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"Don't Let Government Touch My Medicare": How Media Framing Shapes Public Support for Health Care Reform

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Abstract

When covering the policymaking process, the media typically cover both substantive aspects of the issue at hand and the political wrangling that occurs as lawmakers attempt to agree on a course of action. In this paper, we use the recent health care debate to investigate the effects of what we call 'policy' and 'process' frames on the citizens' perceptions that reform would benefit the nation. First, we apply social network analysis to articles from 144 daily U.S. newspapers in order to track the changing centrality of each type of frame in media coverage. We then combine the results of this analysis with data from the Kaiser Health Tracking Poll to demonstrate the effects of policy and process frames on public attitudes. The results show that increased policy frame centrality had a positive effect on all citizens, regardless of partisan identification or education level, although the effect was strongest for Republicans. The effects for increased process frame centrality were only observed for those in the middle range of education, with partisans on both sides reacting positively, and independents having more negative attitudes toward health reform.

What you have to remember about health insurance polls is that people feel lots of anxiety, and the numbers are always quicksilver. They dart hither and yon, so that anybody who reads a poll on national health care and takes it as serious, fixed numbers is only going to get blown away the next time you get an exchange in the debates... Public opinion has to be shaped and formed, rather than taken as a given.

- Prof. James Morone, Brown University Political Scientist, on *PBS NewsHour*, March 8, 2010

For the past year, American politics has been dominated in large part by the debate over health care reform. The White House, and Congressional Democrats and Republicans have debated everything from the broad direction policy should take (e.g. a single-payer system, an almost-wholly-private system, or a hybrid of the two) to relatively minute details such as whether or not to levy a tax on the use of tanning salons in order to help pay for reform. Throughout this process, citizens have stood by as silent and, at times, not-so-silent observers. In contrast to many policy debates, in which the public is only marginally aware of happenings inside the Beltway, about half of Americans reported following the health care debate 'very closely,' while only around five percent followed it 'not at all' (the remainder followed it 'somewhat closely').¹

As Prof. Morone notes in the above quote, this heightened public attention to the policymaking process resulted in volatility in citizens' attitudes toward health care reform. The volatility and malleability of citizen opinion, however, is not a new phenomenon (Converse 1964; Zaller 1992). The complex, multidimensional nature of many issues, such as health care reform creates opportunities for strategic politicians to highlight certain, aspects of policy debates over others in an attempt to shape citizens' understanding of and approval for reform (Riker 1980, 1990; Jones 1994). Indeed, E. E. Schattschneider (1960, 68) once stated that "the definition of alternatives is the supreme instrument of power; the antagonists can rarely agree on what the issues are because power is involved in the definition." In this paper, we examine how framing of health care reform in the media, particularly in terms of the balance between coverage of substantive aspects of reform and the policymaking process itself, has influenced individuals' attitudes toward reform. Our findings demonstrate that a greater focus on substantive coverage led to more positive attitudes among all segments of the public – regardless of partisan

¹ Data on public attention to the debate is drawn from the Kaiser Health Tracking Polls used throughout this paper.

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identification or level of education – while the effects for process coverage differed depending on where an individual stood on these two independent variables.

Media Frames and Public Opinion

This paper builds on a growing line of research that explores the ways in which different types of media frames affect public opinion. Framing is a fundamental aspect of political communication and debate. Politicians and parties attempt to win support for their most preferred policies through strategically emphasizing certain aspects or dimensions of issues that provide them an advantage over the opposition (Schattschneider 1960; Riker 1986; Edelman 2001) (Edelman 2001; Riker 1986; Schattschneider 1960). According to Gamson and Modigliani (1989, 143) a frame serves as a "central organizing idea or story line that provides meaning to an unfolding strip of events, weaving a connection among them. The frame suggests what the controversy is about, the essence of the issue." Previous studies suggest that the way in which an issue is framed can produce attitude change (Tversky and Kahneman 1986; Nelson and Oxley 1999). More recent research has sought to understand the psychological processes underlying "framing effects" and the conditions under which framing effects may be enhanced or attenuated, including individual dispositions such as values (Haider-Markel and Joslyn 2001; Lau and Schlesinger 2005; J. N Druckman 2008), individuals' level of education (Kinder and Sanders 1996; Nelson, Oxley, and Clawson 1997; Haider-Markel and Joslyn 2001; Miller and Krosnick 2000), and the existence of strong, competitive frames on both sides of an issue (Chong and James N. Druckman 2007; Sniderman and Theriault 2004).

Much of this research focuses on the distinction between 'substantive' and 'strategy' frames. The former category includes a range of framing subtypes, such as focusing on candidates' issue positions and performance in office during electoral campaigns (e.g. Jamieson 1993; Brewer and Sigelman 2002) or on a particular set of values underlying a policy proposal (e.g. Chong 1993; Kellstedt 2000), while the latter encompasses frames such as campaign strategy (e.g. Jamieson 1993; Cappella and Jamieson 1996) and the 'games' played by politicians during the policymaking process (e.g. Lawrence 2000). Studies have demonstrated a growing prevalence for strategy frames since the mid-20th Century (Patterson 1993), although some argue that there has been more substantive coverage than is typically acknowledged (Graber 2009) and

that the balance between the two types of frames depends on the level of government and the substantive focus of the story (Lawrence 2000).

In terms of substantive frames, numerous scholars have shown that individuals' policy attitudes differ depending on which core value or general policy area a proposal is linked to (e.g. free speech vs. public safety, environment vs. economy) (Chong 1993; Nelson, Clawson, and Oxley 1997; Kellstedt 2000; Brewer 2003; Haider-Markel and Joslyn 2001; Nelson and Oxley 1999; Gamson and Modigliani 1989). In contrast to this focus on public opinion, much of the research into strategy frames has focused on demonstrating their role in demobilizing (Crigler, Just, and Belt 2006; Cappella and Jamieson 1997), polarizing (Crigler, Just, and Belt 2006), and/or evoking lower levels of trust and higher levels of cynicism and negative attitudes about politics among citizens (de Vreese 2004, 2005; de Vreese and Elenbaas 2008; Cappella and Jamieson 1996, 1997; Valentino, Buhr, and Beckmann 2001).

In addition to looking at whether substantive and strategy frames influence the public, many of these studies have also taken into account the possibility that the presence or magnitude of these effects depends on other factors, such as political predispositions and political knowledge and sophistication. In doing so, this research draws on Zaller (1992, 1996) and others (e.g. Krosnick and Kinder 1990; Nelson, Oxley, and Clawson 1997) who have looked at the pervasive impact these variables have on how citizens process and use political information. Specifically, Zaller posits that predispositions will come into play in terms of whether or not individuals receive and accept considerations, with people more likely to seek out sources and take in information that comes from sources with whom they share a partisan affiliation and/or other characteristics. Additionally, Zaller argues that those 'in the middle' in terms of political sophistication will be the most affected by new information, as they pay enough attention to politics to be exposed to it (unlike those lower on the sophistication scale) but do not hold such strong predispositions and prior opinions that the information is unlikely to have an effect (unlike those higher on the sophistication scale).

The application of these theories has yielded mixed results in terms of research on the effects of substantive and strategy frames. Using a lab experiment, Valentino et al. (2001) find that both partisan identification and education level determine whether or not strategy frames have negative effects on citizens, with those with less education and no partisan identification strongly influenced while their more-educated and partisan peers were largely unaffected.

Haider-Markel and Joslyn (2001) show similar results – that less-sophisticated and nonpartisan individuals are more susceptible to framing effects – in a survey experiment focusing on the substantive framing of gun policy. On the other hand, Brewer (2003) finds an interaction for political knowledge in terms of the effects of certain substantive frames but not others, and Criger et al. (2006) find that strategy frames have the greatest impact on increasing cynicism for Republicans, in contrast to Democrats or Independents.

In this paper, we attempt to shed further light on this debate over interactions with predispositions and sophistication in addition to offering a direct test of the effects of substantive and strategy frames. Here, we term these framing categories 'policy' and 'process' to better reflect a policymaking (as opposed to campaign) context. Policy frames, like the substantive frames described above, evoke ideas or concerns about the issues, problems, and potential solutions at hand (e.g. 'access,' 'underinsured'). In contrast, process frames concern the path health care legislation took to passage and the various actors who influenced it along the way (e.g. 'pharmaceutical companies,' 'reconciliation').

Our empirical expectations depend on the frame type. For policy frames, we expect that periods of heightened media focus will result in polarization along party lines as citizens pick up on elite position-taking. In contrast, prior studies give us reason to believe that a focus on process will lead to less confidence in health care reform.

H₁: Greater policy frame centrality will result in greater polarization between the opinions of Democrats and Republicans.

H₂: Greater process frame centrality will result in less-positive attitudes about health care reform.

We also expect that the above effects will differ depending on political sophistication and predispositions. We operationalize the former using education, following Price and Zaller's (1993) recommendation to use this measure when a set of general political knowledge questions is unavailable. For predispositions, we focus on partisan identification. For both, we expect those 'in the middle' of the spectrum (i.e. moderate education or independent) to display the greatest effects.

H₃: The magnitude of the effects of both policy and process frame centrality will be higher among citizens in the middle of the education range than among those at either end of this spectrum.

H₄: The magnitude of the effects of process frame centrality will be higher among independents than among partisans.

In addition to testing the above hypotheses, this paper also brings a new method to the study of political communication and public opinion: social network analysis (SNA). Social network analysis has been increasingly applied to political questions, including various aspects of the legislative process (Fowler 2006a, 2006b; Porter et al. 2007; Porter, Onnela, and Mucha 2009; Ringe, Victor, and Gross 2009), interest group coalitions (Box-Steffensmeier and Christenson 2009; Grossmann and Dominguez 2009; Robbins 2009), and the use of legal precedents in Supreme Court decisions (Fowler and Jeon 2008). Although policy and process frames are clearly not humans who interact socially in the same ways that politicians do, one can think of them as 'interacting' in terms of being combined in different ways across multiple 'events' (here defined as newspaper articles).

By viewing media frames through a network lens, one is able to gauge their prominence through more sophisticated means than by classifying stories as focused on one or both types of frames or counting the number of times a particular frame appears. Specifically, in this paper we use eigenvector centrality (described in more depth below), a measure that takes into account the number of times a frame appears in an article with other frames, giving greater weight when those other frames are themselves more central. As a result, we are able to measure the extent to which a frame or a category of frames permeated the information environment and separate those frames that appeared only in stories with a specialized focus from others that popped up in stories on a wider range of topics.

Data and Method

In order to determine the effects of policy and process frames on public attitudes regarding health care reform, we combine data from two sources: Lexis-Nexis and the Kaiser Family Foundation Health Tracking Poll. The latter is a monthly (previously bimonthly) survey that focuses on health-care issues and includes a wide range of questions related to health reform. For this paper, we use the eight surveys currently available through the Roper Center for Public

Opinion Research: February 2009, April 2009, and surveys for each month from June to November 2009. We plan to incorporate additional polls into our analysis as they become available to the public.²

Our other data source – Lexis-Nexis – allowed us to compile an extensive database of newspaper coverage of health care reform from February to November 2009. Specifically, we searched a set of 144 daily, U.S., English-language newspapers that focus on general news coverage (as opposed to industry-specific concerns).³ These newspapers represent a very large range of market sizes, from national powerhouses such as *The New York Times* to *Today's Sunbeam*, a paper that serves Salem County, New Jersey, southeast of Wilmington, DE. As a result, we are confident that our study captures the overall dynamics of media coverage rather than being slanted in favor of Beltway elite sources. We compiled all stories in these newspapers that had the keywords "Health Care Reform" and/or "Obama Health Care Reform" as major terms. The searches were conducted so that we created a separate set of articles for the week prior to each survey date. For example, the June 8 set of articles contains coverage from all sources between June 1 and June 7. A week was selected as the time interval based on research that demonstrates the power of the recency of considerations in shaping survey responses (Zaller 1992).

The sets of newspaper articles were then parsed into individual articles using a Perl script and processed using the tm and sna packages in R. Before using tm (a text-mining package), we first created a dictionary of frames that we believed would appear in coverage of health care reform and categorizing each as either a 'policy' or a 'process' frame. Policy frames were defined as those that captured substantive aspects of health care reform, such as 'cost shifting' or 'individual mandate,' and key policy targets ('children'). Process frames indicate features of the legislative process, such as particular coalitions ('blue dogs'), strategic actions ('town hall'), and interest groups ('big business'). Using tm, we parsed each article and matched the terms to our frame dictionary. We then constructed affiliation matrices for each day of coverage in which each cell indicates the frequency with which a frame appears with another frame in a newspaper

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² The Kaiser Health Tracking Poll is funded by the Henry J. Kaiser Foundation and conducted by Princeton Survey Research Associates International. Each poll uses a national adult sample drawn using random-digit dialing of both landline and mobile telephone numbers.

³ A list of these publications is included in Appendix B.

⁴ A complete list of all 152 frames, their classifications as policy or process, and alternative wordings that were accounted for is included in Appendix C.

story. We recoded terms appearing multiple times within a single article as 1. Thus, the affiliation matrix was a 152 x 152 matrix where each column and row represents the frame. This bi-modal network representing the affiliation of a set of frames with a set of newspaper articles on health care reform can then be analyzed using standard network analysis techniques (Wasserman and Faust 1994).

These matrices were used by the sna package to calculate eigenvector centrality, one of multiple measures of centrality employed in social network analysis. Eigenvector centrality is a 'closeness' measure; in contrast to 'degree' measures of centrality, closeness measures take into account the position of the node in relation to the entire network rather than just the number of direct ties. Specifically, eigenvector centrality weights links to globally 'important' nodes more than it weights links to nodes with local prominence (Bonacich 1972; Wasserman and Faust 1994). Figure 1 provides an illustration of this concept using the frame network from February 5, 2009.⁵ In this network, the 'exchange' and 'choice' nodes would have the same score for degree centrality as each is linked to one other node. However, the 'exchange' node would have higher eigenvector centrality because the node it is linked to ('single payer') is linked to another node, which is then linked to many other nodes, while the 'choice' node is linked a node ('history') that is not linked to any other nodes.

[Figure 1 about here]

In the context of media content, eigenvector centrality allows us to gauge the extent to which a frame is central not only in articles about specific aspects of health policy but in newspaper coverage as a whole. This measure also has the advantage of taking the size of the network into account, which allows us to control for the fact that discourse was considerably more complex in the later months of 2009 than in February and April. Since in this paper we are interested in comparing the effects of policy and process frames on public opinion, we average the non-zero eigenvector centrality scores within each of the two categories for each survey day. Thus, each Kaiser poll participant is assigned a value that reflects the average policy frame centrality for the week prior to their survey date and a similar value for process frame centrality.

⁵ This example was chosen due to the simplicity of the February networks; the frame networks in other months are far more complex due to rising prominence of health reform on the national agenda.

The first step in our empirical analysis involves looking at the dynamics of framing in newspaper coverage as the debate progresses. We do this through descriptive statistics and an OLS model that allows us to determine whether there are statistically significant differences in the prominence of policy and process frames as the policy process progresses. In addition, we provide a brief overview of the most-central specific policy and process frames in each month.

In the second stage of the analysis, we use the Kaiser surveys to investigate the effects of these frames on public opinion. Specifically, we focus on citizens' responses to the following question:

Do you think the country as a whole would be (better off) or (worse off) if the president and Congress passed health care reform, or don't you think it would make much difference?

Kaiser does not ask a straightforward question regarding general support for or opposition to health care reform, although it does ask such questions about particular components of health policy (e.g. Cadillac tax, expanding coverage). As a result, the above question is the best measure of general attitudes toward health reform. In addition, this question offers the advantage of being asked on every survey, while the more specific questions enter and leave the poll protocol as their prominence in the debate rises and falls. We use ordered probit analysis to determine which factors shape responses to this question. In order to pick up the potential for partisans to polarize in their opinions, we interact the key independent variables (the mean eigenvector centrality of policy and process frames) with partisan identification. We also include a number of key control variables (insurance status, education, age, income, and race) in the model and cluster the standard errors by month to account for any systematic errors among the polls. The most notable omission in our model is a control variable for ideology, as the Kaiser Foundation did not consistently include a question for ideology in its polls. In order to address the question of differential effects depending on general political sophistication, we estimate the model once for all respondents and once each for those at a low (high school or less), moderate (some college or technical school), or high (college graduate and above) level of education.

Results

We begin with a descriptive look at the dynamics of process and policy frame dominance in the health care debate. Recall that the measures used here are two averages computed for each survey date: the mean of all non-zero eigenvector centrality scores for policy frames for newspaper articles published in the week prior to the survey date, and the same for process frames. Figure 2 displays boxplots of these two measures broken down by survey month. As one would expect, policy frames dominate in February, when media coverage was focused on President Obama's general goals for reform rather than the politics surrounding the issue. Indeed, the four most central frames in this time period, as shown in Figure 3, all spoke to broad policy goals: 'universal,' 'access,' 'uninsured,' and 'children.' The balance shifted toward process in April, primarily due to the 'bipartisan' frame leaping to the top of the centrality ranking after not appearing in the top 15 in February and the related focus on 'compromise.' In addition, the Kaiser survey entered the field just before the April 13 decision in the highly contested Minnesota Senate race, which likely accounts for the high centrality for the 'filibuster' frame, given that Al Franken's win gave the Democrats the 60 votes needed to invoke cloture.

In June and July, Congress was involved in bill markup and committee passage, while the president publicly battled with Republican leaders about the appropriate role of the federal government in health care. Throughout this phase of the debate, policy frames such as 'single payer' and 'private insurers' were most central, although process tropes such as 'bipartisan' and 'compromise' continued to have a presence. During the August congressional recess, the conservative challenge to direction reform was taking is seen in the emergence of frames such as 'obamacare' and 'government takeover,' and the increasing centrality of 'choice.' The significant media attention to the town hall meetings held across the nation is also seen in the high centrality of this frame in August and September. In the last three months covered by this study (September, October, and November), policy frames barely edged out process frames in centrality. One can see the prominence of the public option in all three months, in addition to themes such as 'partisan' and 'nonpartisan' as Congress debates legislation.

In addition to looking at these descriptive depictions of the shifting focus of newspaper coverage of the health care debate, we also estimated an OLS model to test whether there were statistically significant differences in the centrality of policy and process frames in each survey period. The results, displayed in Table 1, show that policy frames clearly dominated in February

(the omitted category), June, and August (although to a lesser degree in this month). In July, October, and November, policy frames were only slightly more central than process frames; and in September the two were basically equal in prominence. Comparing these results to Figure 2, one can see that although the inter-quartile range (IQR) for process frames is at times wider than the IQR for policy frames, there are typically many more outliers among the policy frames, thus explaining why policy concerns were more central in all time periods.

[Table 1 about here.]

Building on this variation in the prominence of both policy and process frames, we use an ordered probit model to estimate the effects of frame centrality on citizens' perceptions that health care reform will benefit the nation. Recall that for both policy and process frames, our expectation is that greater centrality will lead to more polarization between Democrats and Republicans as the competing party messages become clearer to the public. In addition, we test for an interactive effect of education by estimating the general model three additional times: once for those with a low level of education (high school or less), once for those in the middle of the education spectrum (some college or technical school), and once for those with high education (college graduate or higher). The results of all models are shown in **Table 2**.

[Table 2 about here.]

Starting with the first model, which includes individuals of all educational backgrounds, policy frame centrality had a statistically significant, positive effect for citizens of all partisan affiliations, although this effect was strongest for Republicans. In contrast, process frame centrality only had an effect on Republicans, although once again this effect was positive, indicating a greater sense that reform will be beneficial. The magnitude of these effects are illustrated in **Figure 4** and **Figure 5**, which display the predicted probability of a respondent picking each response category across the entire range of mean centrality scores, broken down by partisan identification (all other variables are set at their means, or, in the case of categorical variables, their medians). As can be seen in the top frame of both figures, Democratic support and opposition remained relatively stable no matter how central policy and process frames were in media coverage. On the other hand, Republicans are much more influenced by changing

centrality levels, particularly in the case of policy frames, with a 0.35-point shift for both the 'better off' and 'worse off' categories between the centrality extremes.

[Figure 4 and Figure 5 about here.]

Certainly none of these results offer support for our hypothesis that partisans will polarize when policy or process frames come to the fore in newspaper coverage. Instead, it appears that Democrats were relatively unmoving in their attitudes toward health care reform, and Republicans, perhaps paradoxically, moved toward more positive opinions when either policy or process frames became more central. One explanation for this pattern is that Republicans were simply more supportive in the early stages of the health care debate and February and April had generally high centrality scores when compared to other months. However, the coefficients for the Republican interaction terms for both policy and process frame centrality maintain their direction and statistical significance even if these two months are dropped from the model. Instead, it is likely that Republicans responded in this way because many of the events that occurred in this period could easily be viewed as Republican victories in terms of moving health reform in a more centrist direction, while Democrats may have been frustrated that moreprogressive options, such as a single-payer system, did not remain on the bargaining table for long. In other words, our results indicate the challenges of discerning what one should expect from greater policy or process centrality in terms of interactions with partisan identification, given that the centrality of a frame such as 'public option' could evoke more positive attitudes from either Republicans or Democrats depending on the actual context in which that frame is being evoked. Although we are unable to pursue a more contextual analysis of the effects of specific frames in this paper, we plan to do so in future analyses.

Turning back to **Table 2** and looking again at the overall model, there is also an interesting result among the control variables: insurance status has no effect on attitudes toward health reform. Rather than basing their opinions on self-interest, citizens appear to be influenced by political affiliations (the indicators for Democrats and Republicans are statistically significant and in the expected directions) and demographics, with higher-income, older, and white

individuals perceiving reform as less beneficial to the nation.⁶ Notably, the variable for education is not statistically significant.

Education is a significant factor, however, in determining the effects of policy and process frame centrality. Turning to the education-specific models in **Table 2**, it appears that there is a three-way interaction among the centrality of policy frames, education level, and partisan identification. For independents, greater policy centrality affected those at all levels of education, although the magnitude of this effect is greatest for those in the middle category, as expected given current understandings of the effects of political sophistication on the effects of political information. However, the coefficients for Democrats and Republicans are relatively equal across all levels of education. We are unable to explain this puzzling result, although it may be due in part to the extremely high public prominence of this issue (which would lead to greater attention from the less sophisticated than one would normally find) and the fact that what 'health care reform' meant concretely shifted significantly during this phase of the debate (which would explain attitude instability among the most educated).

In contrast to the somewhat muddled results for the interaction between policy frame centrality and education, the interaction between process frame centrality and education is in line with our expectations. The interaction terms in **Table 2** show that process frame centrality has no effect on those at either end of the educational spectrum but has a statistically significant influence on those with a moderate level of education. In addition, the direction of this relationship depends on the partisan identification of the respondent. These relationships are displayed in **Figure 6**, **Figure 7**, and **Figure 8**.

[Figure 6, Figure 7, and Figure 8 about here.]

Figure 6 shows predicted probabilities for those with a low level of education. As indicated by the coefficients, there are no statistically significant effects of process centrality on this group, despite the fact that one might assume a positive effect for Republicans after looking at the predicted probability graphs. **Figure 8** offers a much clearer look at a lack of effect for policy frame centrality. For those of all political persuasions, media coverage of political wrangling appears to have absolutely no affect on attitudes toward health care reform. Finally,

⁶ The findings for income and age are consistent with Gelman et al.'s (2010) analysis of public attitudes toward health care reform.

Figure 7 offers a look at those in the middle of the education spectrum. Notably, increased process frame centrality has a positive effect on the attitudes of Democrats and Republicans but a negative effect on independents, thus lending empirical support to the idea that independents are more likely to be turned off by political wrangling.

In sum, the evidence was mixed in terms of supporting our hypotheses. Perhaps the most important overall findings were that predispositions and sophistication proved to be key mediating factors in determining whether and how policy and process frames impacted the public, as proposed in H₃ and H₄. Democrats appeared relatively unmoved throughout the process even with fluctuations in how the debate was framed in the media, while there was some movement among independents and Republicans. The significance of partisan predispositions is consistent with prior research that has emphasized the need to control for predispositions to properly assess the nature and extent of framing effects (J. N Druckman 2008; Haider-Markel and Joslyn 2001). Although these results need further examination, it may be that many Democrats may have felt obligated to maintain their public support for reform regardless of events in the public debate, while Republicans displayed positive responses to policy 'wins' (e.g. dropping the public option) and independents were highly sensitive to process frames.

Our expectation about political sophistication – that those 'in the middle' would display the greatest effects from changes in the information environment – found evidence in terms of our analysis of the effects of process frames but not for policy frames. Low- and highly-educated individuals did not appear influenced by the media prominence of the lawmaking process, most likely because the former were not paying enough attention and the latter had opinions that were not susceptible to the effects of non-substantive frames. Those with a moderate level of education, in contrast, were affected in ways that were also linked to their partisan affiliations, with Democrats and Republicans rallying behind their teams and independents turned off by political battles. Thus, our primary hypotheses – that greater centrality for policy frames would lead to polarization by partisanship and that greater centrality for process frames would lead to more negative attitudes about health care reform – did not prove true across the board. Instead, these effects appeared only for specific partisan and educational subgroups.

Conclusion and Next Steps

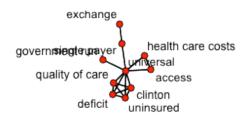
Public opinion is central to the functioning of democracy. The quality of representation is often judged by the extent to which public policy reflects citizen preferences (Erikson, Wright, and McIver 1994; Erikson, Mackuen, and Stimson 2002; Page and Shapiro 1992). While public opinion on the issue of health care reform is rooted in many sources beyond those captured by the frames offered by the media, the manner in which journalists portrayed this policy debate helps explain some of the movement in public opinion among particular segments of the mass public. Given that the prominence of particular media frames is driven in part by the actual policy debate, it appears that at least some citizens were influenced by the substantive and procedural themes and events that emerged during this lengthy policymaking process.

This paper focuses on the distinction between policy and process frames; however, there are a variety of other ways in which we could use social network analysis to expand on the study of how media framing influenced public opinion in the context of health care reform. Most notably, we do not code our dictionary of frames in terms of their associations with the pro- or anti-reform positions or investigate their connections to specific political actors, such as President Obama. These factors are likely to moderate the public's willingness to accept and use information and exploring them may also shed light on the elite framing strategies employed in this policy debate. Furthermore, the methods and data used in this paper allow us to track the prominence of specific frames (e.g. 'public option,' 'bipartisanship') and link them to questions on the Kaiser polls that pick up on public preferences about particular aspects of health reform, in contrast to the more general attitudes explored here.

The substantive contributions of this paper are primarily to provide further evidence for already established theories about the relationship between the media framing and public attitudes, particularly the fact that predispositions and political sophistication play key mediating roles. Yet we also hope that this paper has demonstrated the potential for social network analysis to contribute to the analysis of these phenomena. By moving beyond story-level coding and frame counts to a more complex measure of centrality, we believe that network analysis provides a novel and valuable approach to gauging how the information environment shapes the public's involvement in and reactions to the policymaking process.

Appendix A: Tables and Figures

Figure 1. Network of Frames for February 5, 2009





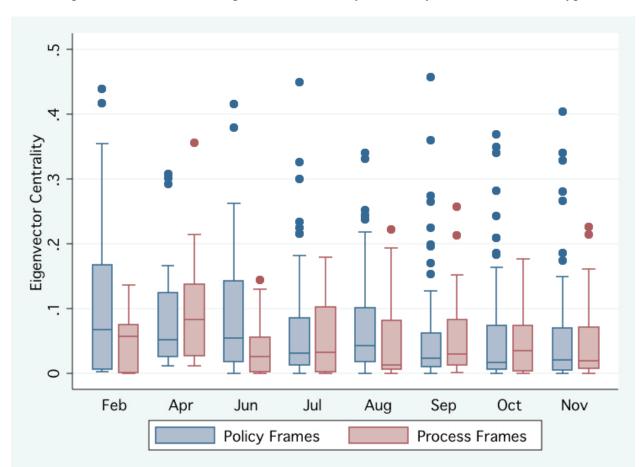


Figure 2. Distribution of Eigenvector Centrality Scores, by Month and Frame Type

Figure 3. Most Central Frames in News Coverage, February-November 2009

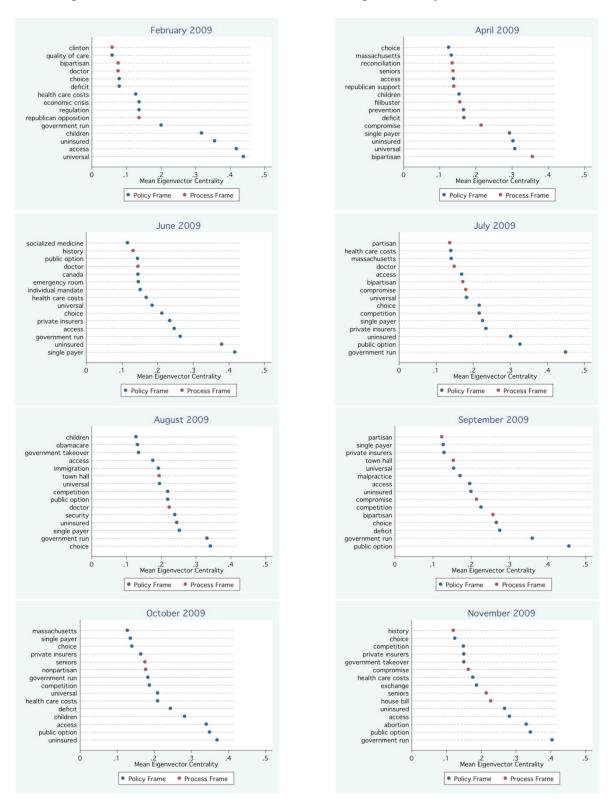


Table 1. Frame Eigenvector Centrality as a Function of Frame Type and Month (OLS Estimates)

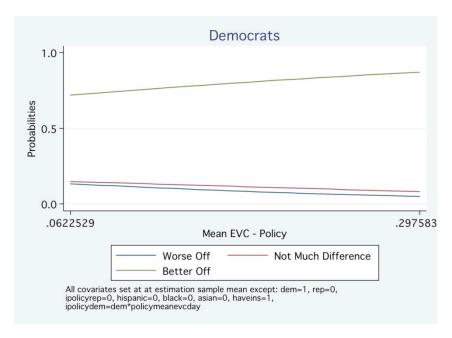
Variable	Coefficient	(Std. Err.)
Policy Frame	0.071***	(0.019)
Policy * Apr 09	-0.101***	(0.023)
Policy * Jun 09	-0.031	(0.024)
Policy * Jul 09	-0.056**	(0.022)
Policy * Aug 09	-0.041*	(0.022)
Policy * Sep 09	-0.067***	(0.021)
Policy * Oct 09	-0.050**	(0.022)
Policy * Nov 09	-0.059***	(0.022)
April 2009	0.022	(0.021)
June 2009	-0.026	(0.022)
July 2009	-0.035^*	(0.020)
August 2009	-0.052***	(0.019)
September 2009	-0.045**	(0.019)
October 2009	-0.048**	(0.019)
November 2009	-0.046**	(0.019)
Intercept	0.112^{***}	(0.017)
N		3495
\mathbb{R}^2		0.063
$F_{(15,3479)}$		15.695
Significance levels :	*: p<0.10 **: p<0.05 ***: p<0.01	

Table 2. Belief that Health Care Reform will Benefit the Nation as a Function of Policy and Process Frame Eigenvector Centrality and Partisanship (Ordered Probit Estimates)

	All	Low Ed	Mid Ed	High Ed
	(1)	(2)	(3)	(4)
Mean EVC - Policy	3.229 (0.546)***	2.831 (1.012)***	4.694 (0.694)***	2.648 (0.762)***
Policy EVC * Dem	896 (0.768)	0.713 (1.103)	-3.040 (1.726)*	400 (2.070)
Policy EVC * Rep	2.162 (0.765)***	3.199 (1.050)***	1.043 (1.602)	2.567 $(1.324)^*$
Mean EVC - Process	346 (1.183)	1.509 (2.005)	-3.013 (1.299)**	0.088 (0.583)
Process EVC * Dem	0.649 (0.784)	-2.756 (1.832)	4.300 (0.819)***	0.514 (2.858)
Process EVC * Rep	1.620 (0.493)***	1.362 (1.309)	4.905 (1.793)***	0.131 (0.847)
Democrat	0.73 $(0.14)^{***}$	0.672 $(0.258)^{***}$	0.663 $(0.251)^{***}$	0.875 $(0.167)^{***}$
Republican	948 (0.137)***	-1.042 (0.169)***	-1.096 (0.279)***	834 (0.186)***
Currently Insured	080 (0.086)	134 (0.084)	030 (0.123)	0.093 (0.142)
Education (Years)	$\underset{(0.01)}{0.014}$			
Income (Thousands)	002 (0.001)*	004 (0.002)*	003 (0.002)*	001 (0.0009)
Age (Years)	003 (0.0008)***	005 (0.001)***	004 (0.002)**	0.00003 (0.002)
Hispanic	0.243 $(0.048)^{***}$	0.252 $(0.051)***$	0.247 $(0.135)^*$	0.092 (0.12)
African American	0.287 $(0.072)^{***}$	0.293 $(0.152)^*$	0.148 (0.058)**	0.443 $(0.102)^{***}$
Asian/Asian American	0.286 (0.098)***	164 (0.206)	0.158 (0.299)	0.618 $(0.13)***$
$ au_1$	318 (0.276)	756 (0.287)***	589 (0.214)***	087 (0.257)
$ au_2$	0.214 (0.245)	050 (0.273)	053 (0.196)	0.314 (0.244)
Obs.	6912	2246	2018	2659
χ^2 statistic	118.476	752.382	885.208	219.501

^{*:} p<0.10, **: p<0.05, ***: p<0.01

Figure 4. Predicted Probability of Believing Health Reform Will Make Nation Better Off as a Factor of Policy Frame Prominence and Partisan Identification



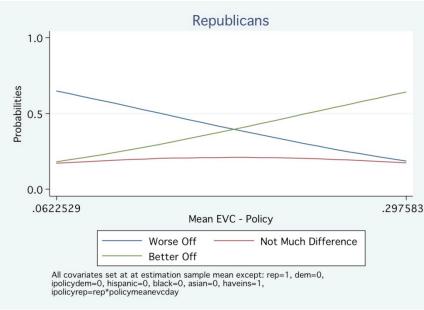


Figure 5. Predicted Probability of Believing Health Reform Will Make Nation Better Off as a Factor of Process Frame Prominence and Partisan Identification

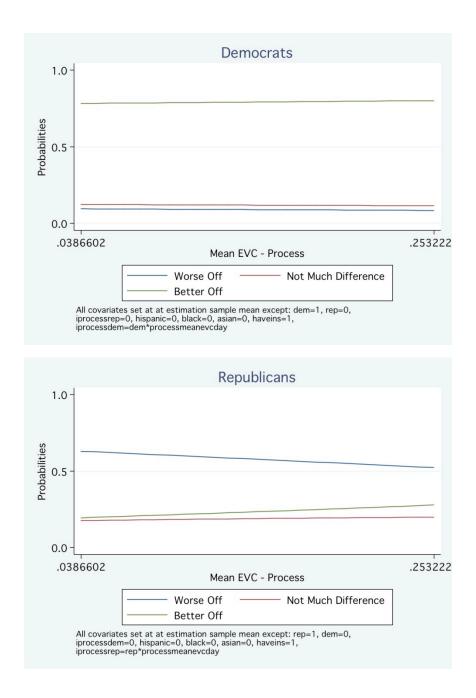


Figure 6. Predicted Probability of Those with a Low Level of Education Believing Health Reform Will Make the Nation Better Off as a Factor of Process Frame Centrality and Partisan Identification

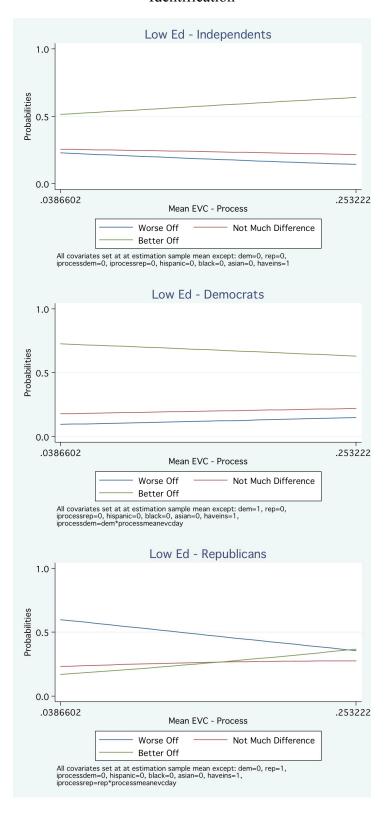


Figure 7. Predicted Probability of Those with a Moderate Level of Education Believing Health Reform Will Make the Nation Better Off as a Factor of Process Frame Centrality and Partisan Identification

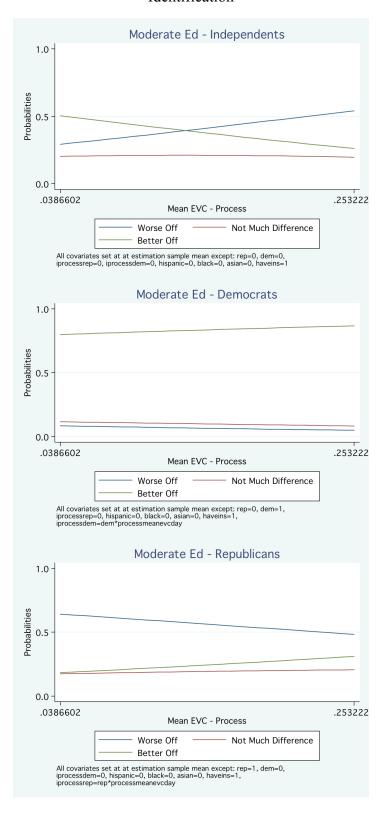
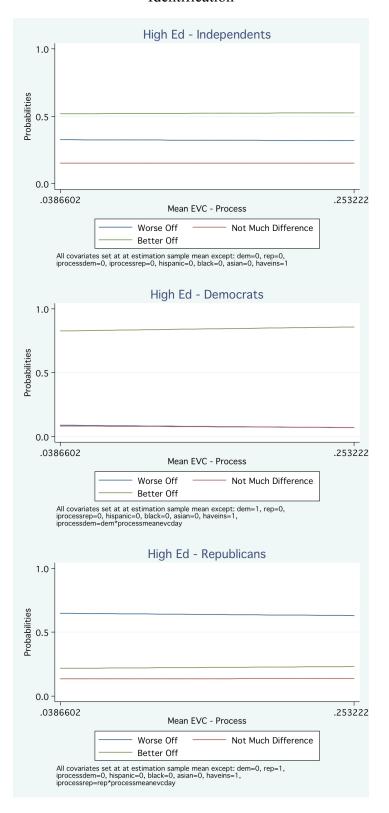


Figure 8. Predicted Probability of Those with a High Level of Education Believing Health Reform Will Make the Nation Better Off as a Factor of Process Frame Centrality and Partisan Identification



Appendix B: List of Newspapers

Advance Publications Newspapers (Includes: Ann Arbor News (Michigan), Bay City Times (Michigan), Birmingham News, Eastern Express Times (Pennsylvania), Flint Journal (Michigan), Gloucester County Times (New Jersey), Grand Rapids Press (Michigan), Huntsville Times (Alabama), Jersey Journal (New Jersey), Kalamazoo Gazette (Michigan), Mobile Register (Alabama), Muskegon Chronicle (Michigan), Patriot News (Harrisburg, Pennsylvania), Saginaw News (Michigan), Springfield Republican (Massachusetts), Staten Island Advance (New York), The Oregonian, The Plain Dealer, The Post-Standard (Syracuse, NY), The Star-Ledger (Newark, New Jersey), The Times-Picayune, Today's Sunbeam (New Jersey))

The Advocate (Baton Rouge, Louisiana)

The Albuquerque Journal

Arkansas Democrat-Gazette

The Atlanta Journal and Constitution

The Augusta Chronicle

The Austin American-Statesman

Bangor Daily News (Maine)

The Bismarck Tribune

The Boston Herald

The Buffalo News

The Capital (Annapolis, MD)

Capital Times (Madison, WI)

Charleston Daily Mail

The Charleston Gazette

Chattanooga Times Free Press

Chicago Daily Herald

Chicago Sun-Times

The Christian Science Monitor

The Columbian (Vancouver, WA)

The Columbus Dispatch

The Daily News of Los Angeles

Dayton Daily News

The Denver Post

Deseret Morning News (Salt Lake City)

The Florida Times-Union

Fort Wayne News-Sentinel (Indiana)

Grand Rapids Press (Michigan)

Herald News (Passaic County, NJ)

The Herald-Sun

The Houston Chronicle

Idaho Falls Post Register

Intelligencer Journal/New Era (Lancaster, Pennsylvania)

Jackson Citizen Patriot

Las Vegas Review-Journal

The Ledger (Lakeland)

Lewiston Morning Tribune

MediaNews Group Pubs (Includes: Alameda Times-Star (Alameda, CA), Brattleboro Reformer (Vermont), Connecticut Post Online, Contra Costa Times, Deming Headlight (New Mexico), El Paso Times (Texas), Enterprise Record (Chico, California), Eureka Times-Standard (California), Fairbanks Daily News-Miner (Alaska), Farmington Daily Times (New Mexico), Inland Valley Daily Bulletin (Ontario, CA), Inside Bay Area (California), Las Cruces Sun-News (New Mexico), Long Beach Press-Telegram (Long Beach, CA), Lowell Sun (Lowell, MA), Marin Independent Journal (Marin, CA), Monterey County Herald (CA), Oroville Mercury Register (California), Pasadena Star-News (Pasadena, CA), Public Opinion (Chambersburg, Pennsylvania), Ruidoso News (New Mexico), San Bernardino Sun (San Bernardino, CA), San Gabriel Valley Tribune (San Gabriel Valley, CA), San Jose Mercury News (California), San Mateo County Times (San Mateo, CA), Sentinel & Enterprise (Fitchburg, Massachusetts), Silver City Sun-News (New Mexico), St. Paul Pioneer Press (Minnesota), The Alamogordo Daily

News (New Mexico), The Argus (Fremont, CA), The Berkshire Eagle (Pittsfield, Massachusetts), The Daily Review (Hayward, CA), The Evening Sun (Hanover, PA), The Lebanon Daily News (Pennsylvania), The Oakland Tribune (Oakland, CA), The Salt Lake Tribune, The York Dispatch (York, PA), Tri-Valley Herald (Pleasanton, CA), Vallejo Times-Herald (California), Whittier Daily News (California))

The Milwaukee Journal Sentinel

The New York Post

The New York Times

News & Record (Greensboro, NC)

Newsday (New York, NY)

The Palm Beach Post

The Pantagraph

The Patriot Ledger

The Philadelphia Daily News (PA)

The Philadelphia Inquirer

Pittsburgh Post-Gazette

Pittsburgh Tribune Review

Portland Press Herald

The Post and Courier (Charleston, SC)

The Press Enterprise

The Providence Journal-Bulletin

The Record (Bergen County, NJ)

Richmond Times Dispatch

The Roanoke Times (Virginia)

San Antonio Express-News

San Diego Union-Tribune

The San Francisco Chronicle

The Santa Fe New Mexican

Sarasota Herald-Tribune

South Bend Tribune

The Spokesman-Review

St. Louis Post-Dispatch

St. Petersburg Times

Star Tribune (Minneapolis MN)

Star-News (Wilmington, NC)

The Tampa Tribune

Telegram & Gazette (Massachusetts)

Telegraph Herald (Dubuque, IA)

The Times of Trenton (New Jersey)

The Times Union (Albany, NY)

Topeka Capital-Journal

Tribune-Review

The Tulsa World

The Union Leader

USA Today

The Virginian-Pilot (Norfolk, VA)

The Washington Post

The Washington Times

Winston-Salem Journal

Wisconsin State Journal

The Wyoming Tribune-Eagle

Appendix C: Frame Dictionary

Key Term	Frame Type	Alternate Wordings
abortion	policy	hyde amendment; stupak amendment; stupak compromise; abortion amendment; federal funding of abortion
access	policy	accessibility; accessible
aging population	policy	baby boomers
alcohol tax	policy	tax on alcohol; taxes on alcohol; alcohol taxes
baby killer	process	
back to the drawing board	process	start over; kill the bill
bankruptcy	policy	medical bills
basic health plan	policy	minimal benefits; minimal coverage; catastrophic coverage; minimum coverage; catastrophic plan; basic coverage; basic health plans
bending the cost curve	policy	cost curve; cost containment
big business	process	corporation; business executives; ceos; ceo
bipartisan	process	bipartisanship
blue dogs	process	blue dog; blue dog democrat
Britain	policy	British; NHS; UK; United Kingdom; England; English; National Health Service
bureaucrat	policy	bureaucrats; government bureaucrats; government bureaucrat
cadillac tax	policy	cadillac; gold plated
Canada	policy	
children	policy	age 25; age 26; dependents
choice	policy	choose; limit choice
chronic conditions	policy	chronic illness; chronic condition
cigarette tax	policy	tax on cigarettes; taxes on cigarettes
Clinton	process	1992; 1993; 1994; early 90s; early 1990s; 1990s
clintoncare	process	hillarycare
competition	policy	competitive
compromise	process	concession; concede; concedes; compromises; compromised
constitutional	policy	Constitution; unconstitutional
consumer groups	process	
copays	policy	co pays; copay; co pay; out of pocket; deductible; deductibles
cornhusker kickback	process	
cost cutting	policy	cost saving; reining in costs; rein in costs
cost effective	policy	
cost shifting	policy	
create jobs	policy	
death panel	policy	
defensive medicine	policy	defensive doctor

deficit	policy	
deficit neutral	policy	financially sound
delivery system	policy	
Democratic opposition	process	opposition from democrats; dissent among democrats
democratic support	process	support from democrats
deny coverage	policy	denied coverage
doctor	process	AMA; American Medical Association; physician; doctors; physicians
doctor patient relationship	policy	relationship between patients and doctors
doctor shortage	policy	physician shortage; provider shortage
donut hole	policy	doughnut hole; coverage gap; medicare part d
drug costs	policy	cost of prescription drugs; generics
economic crisis	policy	economy; recession; make ends meet; making ends meet
electronic records	policy	electronic medical records; emr; health information technologies
emergency room	policy	ER; emergency department
employer based	policy	employer provided; employer sponsored; portability
employer mandate	policy	require employers; requiring employers
Europe	policy	European
euthanasia	policy	
exchange	policy	exchanges; insurance exchange; health exchange; health care exchange; federal exchange; state exchange
executive order	process	
expand CHIP	policy	expand SCHIP; expanding CHIP; expanding SCHIP
expand eligibility	policy	
expand Medicaid	policy	expanding Medicaid; medicaid expansion
expand Medicare	policy	Medicare expansion; expanding medicare
expansion of coverage	policy	expanding coverage; expand coverage
expensive tests	policy	expensive procedures; expensive treatments
fee for service	policy	doctors fees
filibuster	process	cloture; supermajority
financing	policy	paying for reform; paying for health care reform
fraud	policy	waste; compliance plan; whistleblower
freedom	policy	
gang of eleven	process	stupak eleven; stupak 11; gang of 11
gang of six	process	
government run	policy	government sponsored; government administered
government takeover	policy	
grassroots	process	grassroot; grass roots
Harry and Louise	process	
health care costs	policy	rising costs; escalating costs; high cost of care; cost of care; cost of health care; too expensive; sixth of American economy; sixth of US economy

	1	
health disparity	policy	health disparities
heritage foundation	process	
history	process	historic; landmark
house bill	process	hr 3200; hr3200; house plan; pelosi bill; tricommittee bill; tricommittee draft
immigration	policy	immigrants; illegal immigrant; illegal immigration; illegal immigrants
incivility	process	lack of decorum; civility
income tax	policy	
individual mandate	policy	require individuals; require all Americans; requiring individuals; requiring all Americans
invincible youth	policy	
liberty	policy	
lifetime cap	policy	cap on benefits; lifetime limit
limit deductions	policy	limit charitable donation deductions; limit deduction for chartiable donations
limit medicare payments	policy	limit medicare reimbursements; regional disparaties in reimbursement rates
long term care	policy	class act
malpractice	policy	standard of care; medical liability; tort reform
Massachusetts	policy	
medical mistakes	policy	medical errors
medicare for all	policy	
medicare solvency	policy	solvency of medicare; medicare going bankrupt
millionaire tax	policy	
Nebraska	process	
nonpartisan	process	
obamacare	policy	
obesity	policy	obese
partisan	process	
party of no	process	
pharma	process	pharmaceutical companies; drug company; drug companies; drug lobby; pharmaceutical company; pharmaceutical industry; phrma
playing politics	process	
pooling risk	policy	
preexisting condition	policy	preexisting; prior illness
prevention	policy	preventable; wellness; preventive; behavior modification
private insurers	policy	insurance companies; private insurance
private market	policy	market; market system; marketplace
process is broken	process	broken process
public opinion	process	public opinion poll; polling; public support; public opposition; public protest; public outcry; public dissent; public opinion polls
public option	policy	public plan; government option; government plan; government health care plan; government health care option; national plan; national health plan; public insurance option; public health insurance option
quality of care	policy	health care quality; quality of health care; care quality

ration	policy	rationing; rationed
real health reform	policy	real reform
reconciliation	process	budget reconciliation
red tape	policy	paperwork
regulation	policy	government regulation
Republican opposition	process	opposition from Republicans; obstruction
Republican support	process	support from Republicans
rescission	policy	rescinding; rescision; rescind
right to health care	policy	right to care; fundamental right
rights of the patient	policy	patients rights; privacy; patient rights
rising premiums	policy	escalating premiums
same insurance as congress	policy	same coverage as congress; same insurance as members of congress; same coverage as members of congress
security	policy	safety net
senate bill	process	senate plan; senate reform; baucus bill; kennedy bill
seniors	process	retirees; aarp; elderly
sgr	policy	sustainable growth rate; doctor fix; doc fix
single payer	policy	singlepayer
Slaughter solution	process	deem and pass; self-executing
small business owners	process	
small business subsidies	policy	small business subsidy; small business exemption
snack food tax	policy	tax on snack foods; taxes on snack foods; tax on unhealthy snacks; taxes on unhealthy snacks
socialized medicine	policy	socialism; socialist
soda tax	policy	tax on soda; taxes on soda; tax on soft drinks; taxes on soft drinks; soft drink tax; sugar tax
state option	policy	opt out; opt in
surcharge	policy	
Switzerland	policy	Swiss
tax credits	policy	
taxing benefits	policy	taxing health benefits
tea party	process	
town hall	process	
transparency	policy	
trigger	policy	
unaffordable	policy	ability to pay; affordable; able to pay; affordability; problems paying; problem paying
underserved	policy	rural
unemployment	policy	unemployed
unfunded mandate	policy	

uninsured	policy	underinsured; lost coverage; lost insurance; lost health coverage; lost health insurance
unions	process	labor union; organized labor; labor
universal	policy	
value added tax	policy	vat
Vermont	policy	
wait times	policy	wait for non emergency; wait time
you lie	process	

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