 31 individual times, while Pro Vaccine bills were championed a total of 132 times (Table 3). Legislators representing the Dallas-Fort Worth-Arlington area championed the most Anti Vaccine bills (15 of 31 total), with those from the Houston-The Woodlands-Sugar Land area responsible for the second-highest number (five instances). Legislators from the Houston-The Woodlands-Sugar Land area championed the most Pro bills (46 times), while legislators from the Dallas-Fort Worth-Arlington area championed the second-highest number of Pro bills (28 times). Using definitions of rural and urban counties from the Texas Department of Housing and Community Affairs (TDHCA), three Anti bills and seven Pro bills were determined to have been championed by legislators from rural counties (2020). All others were championed by legislators representing urban counties.

Table 3. Locations of Vaccine Bills' Champions, 2009–2019. Geographically, the majority of Anti and Pro Vaccine bill champions were located in the Houston-The Woodlands-Sugar Land area and the Dallas-Fort Worth-Arlington area, indicating that there were no hot spots of pro- or anti-vaccine bill legislators.

City-Area	Rural	Anti Bill Champion	Pro Bill Champion
Houston-The Woodlands-Sugar Land		5	46
Dallas-Fort Worth-Arlington		15	28
Killeen-Temple		1	10
Austin-San Marcos		1	15
El Paso		1	8
Cherokee	✓	0	4
San Antonio		0	3
Waco		2	0
Van Zandt	✓	2	0
Amarillo		0	2
Abilene		0	2
Laredo		0	2
McAllen-Edinburg-Mission		0	2
Brownsville-Harlingen-San Benito		0	2
Corpus Christi		0	2
Lubbock		1	1
Wichita Falls		1	0
Tyler		1	0
Angelina	✓	1	0
Navarro	✓	0	1
Longview-Marshall		0	1
Kerr	✓	0	1
Starr	✓	0	1
Beaumont-Port Arthur		0	1
Overall Rural Counties		3	7
Overall Urban Counties		28	125
Total Frequency		**31**	**132**

Source: Author's own work.

Subcategories

Pro, Neutral, and Anti Vaccine bills were subdivided into eight subcategories: Mandate, Availability/Access, Exemption, Information, Vaccination Rates, Registry, Process, and Other (Table 4). The largest group of filed bills fell into the Availability/Access subcategory (33%), followed by Information or data relating to vaccines or vaccine-related diseases (16%) and Exemptions (14%).

Table 4. Filed and Passed Bills by Category Alignment and Content Subcategory, 2009–2019. Bills were analyzed and categorized based on their topic. The majority of bills filed were associated with access and availability of vaccines, with the majority of these bills being Pro bills. Bills passed were most often related to increasing information on vaccines, increasing availability or access to vaccines, or the immunization registry.

Subcategory	Anti Filed (Passed)	Neutral Filed (Passed)	Pro Filed (Passed)	Total (Passed)
Availability/Access	5 (0)	0	29 (5)	34 (5)
Exemption	10 (2)	0	5 (0)	15 (2)
Information	0	14 (5)	3 (1)	17 (6)
Mandate	0	0	10 (1)	10 (1)
Process	0	2 (1)	0	2 (1)
Registry	0	13 (4)	0	13(4)
Vaccination Rates	0	0	5 (0)	5 (0)
Other	1 (0)	1(0)	6 (2)	8 (2)
Total	16 (2)	30 (10)	58 (9)	104 (21)

Source: Author's own work.

The number of Anti Vaccine bills filed increased from four over the first four sessions (2009–2015) to 12 in the last two (2017 and 2019). However, Anti Vaccine bills restricting availability/access to vaccines or bills loosening the exemptions process did not appear until 2017. By contrast, lawmakers filed Pro Vaccine bills related to vaccine status and aimed at tightening school vaccine exemptions starting in 2015. The most activity related to bills filed happened in 2009, when nine bills related to availability/access were among those filed.

Members filed bipartisan bills in each of the categories; bipartisan bills made up 62% of bills passed (Table 5). The most common category of bills with both Republican and Democrat representation was Availability/Access. The Information and Exemption categories were the next most common categories with Republican support, while Democrats filed bills related to information and the registry.

Table 5. Subcategory and Partisan Affiliation of All Vaccine-Related Bills Filed and Passed, 2009–2019. The majority of bills filed were associated with access and availability of vaccines regardless of the party affiliation of the sponsors (Republican, Democrat or Bipartisan). Bills passed were most often related to increasing information on vaccines, increasing availability or access to vaccines, or the immunization registry.

	Republican (Passed)	Democrat (Passed)	Bipartisan (Passed)	Total (Passed)
Availability/Access	14 (2)	13 (0)	7 (3)	34 (5)
Exemption	8 (1)	3 (0)	4 (1)	15 (2)
Information	7 (2)	5 (1)	5 (3)	17 (6)
Mandate	1 (0)	4 (0)	5 (1)	11 (1)
Process	0 (0)	0 (0)	2 (1)	2 (1)
Registry	1 (1)	6 (0)	6 (3)	13 (4)
Vaccination Rates	1 (0)	2 (0)	3 (0)	5 (0)
Other	2 (1)	0 (0)	4 (1)	8 (2)
Total	34 (7)	33 (1)	37 (13)	104 (21)

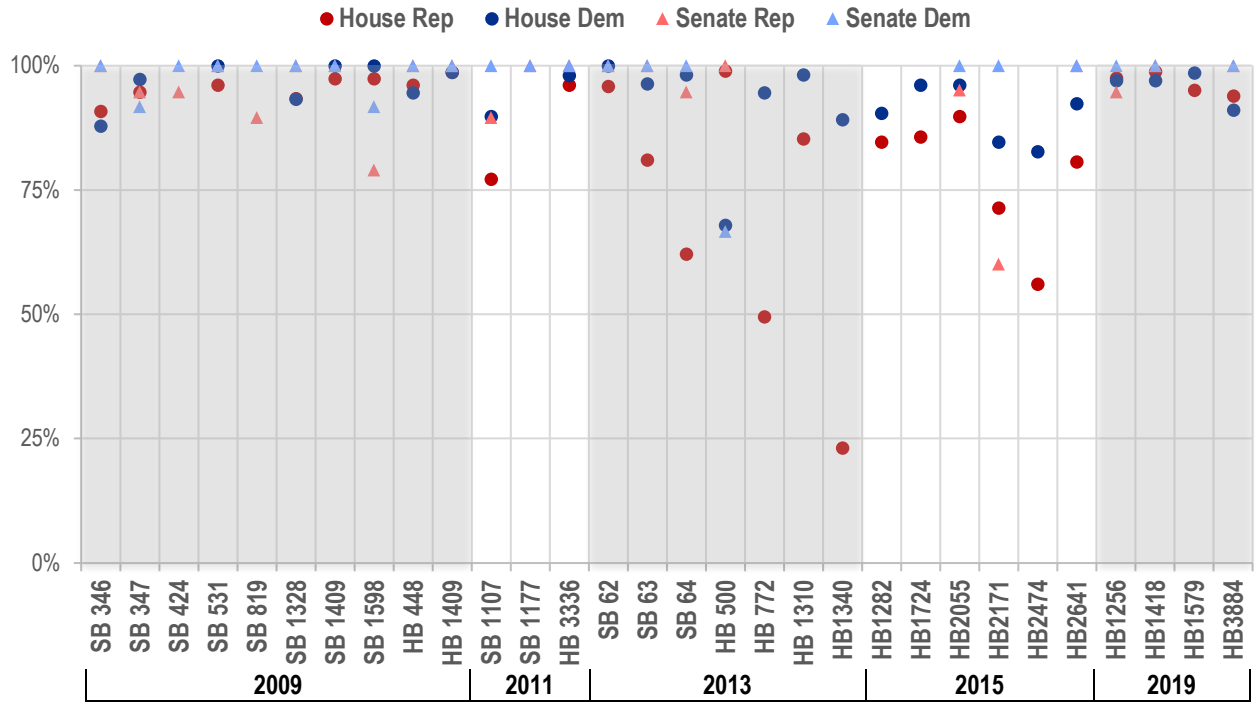
Source: Author's own work

Floor Votes

Of the bills examined, only 31 received a floor vote in at least one chamber. Twenty-one of those bills also passed out of the Legislature; all 21 were signed into law by the governor. SB 62, which created an online portal to file for an exemption, and SB 291, which exempted all students in human and animal health professional tracks from the university Hep B vaccine requirement, were the only Anti Vaccine bills to receive a floor vote (Texas SB 62 2013; Texas SB 291 2009). SB 291 had bipartisan sponsorship, while SB 62 was Republican-sponsored. Both bills received bipartisan support in the House floor vote, with more than 90% of House Republicans and Democrats voting *yes* on each (Figure 4).

Only five bills, all after 2013, had less than 75% support from House Republicans on the floor (Figure 4). One bill, HB 1340, received less than 25% approval from House Republicans and did not pass (Texas HB 1340 2013). The one bill that received less than 75% of Democratic support was HB 500, which would have allowed vaccine costs to be excluded from total taxable revenue (Texas HB 500 2013).

Figure 4. Percent of Chamber Floor Votes by Party that Voted *Yes* on Bills, 2009–2019. Twenty-one of the 31 bills that received a floor vote passed. No bills were voted on in 2017. SB 62 and SB 291 were the only two Anti-Vaccine bills that received a floor vote and passed.



Source: Author's own work.

Discussion and Conclusion

Texas is an interesting case study of vaccine legislation trends. In 2003, the state passed a law (which was part of a larger omnibus bill) allowing nonmedical exemptions for school-mandated vaccines (Byrne and Cheng 2019). Up until 2015, the anti-vaccine community in Texas was small in number and only responded reactively to pro-vaccine legislation. Activists were not involved in elections nor did they proactively file anti-vaccine legislation. Attempts to politically polarize vaccination started in 2015 after the highly publicized outbreak of measles at Disneyland was linked to unvaccinated patrons and resulted in California's removal of nonmedical exemptions (Halsey and Salmon 2015; Nyathi et al. 2019). In Texas, House Representative Jason Villalba (TX H114-R) attempted to remove nonmedical exemptions during the 2015 session (Texas HB 2006 2015). Not only did the effort fail, it also mobilized a large number of anti-vaccine advocates who participated in later sessions (Matthews and Tan 2018; Hotez 2016). The anti-vaccine community in Texas reinvented itself and responded to this legislation by organizing a political action committee and engaging in election politics. Their libertarian ideology promoting medical freedom has resonated with many legislative members (Matthews and Tan 2018).

In 2017, further consideration of vaccine legislation was halted after two public health hearings on vaccine-related bills (one for a Neutral bill and one for an Anti bill) took over 16 hours and saw testimony from 64 witnesses (Matthews and Tan 2018; Tan and Matthews 2018). Members were overwhelmed with constituents from both sides and chose not to move either bill forward. Despite this, two vaccine-related bills passed in 2019, both authored by House Representative Dade Phelan (TX H21-R) and considered Neutral. HB 1256 permitted first responders and their employers earlier access to their vaccination data, while the second bill, HB 1418, authorized a reminder system to inform first responders of their immunization status, especially during public emergencies such as hurricanes, flooding, and pandemics.

Of the 104 vaccine-related bills filed in Texas from 2009 to 2019, only 31 bills received floor votes and only 21 became state laws. The 20% overall passing rate for vaccine bills is similar to the overall passing rate for all bills filed during the 2009 to 2019 regular sessions, which was 21% (Legislative Reference Library of Texas).

The bills that became state laws most often had bipartisan support (13 bills, 62%) and/or were neutral toward vaccines (10 bills, 48%). Only two anti-vaccine bills passed, both related to increasing access to exemptions to the 2009 meningitis vaccine mandate for college students. Furthermore, there were no noticeable hot spots for anti-vaccine bills or pro-vaccine bills. The two larger metropolitan areas (Dallas-Fort Worth-Arlington and Houston-The Woodlands-Sugar Land) had higher numbers of both Anti and Pro bill sponsors.

These data suggest that vaccines are not perceived as a partisan issue in Texas. For instance, as a state senator in 2009, now-Texas Lt. Gov. Dan Patrick, a notable conservative, sponsored and helped pass SB 531, a pro-vaccine bill, with bipartisan support (Jones 2013). While sponsors for Anti bills were predominantly Republican, both Republicans and Democrats sponsored Pro bills, with many bills having bipartisan support.

Bills that passed were most often bipartisan-sponsored or Republican-authored/sponsored, with only one Democrat-authored/sponsored bill passing, in 2009. Partisanship seems to play little role in getting a vaccine-related bill passed and signed into law. Floor votes were not split along party lines. This could be a result of the management of the two chambers; the speaker of the House and the lieutenant governor have the ability to control which bills receive floor votes, often choosing bills that are likely to pass or those which serve their personal interests. Regardless, the bipartisan voting for vaccine bills does point to support by both parties. Furthermore, we did not observe legislators sponsoring significant numbers of both Pro and Anti bills or changing their votes on the issue over time.

In addition to having bipartisan support, most of the bills that passed were neutral toward vaccines. Some were related to vaccine information; they particularly involved the collection of immunization data and dissemination of immunization/outbreak reports. Other bills that passed focused on the immunization registry, including granting the ability to access one's own immunization data. However, with only a relatively small pool of bills

receiving a floor vote, it is unclear whether some aspects of vaccine policies have partisan support or opposition, such as exemptions.

Overall, these data indicate that vaccine advocates should be mindful of perceived controversial pro-vaccine issues, such as exemption policies, in state legislatures if they plan to be productive. Vaccine proponents should work on bipartisan legislation for topics viewed as neutral, such as increasing vaccine information, or that support vaccine use, such as improving vaccine availability/access. These issues represent the majority of the bills that were signed into law from 2009 to 2019 and still have a broad impact on the community. While the data is focused on Texas, it hints at an acceptance of vaccine policies as a public health, and not partisan, political issue. However, additional examination of other major states with large anti-vaccine advocate communities, such as New York, Washington, and Oklahoma, could help determine if Texas is an outlier, or if vaccines are mostly seen as a nonpartisan issue.

Although focusing on less controversial topics is important in moving public policy, advocates should still encourage public engagement from the community, scientists, physicians, and public health experts to combat misinformation. Physicians play an important role in alleviating patient hesitancy as well as in dispelling myths about vaccines. In addition, many anti-vaccine groups have a strong presence on social media (Johnson 2020). Facebook recently announced that it would no longer allow advertisement by anti-vaccine groups, and Google changed its search algorithm to place vaccine information from reputable groups, such as the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH), higher on the results list, above misinformation from anti-vaccine advocates. Without high-profile scientists, like Dr. Anthony Fauci and Dr. Peter Hotez, talking to the public regularly and combating misinformation, hesitancy would likely increase and result in a decline in vaccination rates.

Vaccine advocates should also understand the issues and motivations behind individuals within the anti-vaccination movement (Matthews and Tan 2018; Bricker and Justice 2018). There is power behind providing anecdotal evidence to policymakers, especially when it concerns young children whose parents believe were harmed by vaccines.

However, those engaging in public policy need to proceed more cautiously and work toward bipartisanship. This is especially important now as we face a public health crisis during the COVID-19 pandemic. Public attention to vaccines has increased as federal and state governments look for ways to return our economy and public lives to normal during the pandemic. To this end, the U.S. federal government has committed significant resources, including $10 billion, to the development and distribution of a COVID-19 vaccine through Operation Warp Speed (Matthews and Lakshmanan, 2020). At least six companies are receiving federal support through Operation Warp Speed to test and manufacture vaccines to the virus responsible for COVID-19 (SARS-CoV2), with the hope of having a vaccine available by January 2021.

However, public polling has found increased hesitancy toward a COVID-19 vaccine, with only 58% saying they would take a vaccine when it's available (Silverman 2020). This hesitancy is a result of the politicization of the approval process as well as concerns about safety. If the public and policymakers do not work together, this hesitancy will inhibit our ability to adequately immunize the population and develop sufficient community immunity.

As state lawmakers prepare to craft legislation in 2021 to provide access to vaccines, especially a COVID-19 vaccine, vaccine advocates have an opportunity to effectively engage with the public and policymakers. They need to remind legislators how important vaccines are in our public health system. They should encourage broad efforts to provide increased information about and access to vaccines. And they should work with members of both parties to improve all residents' lives in a bipartisan manner.

References

Bradford, W. David, and Anne Mandich. 2015. "Some State Vaccination Laws Contribute to Greater Exemption Rates and Disease Outbreaks in the United States." *Health Affairs* 34(8): 1383–90. https://doi.org/10.1377/hlthaff.2014.1428.

Bricker, Brett, and Jacob Justice. 2019. "The Postmodern Medical Paradigm: A Case Study of Anti-MMR Vaccine Arguments." *Western Journal of Communication* 83(2): 172–89. https://doi.org/10.1080/10570314.2018.1510136.

Byrne, Elizabeth, and Shiying Cheng. "Texas vaccine exemption rates have reached an all-time high. Did Texas make it too easy for parents to opt out?" *Texas Tribune,* June 12, 2019. https://www.texastribune.org/2019/06/12/texas-vaccine-exemption-rates-school-district-look-up/.

DeStephano, Frank, and William W. Thompson. 2004. "MMR Vaccine and Autism: An Update of the Scientific Evidence" *Expert Review of Vaccines* 3(1): 19–22. https://doi.org/10.1586/14760584.3.1.19.

Glenza, Jessica. "Disgraced anti-vaxxer Andrew Wakefield aims to advance his agenda in Texas election." *Guardian*, February 26, 2018. https://www.theguardian.com/us-news/2018/feb/26/texas-vaccinations-safety-andrew-wakefield-fear-elections.

Goldstein, Neal D., Joanna S. Suder, and Jonathan Purtle. 2018. "Trends and Characteristics of Proposed and Enacted State Legislation on Childhood Vaccination Exemption, 2011–2017." *American Journal of Public Health* 109: 102–107. https://doi.org/10.2105/AJPH.2018.304765.

Halsey, Neal A., and Daniel A. Salmon. 2015. "Measles at Disneyland, a Problem for All Ages." *Annal of Internal Medicine* 62(9): 655–6. https://doi.org/10.7326/M15-0447.

Hamilton, Lawrence C., Joel Hartter, and Kei Saito. 2015. "Trust in Scientists on Climate Change and Vaccines." *SAGE Open 5*(3). https://doi.org/10.1177/2158244015602752.

Hotez, Peter J. 2016. "Texas and Its Measles Epidemics." *PLoS Medicine* 13(10): e1002153. https://doi.org/10.1371/journal.pmed.1002153.

Institute of Medicine (IOM). 2012. *Adverse Effects of Vaccines: Evidence and Causality.* Washington, DC: The National Academies Press. https://doi.org/10.17226/13164.

Johnson, Neil F., Nicolas Velasquez, Nicholas Johnson Restrepo, Rhys Leahy, Nicholas Gabriel, et al. 2020. "The online competition between pro- and anti-vaccination views." *Nature* 582: 230–233. https://doi.org/10.1038/s41586-020-2281-1.

Jones, Mark. "The 2013 Senate, From Left to Right." *The Texas Tribune*, November 26, 2013. https://texasweekly.texastribune.org/texas-weekly/vol-30/no-44/guest-column-2013-senate-left-right/?_ga=2.55738024.2015640740.1604340859-722271091.1604340859.

Kaufman, M. 1967. "The American Anti-vaccinationists and their arguments." *Bull Hist Med* 41(5): 463–478.

Lakshmanan, Rekha, and Jason Sabo. 2019. "Lessons from the Front Line: Advocating for Vaccine Policies at the Texas Capitol During Turbulent Times." *Journal of Applied Research on Children: Informing Policy for Children at Risk* 10(2): Article 6. https://digitalcommons.library.tmc.edu/childrenatrisk/vol10/iss2/6/.

Legislative Reference Library of Texas. "Bill Statistics." Accessed November 3, 2020. https://lrl.texas.gov/sessions/billStatistics.cfm.

Lo, Nathan C., and Peter J. Hotez. 2017. "Public Health and Economic Consequences of Vaccine Hesitancy for Measles in the United States." *JAMA Pediatrics* 171(9): 887–92. https://doi.org/10.1001/jamapediatrics.2017.1695.

Lozano, Rafael, Mohsen Naghavi, Kyle Foreman, Stephen Lim, Kenji Shibuya, V., et al. 2012. "Global and Regional Mortality from 235 Causes of Death for 20 Age Groups in 1990 and 2010: A Systematic Analysis for the Global Burden of Disease Study 2010." *The Lancet* 380(9859): 2095–2128. https://doi.org/10.1016/S0140-6736(12)61728-0.

Magravani, Amaryllis, and Gabriela Ochoa. 2018. "The Internet and the Anti-Vaccine Movement: Tracking the 2017 EU Measles Outbreak." *Big Data and Cognitive Computing* 2(1): 2. https://doi.org/10.3390/bdcc2010002.

Matthews, Kirstin R.W., and Monica M. Matsumoto. 2014. *Human Papillomavirus Vaccine: A Public Health Opportunity for Texas*. Issue brief no. 10.06.14. Rice University's Baker Institute for Public Health Policy, Houston, Texas. https://www.bakerinstitute.org/media/files/research_document/cd002a56/BI-Brief-100614-HPV.pdf.

Matthews, Kirstin R,W., and Melody T. Tan. 2018. *Discrimination: The 2017 Texas Legislative Session Anti-Vaccine Arguments*. Issue brief no. 10.22.18. Rice University's Baker Institute for Public Policy, Houston, Texas. https://doi.org/10.25613/4157-c610.

National Conference of State Legislatures (NCSL). "States With Religious and Philosophical Exemptions From School Immunization Requirements." Accessed August 6, 2020. https://www.ncsl.org/research/health/school-immunization-exemption-state-laws.aspx.

Nyathi, Sindiso, Hannah C. Karpel, Kristin L. Sainani, Yvonne Maldonado, Peter J. Hotez,et al. 2019. "The 2016 California Policy to Eliminate Nonmedical Vaccine Exemptions and

Changes in Vaccine Coverage: An Empirical Policy Analysis." *PLOS Medicine* 16(12): e1002994. https://doi.org/10.1371/journal.pmed.1002994.

Olive, Jacqueline K., Peter J. Hotez, Ashish Damania, and Melissa S. Nolan. 2018. "The State of the Antivaccine Movement in the United States: A Focused Examination of Nonmedical Exemptions in States and Counties." *PLOS Medicine* 15(7): e1002578. https://doi.org/10.1371/journal.pmed.1002616.

Orenstein, Walter A., Mark J. Papania, and Melinda E. Wharton. 2004. "Measles Elimination in the United States." *The Journal of Infectious Diseases* 189: S1–3. https://doi.org/10.1086/377693.

Phadke, Varun K., Robert A. Bednarczyk, Daniel A. Salmon, and Saad B. Omer. 2016. "Association Between Vaccine Refusal and Vaccine-Preventable Diseases in the United States: A Review of Measles and Pertussis." *JAMA* 315(11): 1149–58. https://doi.org/10.1001/jama.2016.1353.

Poland, Gregory A., and Robert M. Jacobson. 2001. "Understanding Those Who Do Not Understand: A Brief Review of the Anti-Vaccine Movement." *Vaccine* 19(17): 2440–45. https://doi.org/10.1016/S0264-410X(00)00469-2.

Roush, Sandra W., Trudy V. Murphy, and the Vaccine-Preventable Disease Table Working Group. 2007. "Historical Comparisons of Morbidity and Mortality for Vaccine-Preventable Diseases in the United States." *JAMA* 298(18): 2155–2163. https://doi.org/10.1001/jama.298.18.2155.

Silverman, Ed. "STAT-Harris Poll: The share of Americans interested in getting Covid-19 vaccine as soon as possible is dropping." *STAT News*, October 19, 2020. https://www.statnews.com/pharmalot/2020/10/19/covid19-coronavirus-pandemic-vaccine-racial-disparities/.

Tan, Melody T., and Kirstin R.W. Matthews. 2018. *Scientific Misconceptions and Myths Perpetuated in the 2017 Texas Legislative Session*. Issue brief no. 10.23.18. Rice University's Baker Institute for Public Policy, Houston, Texas. https://doi.org/10.25613/wsgx-df24.

Texas Department of Housing and Community Affairs (TDHCA). "State List of Counties Identified by Metropolitan and Nonmetropolitan Status-Texas." Accessed November 3, 2020. https://www.tdhca.state.tx.us/pmcdocs/95counties.pdf.

Texas Department of State Health Services (TX DSHS). "Conscientious Exemptions Data - Vaccination Coverage Levels." Last modified April 30, 2020. https://www.dshs.texas.gov/immunize/coverage/Conscientious-Exemptions-Data.shtm.

Texas Legislative Reference Library. Accessed November 5, 2020. https://lrl.texas.gov/.

Texas HB 500. 2013. "Relating to the computation of the franchise tax, including certain exclusions from the tax." https://capitol.texas.gov/tlodocs/83R/billtext/html/HB00500F.htm.

Texas HB 1059. 2007. "Relating to an immunization awareness program in certain school districts." https://capitol.texas.gov/tlodocs/80R/billtext/pdf/HB01059F.pdf#navpanes=0.

Texas HB 1098. 2007. "Relating to immunization against human papillomavirus." https://capitol.texas.gov/BillLookup/History.aspx?LegSess=80R&Bill=HB1098.

Texas HB 1256. 2019. "Relating to access by certain persons to a first responder's immunization history." https://capitol.texas.gov/BillLookup/History.aspx?LegSess=86R&Bill=HB1256.

Texas HB 1340. 2013. "Relating to consent to the immunization of certain children." https://capitol.texas.gov/tlodocs/83R/billtext/html/HB01340E.htm.

Texas HB 1418. 2019. "Relating to disease prevention and preparedness information for emergency medical services personnel on certification or recertification." https://capitol.texas.gov/BillLookup/History.aspx?LegSess=86R&Bill=HB1418.

Texas HB 2006. 2015. "Relating to exemptions from immunization requirements for public school students and students at public institutions of higher education." https://capitol.texas.gov/BillLookup/History.aspx?LegSess=84R&Bill=HB2006.

Texas HB 3667. 2009. "Relating to allowing health care providers to provide services across state lines in catastrophic circumstances." https://capitol.texas.gov/tlodocs/81R/billtext/pdf/HB03667I.pdf#navpanes=0.

Texas SB 62. 2013. "Relating to the vaccination against bacterial meningitis of entering students at public and private or independent institutions of higher education." https://capitol.texas.gov/tlodocs/83R/billtext/html/SB00062F.htm.

Texas SB 291. 2009. "Relating to hepatitis B vaccination for students enrolled in certain health-related courses of study at an institution of higher education." https://capitol.texas.gov/tlodocs/81R/billtext/html/SB00291F.htm.

Texas SB 531. 2009. "Relating to the medical assistance program and to the billing coordination system for claims submitted for payment from the Medicaid program." https://capitol.texas.gov/tlodocs/81R/billtext/pdf/SB00531F.pdf#navpanes=0.

Texas SB 819. 2011. "Relating to the vaccination against bacterial meningitis of certain first-time students at public institutions of higher education." https://capitol.texas.gov/tlodocs/81R/billtext/pdf/SB00819I.pdf#navpanes=0.

Wootton, Susan, Peter J. Hotez, and Julie Boom. 2019. "Texas: Averting Disease and Confronting a New Vaccine Refusal Hierarchy." *Journal of Applied Research on Children: Informing Policy for Children at Risk* 10(2): Article 2. https://digitalcommons.library.tmc.edu/childrenatrisk/vol10/iss2/2/.

World Health Organization (WHO). 2019. "Immunization." Last modified December 5, 2019. https://www.who.int/news-room/facts-in-pictures/detail/immunization.

WHO. 2020. "Six Common Misconceptions about Immunization." Last modified October 19, 2020. https://www.who.int/news-room/q-a-detail/vaccines-and-immunization-myths-and-misconceptions.