"The ISIS of Biological Agents": How Domestic Media Coverage of Ebola Can Overshadow International Response*

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EARLY WORKING PAPER: PLEASE DO NOT CITE

Abstract

The deluge of media coverage of the 2014-2015 Ebola outbreak in West Africa ranged from objective to ridiculous. Meanwhile, the global response to Ebola was slow and initially ineffective. Our paper is a descriptive analysis of Ebola media coverage in the United States, the single largest donor to the 2014 Ebola outbreak response. We examine media data from U.S. newspapers between January 1, 2013 and April 30, 2015 to study the constraints on donor response to the Ebola outbreak. First, we find absolute levels of news coverage tracks closely with the magnitude of the epidemic, but we also observe a substantial uptick in coverage after the first reported case in the United States on September 30th. Second, we find media coverage was primarily negative, especially in the early part of the outbreak, before affected countries received substantial support from donor countries. Content analysis of the media reports suggests the disconnect between heavy media coverage and relatively slow response is due not only to the negative tone of coverage but also to the preoccupation with a potential U.S. outbreak rather than the actual ongoing West African epidemic. One policy implication of our findings is the role domestic media coverage can play in shaping response to global health emergencies, especially in an era when bilateral donors provide the lion's share of funding.

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Background

Media coverage of the 2014 Ebola reached hysteria levels. On October 4, 2014, Professor Alexander Garza of the St. Louis University College of Public Health and Justice penned an Op-Ed for the New York Times in which he called Ebola "the ISIS of biological agents" (Garza, 2014). Two days later, he was a guest on the CNN show "Legal View with Ashleigh Banfield" (CNN.com, 2014). As Banfield interviewed Garza, the bottom of the screen read, "Ebola: The ISIS of Biological Agents?" The show generated a flurry of discussion about Ebola hysteria (Wemple, 2014). Earlier in the outbreak, popular U.S. news magazine *Newsweek* featured a cover story about how "Smuggled Bushmeat Could Spark a U.S. [Ebola] Epidemic." A bushmeat-sparked Ebola epidemic in the United States was incredibly unlikely, but the *Newsweek* cover story was representative of the negative media portrayal of Africa in the West (Dionne and Seay, 2016). These negative portrayals shape public perceptions and ultimately, can shape response to a public health epidemic.

These outrageous media reports came out as the world struggled to respond to Ebola. The World Health Organization (WHO) made a series of missteps in its response, deemed by analysts as "woefully inadequate" (Youde, 2015) who labeled WHO response a failure (Busby and Grépin, 2015). Though the WHO has been an unquestioned leader in international health since its formation following World War II, amidst funding shortages in recent years, the WHO no longer commands the authority it once did (Youde, 2012). Though many looked to the WHO to provide leadership in coordinating the response, the top financial contributors to the response were bilateral donors, who contributed 60% of donations (Grépin, 2015). As global health epidemics become increasingly funded by bilateral – rather than multilateral – donors, the domestic political contexts of major donors like the United States become more important.

It is easy to write off hyperbole like the 'ISIS of Biological Agents' for the fearmongering it is, but the way in which media reflects and frames public health issues

can significantly affect how a country responds to a real - or perceived - threat. International action is going to be constrained by domestic concerns (Putnam, 1988), and media coverage of the issue is going to affect domestic concerns [**cite**]. Media coverage can help place topics on the agenda, but once a topic has gained salience, *how* the issue is framed becomes particularly important. Media frames shape discourse around a topic, articulating not only what elements of the topic deserve attention, but what the dominant causes and preferred solutions are or should be (Entman, 1993). In the realm of health policies and practices, this can lead to a divide between what medical consensus is, and what the public and political actors see as being the right course of action (Daku, Gibbs and Heymann, 2012; Degeling and Kerridge, 2013).

Herein, we provide a descriptive analysis of Ebola media coverage in the United States, the single largest donor to the 2014 Ebola outbreak response. We examine media data from U.S. newspapers between January 1, 2013 and April 30, 2015 to identify possible domestic constraints on donor response to the Ebola outbreak.

Data & Methods

We examine coverage of Ebola between 2013-2015 in all available U.S. news sources from LexisNexis. The resulting dataset contains 8545 articles from 147 media outlets at both the national and state levels. Newspaper data was primarily analyzed using Lexicoder v.3.0 (Daku, Soroka and Young, 2015), a java package developed for automated text analytics. After downloading the texts from LexisNexis, Lexicoder's *pre* function was used to prepare the text for analysis (punctuation and special characters were removed, text was converted to lower-case, etc.). We then ran the text against two established dictionaries developed for Lexicoder: The Lexicoder Sentiment Dictionary (Young and Soroka, 2012), and the Lexicoder Topic Dictionary (Albaugh, Sevenans and Soroka, 2013). The LTD is based on the policy agendas project, and provides topic coding for 28 areas of policy focus. Finally, we construct a dictionary that cap-

tures possible policy responses to the epidemic (e.g. Quarantine, closing airports, etc.). Dictionaries were run using Lexicoder's *Dictionary Count (dc)* function, which simply returns a sum of the number of times a particular category is mentioned in a text.

[**Brief sentence on Content analysis more generally**]. Automated 'bag-of-word' approaches to analyzing large amounts of text are not new [cite some examples]. While the approach largely ignores context and is unable to capture sarcasm and humour, over a large enough dataset, patterns and trends in a corpus emerge that are difficult to capture using close readings, especially with exceptionally large datasets. Additionally, the approach is straight-forward and clear. By simply counting keywords and phrases, automated approaches are transparent, replicable, and do not depend on interpretations made by the researcher. While we do not claim that this approach will perfectly represent a corpus of text, using automated approaches for coding topics in lieu of using human coders is promising (Albaugh, Sevenans and Soroka, 2013), and produce insights that close readings and traditional content

Results

Frequency

Unsurprisingly, 2014 has the highest number of articles published containing the word 'ebola.' Only 58 (mean 5.3) articles discussed the disease in 2013, but in 2014 there are 7,012 articles, reaching a peak of 3,811 articles in October 2014 alone. As of May 2015, coverage of Ebola had dropped precipitously. Only 1475 articles were published in the first five months of 2015, down to a low of 22 articles in May, 2015. Across the country, media coverage of Ebola spiked significantly in October 2014 (see Figure 1, however there was significant variation in regional and national coverage frequency (see Figure 2). There was considerably more coverage in the Northeast (particularly in October 2014) than in other regions, and the Southwest reported on the issue the

least.

[Figure 1 about here]

[Figure 2 about here]

In October 2014, 730 articles (19.2%) mentioned Thomas Duncan by name, the first reported case of Ebola on American soil (see Figure 3). There were likely other stories in early October referring to this event that did not refer to Duncan by name. This single story corresponds with the highest level of coverage for Ebola in the entire dataset. Interestingly, coverage of Duncan in 2014 is much more prominent in the National and Northeastern papers than it is in the Southern coverage, even though Duncan was diagnosed in Texas (see Figure 4).

[Figure 3 about here]

[Figure 4 about here]

Tone

Using the LSD (Young and Soroka, 2012), we examine the net-difference in tone (number of positive words minus the number of negative words) per article. The results are presented in Figure 5. Coverage in 2013 is negative, and varies wildly, though it should be noted that the overall number of articles in 2013 is quite low (58). The results for 2014 are of the most interest. Articles in the dataset are consistently negatively toned throughout 2014, however after reaching a mean low of -18.75 in June, the tone of coverage increases steadily, reaching -4.39 by October 2014, and -0.92 by the end of the year. Beginning in April, 2015, the overall tone of articles shifts into positive territory.

[Figure 5 about here]

Examining tone differences between regions (see Table 1) suggests that in general, regions reported on Ebola in different ways. Of note is the fact that most regions did not report differently on Ebola than the national newspapers. The exceptions being the West and Southwest, which were statistically different in tone than national coverage, and also differed significantly from each other.

[Table 1 about here]

Policy Areas

Table 2 was produced using the LTD (Albaugh, Sevenans and Soroka, 2013), and reports the mean values of each policy topic area per region across the dataset. Pairwise tests of the policy areas demonstrated significant differences between regions on how issues were being framed. For example, reporting on Ebola emerging in the West was significantly more likely to be discussed in conjunction with Health Care than the National coverage, while coverage in the Northeast was slightly less likely to occur within a Civil Rights frame than the National coverage. Perhaps the most interesting finding from the pairwise comparisons was that National coverage was more likely than all other regions to discuss Ebola in relation to Crime.

Those articles coded as having 'No Region' tend to be specialist and trade publications. These publications reported on Ebola much more often alongside financial topics than the regional and National coverage. While the Southwest had the first reported case of Ebola in the United States, there are no striking differences in terms of policy area coverage between the Southwest and other regions.

[Table 2 about here]

Ebola Affected Countries

Coverage of Ebola Affected Countries is reported in Figure 6. It is no surprise that Liberia, Sierra Leone, and Guinea receive the bulk of the coverage. What is sur-

prising is that Liberia receives the largest amount of coverage in each region. Sierra Leona had a total case count (suspected, probable, and confirmed) of 13,012, Liberia of 10,666, and Guinea of 3,674 (cite: http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html) With 20 and 1 total cases respectively, it is a wonder that Nigeria and Senegal get any coverage of all.

[Figure 6 about here]

Looking at coverage of Liberia alone over time (see Figure 7) makes it clear that the high levels of coverage of Liberia is not a product of the fact that Thomas Duncan, who became the reported first case of Ebola on US soil, was a Liberian. In fact, coverage after Duncan's infection does not ever reach near the level of interest reported in August, 2014.

[Figure 7 about here]

Ebola Response

American media tended to source the Centres for Disease Control (2,279 articles) more often than the World Health Organization (1,127 articles). However, coverage of the Centres for Disease Control (CDC) is less related to negative stories than coverage of the World Health Organization (WHO). There is a small negative correlation between overall tone and occurrences of the CDC (-0.086) with the CDC, while mentions of the WHO are correlated much more with negative coverage (-0.148).

[Figure 8 about here]

Figure 8 demonstrates that in October 2014, there is a momentary spike in coverage involving travel bans. This disappears almost immediately, and the policy focus turns towards much more interest in vaccines or vaccination, which is sustained through the first four months of 2015. Discussion of quarantine emerges as particularly salient in October 2014, and peaks in November 2014, before levelling off.

[Figure 9 about here]

Finally, it is clear from 9 that there is a difference in coverage by political party. In 2014, Republicans (mean 0.41) had twice as much coverage as Democrats (mean 0.22) in articles that mentioned Ebola. Indeed, across the dataset Republicans appeared in 526 articles, Democrats in 167, and both parties appeared in 624 articles. Coverage was, however, highest for 'Obama', which appeared in 2,004 articles in 2014, on average 1.02 times per article.[1]

Discussion

Discussion points to be fleshed out

Overall, this is a bird's eye view of the coverage - and without looking closer at the context and the articles themselves, there are only so many conclusions that can be drawn. That said, this first look at the data has revealed some interesting information about coverage of Ebola in US media, and has generated numerous hypotheses worthy of further investigation.

1) Newspaper coverage was not uniform. The amount of coverage and the tone varied by region. The Southwest, the region where the first US case was reported, was significantly different than National coverage. Why this matters? While this study confirms the general tendency for print media to converge on topics and tone, the differences witnessed in particular regions suggest the importance of local level coverage. [more on this]

2) American media privileges discussion of the CDC (a domestic institution) over the WHO (a global institution). And the tone of coverage is significantly more negative for articles that mention the WHO. What this means, exactly, is unclear. It suggests that articles may be heavily critical of the WHO, or perhaps that the most negative

[1]The term 'Obama' was not included in the 'Democrats' dictionary.

stories rely on WHO instead of CDC sources. Regardless, this is worth looking at closer. It is curious that for an epidemic occurring in West Africa, that the primary source for information is a domestic rather than international organization. This may have implications for the United States' participation in global health governance regimes.

3) While this analysis suggests that media coverage of Ebola tracked well with the number of new cases being reported, there was an explosion of coverage in October 2014 - the month that the first Ebola case was reported on American soil. Thomas Duncan appeared in almost twenty percent of all Ebola related coverage in the month of October 2014, and it cannot be denied that there was tremendous domestic interest in the Duncan story. While this analysis demonstrates that the domestic case is highly correlated with the increase in coverage of Ebola, the causal case remains unclear, as this was also the month with the highest number of new cases reported globally. The implications of this causal link, if true, are worth thinking about. If global health governance relies heavily on bilateral donations from countries that are not likely to be hit by the diseases and issues they are funding, then drumming up - and keeping - domestic support for these initiatives may prove to be exceptionally difficult. Proponents of global health initiatives may be wise to frame the issues as domestic threats rather than global problems. Professor Alexander Garza's claim that 'Ebola is the ISIS of Biological Agents' can now be seen in a new light. For America to act, America might need to see global health problems as domestic threats. The questionable rhetoric surrounding the disease made it more relevant to the American public, and a domestic infection solidified the salience of the issue in the American imagination.

4) Of course, this doesn't mean that the solutions being pursued were good ones. This analysis suggests the increased interest in vaccine development after some slightly higher interest in travel bans and quarantines. This shift away from social-behavioural responses (which in many cases are more effective) is not particularly surprising. Health in America is heavily biomedicalized, and powerful pharmaceutical companies have vested interest in using a crisis and the resulting public support for a disease as a way

to push forward their own products. Experimental drug trials, etc. Ethics can go out the window, and progress (and money) can be made.

5) This analysis shows that republicans were mentioned in articles about Ebola twice as often as Democrats were. This suggests that Republicans were more successful in politicizing the event. While there was no evidence for a difference in the tone of articles mentioning either party, coverage that mentioned both parties was significantly more positive than those that mentioned either party alone (table not shown). I'm not sure what to do with this, besides point out the fact that global health issues are just as open to domestic politicization as any other issue, and this will have an impact on how countries participate in global health governance regimes.

Conclusion

Limitations - Overall approach only allows for so much - so we are limited in our conclusions, but we are now able to ask new questions

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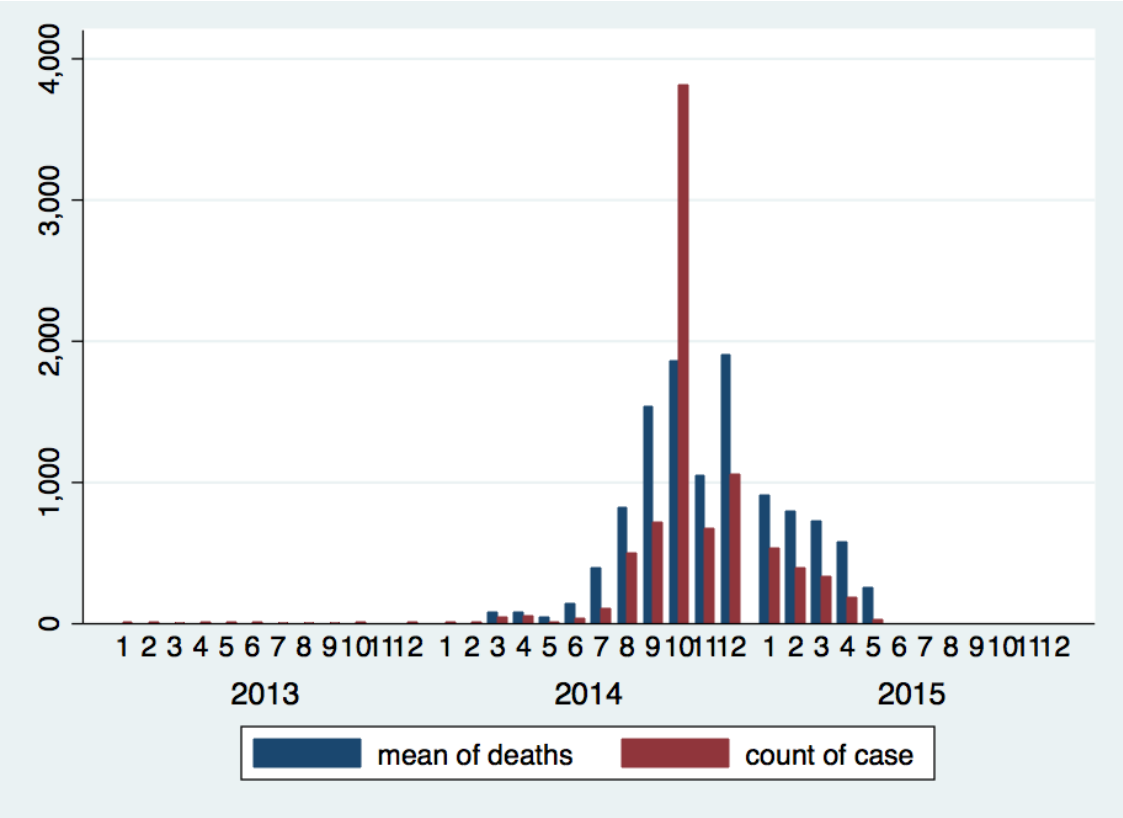

Figure 1: Frequency of Ebola Media Coverage and Worldwide Ebola Case Counts by Month

Region	Contrast	Std. Err.	t	P>t	[95% Conf.	Interval]
National vs Midwest	2.00156	.8267745	2.42	0.149	-.3550778	4.358197
Northeast vs Midwest	1.560988	.6843042	2.28	0.202	-.3895525	3.511528
Southeast vs Midwest	3.626838	.858661	4.22	0.000	1.179311	6.074364
Southwest vs Midwest	7.469594	1.089614	6.86	0.000	4.363758	10.57543
West vs Midwest	5.410349	.8326362	6.50	0.000	3.037004	7.783695
Northeast vs National	-.4405719	.6805684	-0.65	0.987	-2.380464	1.49932
Southeast vs National	1.625278	.8556867	1.90	0.402	-.8137705	4.064327
Southwest vs National	5.468034	1.087272	5.03	0.000	2.368875	8.567193
West vs National	3.408789	.8295687	4.11	0.001	1.044188	5.773391
Southeast vs Northeast	2.06585	.7189687	2.87	0.047	.0165025	4.115198
Southwest vs Northeast	5.908606	.9832987	6.01	0.000	3.105812	8.7114
West vs Northeast	3.849361	.6876775	5.60	0.000	1.889206	5.809517
Southwest vs Southeast	3.842756	1.111712	3.46	0.007	.6739338	7.011578
West vs Southeast	1.783511	.8613517	2.07	0.303	-.6716849	4.238707
West vs Southwest	-2.059245	1.091736	-1.89	0.411	-5.171128	1.052638

Table 1: Regional Differences in Tone

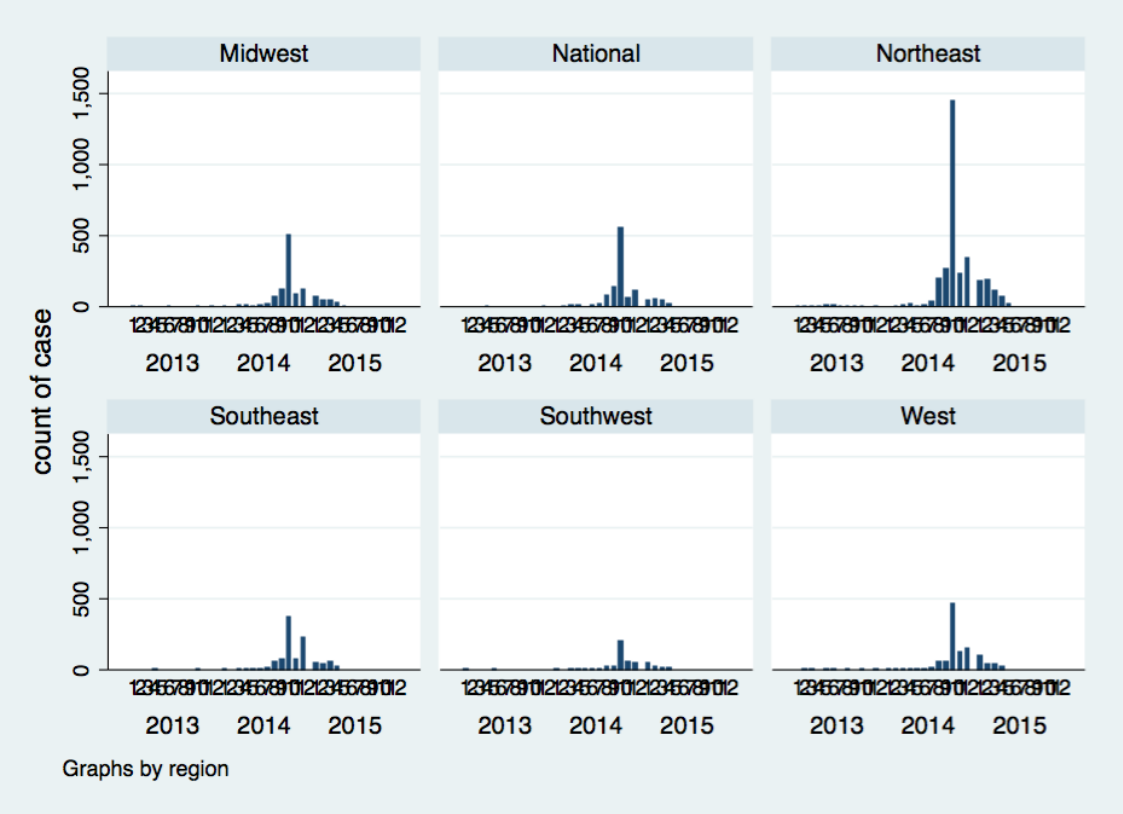

Figure 2: Frequency of Ebola Coverage by Month

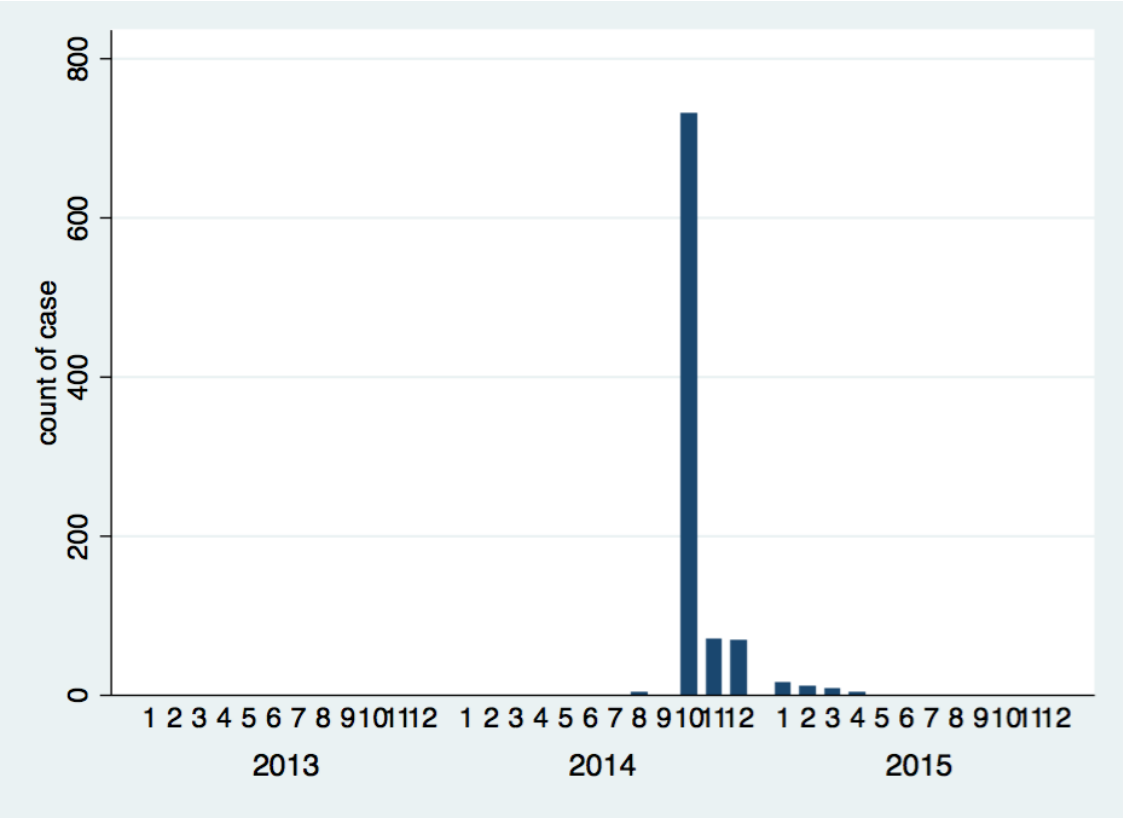

Figure 3: Frequency of Coverage of Thomas Duncan by Month

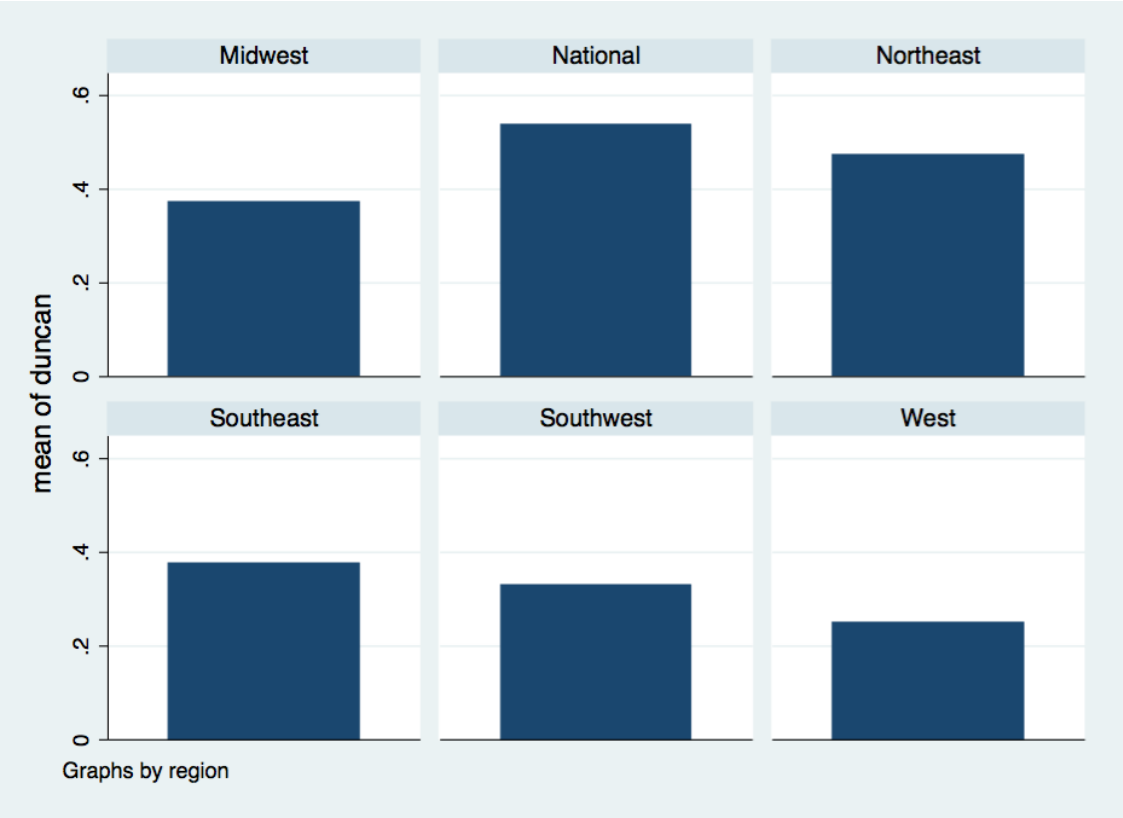

Figure 4: Mean Coverage of Thomas Duncan by Month, by Region

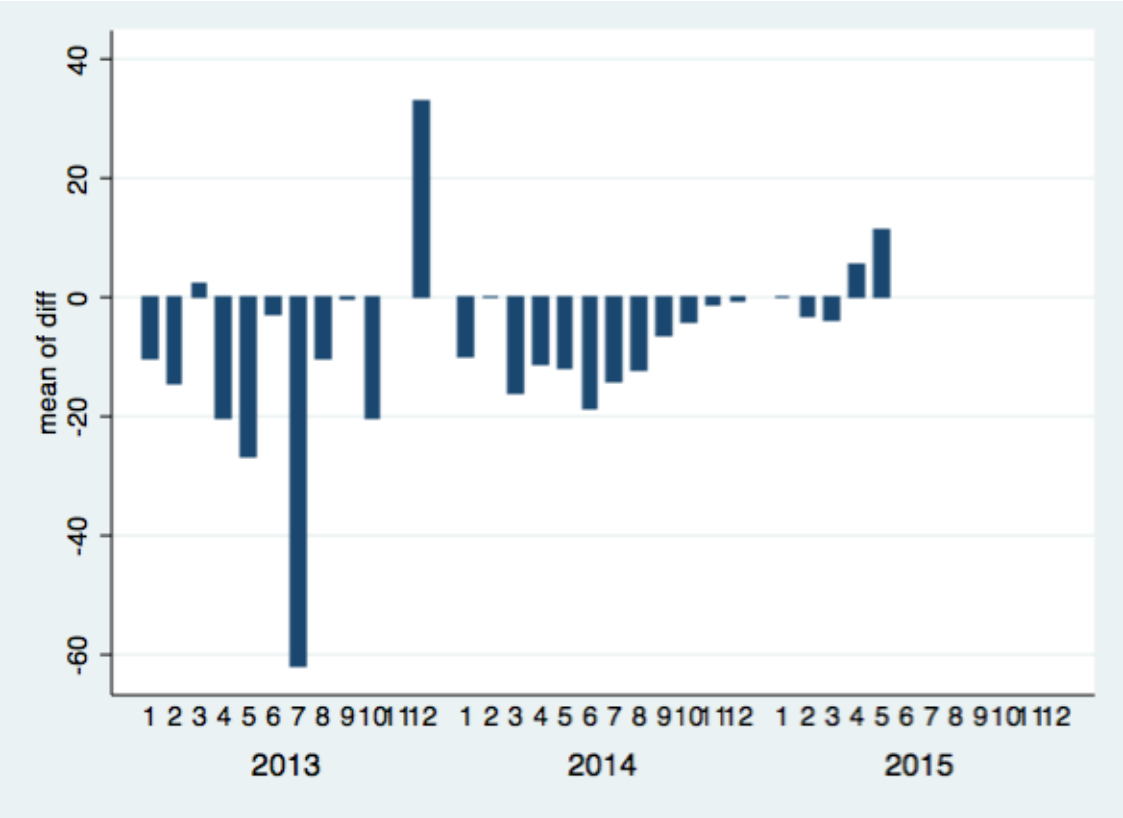

Figure 5: Overall Tone (positive - negative) of Ebola Coverage by Month

Topic	National	Midwest	Northeast	Southeast	Southwest	West	No Region	Overall
healthcare	8.01	8.07	9.22	8.58	8.33	10.68	9.18	8.97
finance	1.39	1.36	1.33	1.25	1.19	1.25	4.46	1.52
transport	1.15	1.46	1.27	1.53	1.56	1.13	1.35	1.31
crime	0.74	1.66	1.00	1.16	1.07	0.77	0.81	1.03
civil rights	1.16	1.01	0.77	1.00	1.18	1.07	1.45	0.99
education	0.48	0.70	0.90	0.82	0.95	0.98	0.62	0.80
religion	0.71	0.84	0.49	0.81	0.52	0.70	0.37	0.62
macroecon	0.43	0.59	0.59	0.57	0.52	0.46	1.61	0.61
defence	0.51	0.64	0.49	0.57	0.65	0.43	0.38	0.52
culture	0.28	0.45	0.45	0.65	0.58	0.76	0.43	0.50
sstc	0.40	0.39	0.42	0.49	0.35	0.31	0.78	0.43
labour	0.27	0.33	0.44	0.33	0.46	0.37	0.69	0.40
intl affairs	0.52	0.34	0.31	0.32	0.21	0.35	0.57	0.36
immigration	0.19	0.21	0.19	0.21	0.24	0.16	0.27	0.20
prov local	0.11	0.16	0.34	0.12	0.12	0.09	0.08	0.20
landwater	0.15	0.21	0.15	0.10	0.28	0.17	0.31	0.17
energy	0.12	0.21	0.13	0.18	0.22	0.13	0.39	0.17
housing	0.17	0.11	0.20	0.10	0.10	0.14	0.26	0.16
social welfare	0.05	0.08	0.07	0.16	0.07	0.10	0.06	0.08
agriculture	0.06	0.16	0.07	0.05	0.07	0.06	0.13	0.08
forestry	0.09	0.06	0.08	0.05	0.09	0.07	0.03	0.07
govt ops	0.11	0.07	0.05	0.07	0.06	0.04	0.09	0.07
const natl unity	0.02	0.07	0.02	0.30	0.06	0.03	0.02	0.06
environment	0.05	0.06	0.05	0.06	0.08	0.06	0.12	0.06
fisheries	0.03	0.05	0.05	0.04	0.02	0.04	0.03	0.04
foreign trade	0.04	0.04	0.03	0.03	0.03	0.02	0.11	0.03
aboriginal	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
intergovt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 2: Topic Areas

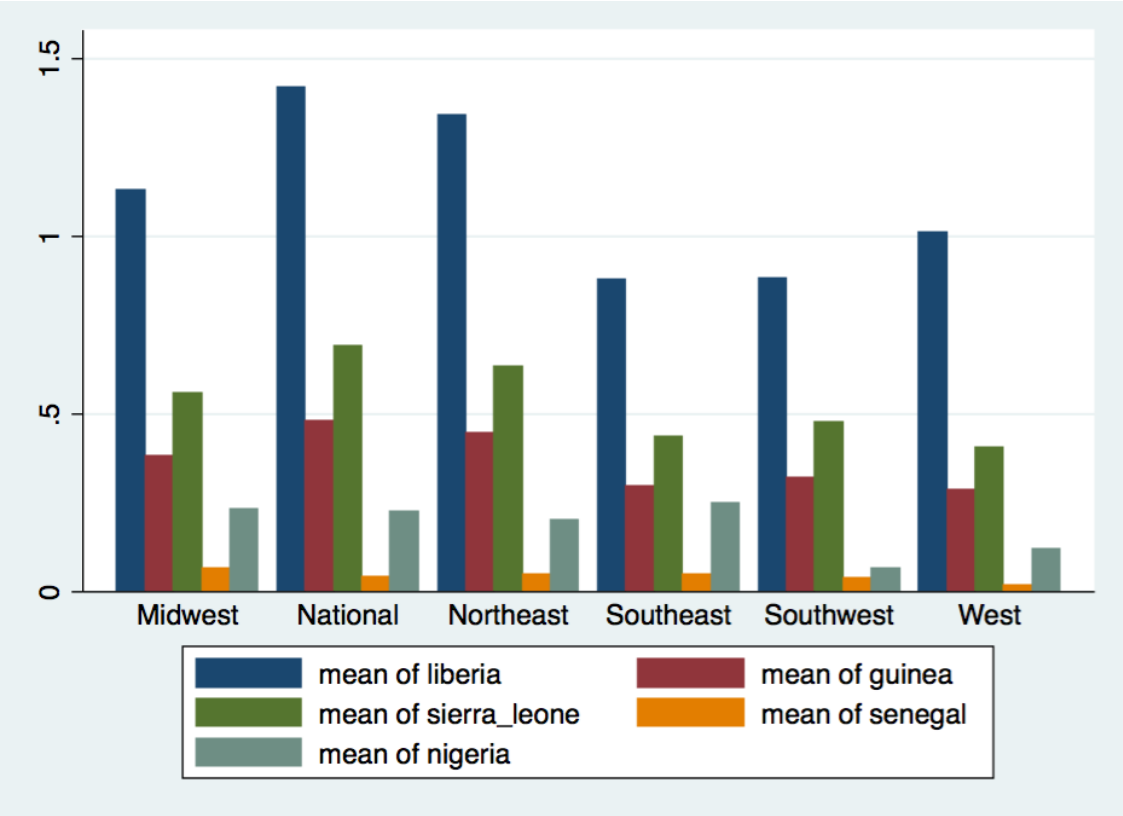

Figure 6: Coverage of Ebola-Affected Countries

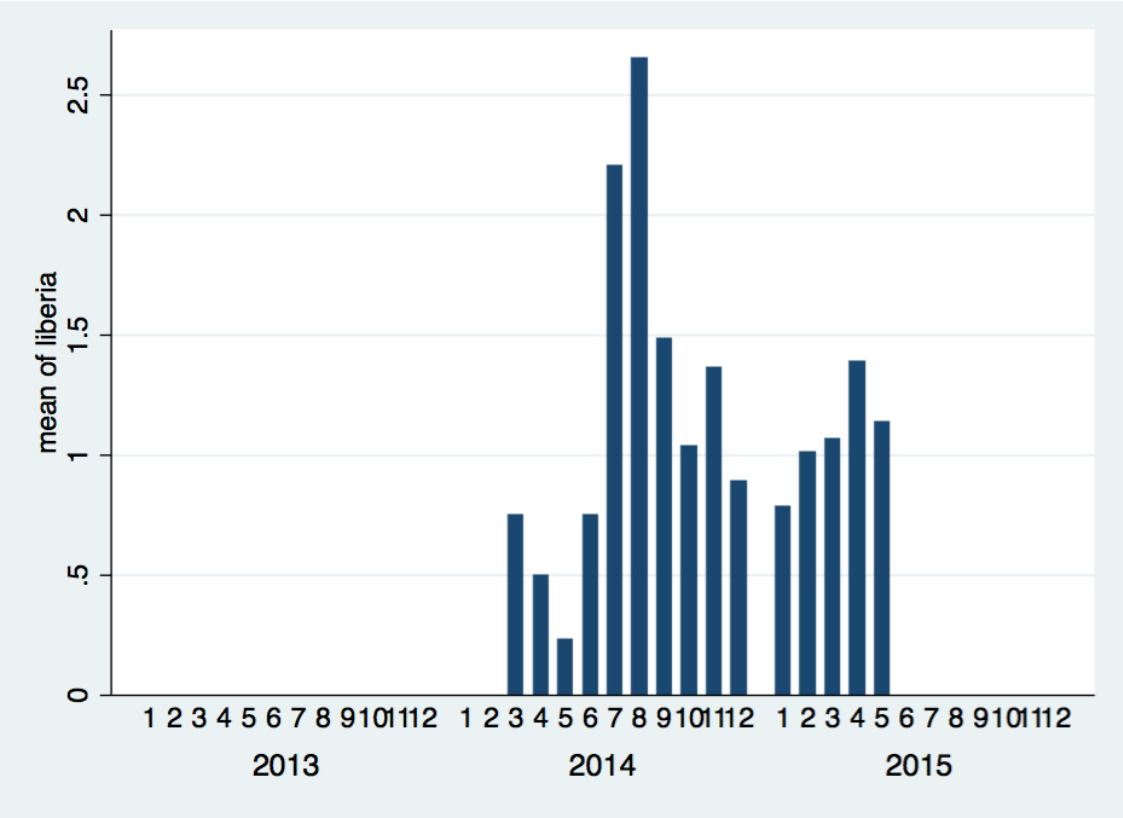

Figure 7: Coverage of Liberia

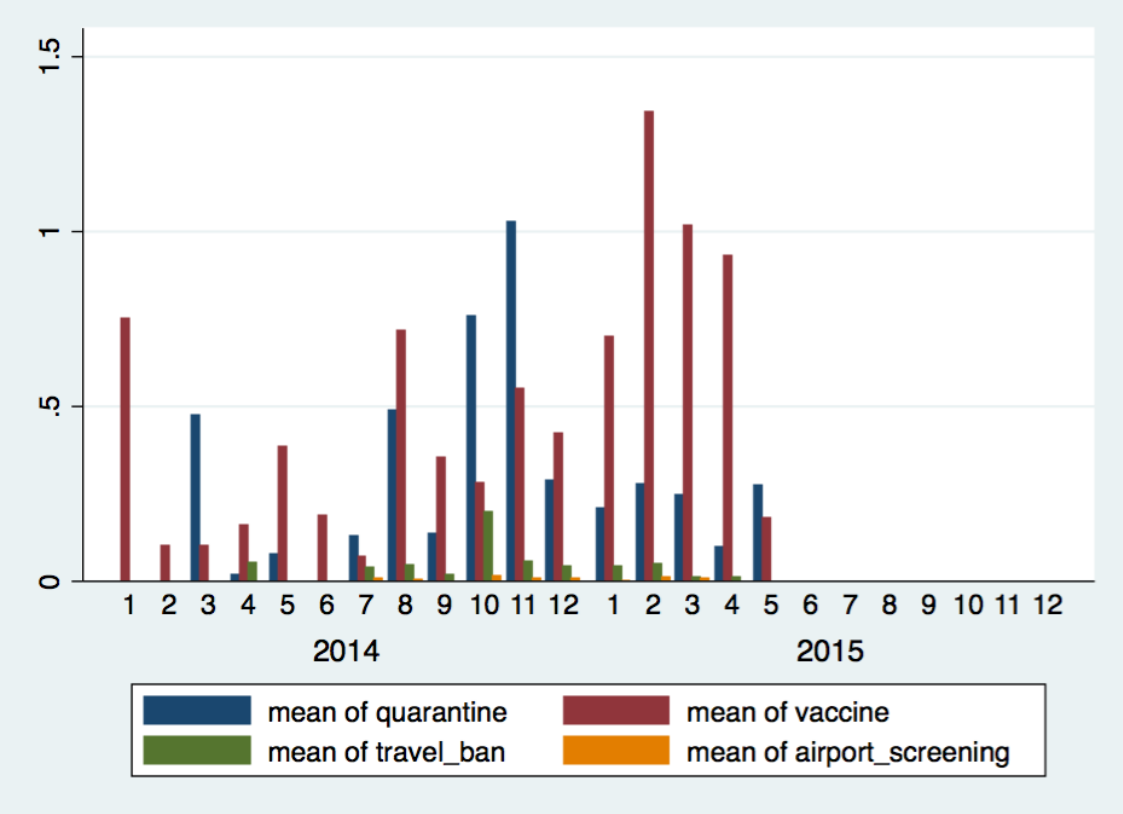

Figure 8: Policy Responses (2014-2015)

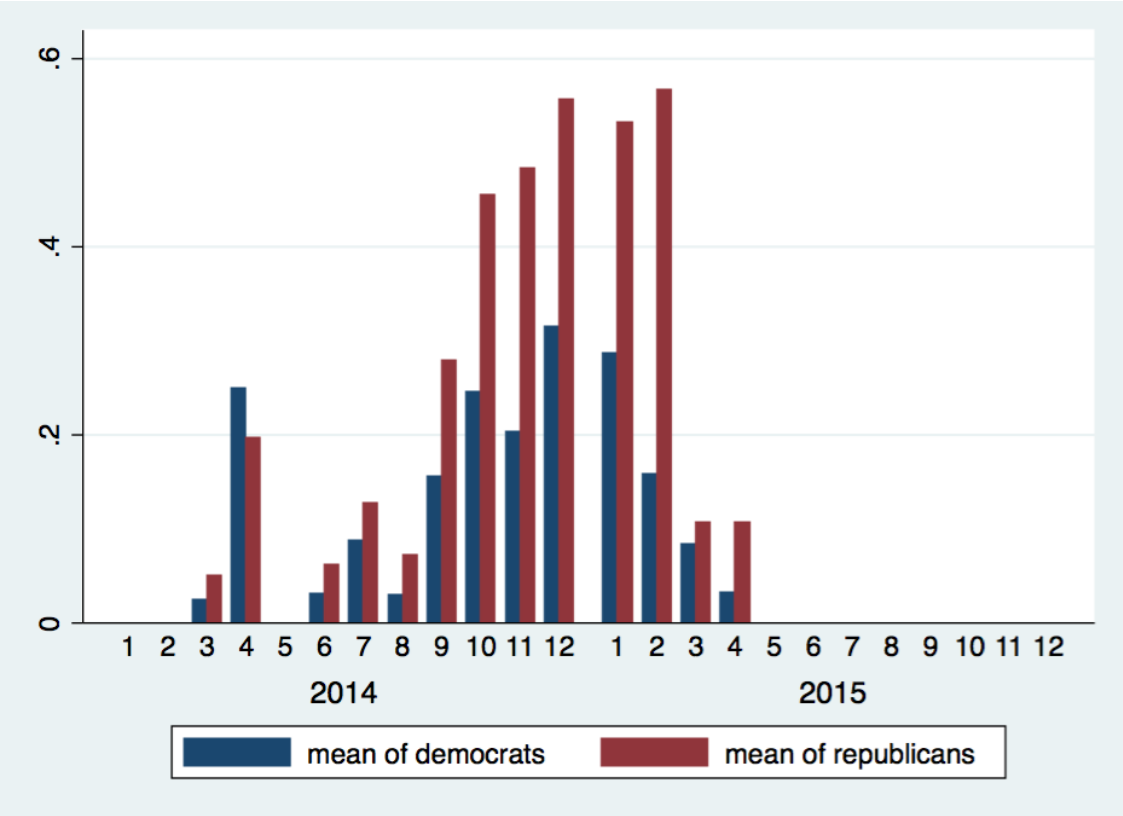

Figure 9: Political Parties (2014-2015)