Innovations

Influence of Mass Media non-Pharmaceutical Interventions on the Control of COVID-19 Pandemic in South-East, Nigeria

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Abstract

The research work assesses the influence of mass media non-pharmaceutical interventions (NPIs) on the control of the COVID-19 Pandemic in South East, Nigeria. It investigates the extent of exposure to health information on COVID-19, the level of knowledge of the disease, perception of the susceptibility and perception of its severity, and relates them with exposure to mass media messages. It also looks at how health information on COVID-19 disease influences the perceived effectiveness of the NPIs, self-efficacy to adhere and adherence to the interventions, as well as factors associating adherence. Drawing from the Health Belief Model (HBM) and the Agenda-Setting Theory, this research work undertook a survey of adult residents of the South-East zone for a period of one month. A sample size of 385 respondents was selected, using an online sample size calculator. The study's findings show high exposure to media information on COVID-19, with radio, television and social media as the leading sources of health information about the disease. Most of the respondents were exposed to different subject-matters about the disease. There was high knowledge of COVID-19 among respondents. Majority see themselves as vulnerable to the disease and see it as a very severe health condition. Majority believe in the effectiveness of the NPIs and their self-efficacy to adhere. Finally, majority adhered to the NPIs. Among other recommendations, information around COVID-19 should be tailored towards lower income people and directly delivered to them, using various direct channels of communication. Also, stakeholders, including the government and the media, should strive towards combating the misinformation about COVID-19.

Keywords: 1. Influence 2. Mass Media 3. Health Communication 4. COVID-195. Non-Pharmaceutical Interventions 6. Control 7. South East

Introduction

The COVID-19 pandemic caused deaths and sicknesses on a massive scale, crumbled health systems and massively disrupted socio-economic life globally. The deadly novel coronavirus outbreak was first noticed in Wuhan, in the Hubei Province of the People's Republic China as early as October 2019. On January 30, 2020, the World Health Organisation (WHO) declared the very contagious coronavirus disease, a public health emergency of international concern. It was officially declared a pandemic by WHO on March 11, 2020, after eight countries, each reported more than 1000 cases (Onyedika-Ugoeze, 2020).

The symptoms of COVID-19 include sneezing, coughing, fever, breathing difficulties, tiredness and loss of taste or smell, and the virus can cause pneumonia, multiple organ failure and in severe cases, death (Cheatley et al., 2020). However, some of the infections might be asymptomatic. According to medical experts, the disease spreads between people when an infected person is in close contact with another person. It spreads from an infected person's mouth or nose when they cough, sneeze, breathe heavily or sing and in the process,

releases liquid particles of different sizes, ranging from larger 'respiratory droplets' to smaller 'aerosols' (WHO, 2020). The disease has an incubation period of two to 14 days within which an infected patient could transmit the virus to a non-infected person.

Prior to the discovery of COVID-19 vaccines, the World Health Organisation (WHO) recommended Non-Pharmaceutical Interventions (NPIs) to restrain the spread of the infectious disease. These NPIs are actions, apart from getting vaccinated and taking medicine, which people and communities can take to help slow the spread of illnesses like pandemic flu. They include personal protective measures (wearing of facemask and hand hygiene), environmental measures (disinfection, decontamination and ventilation, among others) social distancing measures in public places (including schools, work places and worship places) and travel related measures (travel restrictions, health questionnaires and temperature checks, among others). These NPIs are seen as the best ways of controlling pandemic flu when vaccines are not available.

Notwithstanding the availability of COVID-19 vaccines today, health authorities encouragethe use of these interventions because they can prevent individuals from being exposed to the disease, decreasing the number of people who will become sick and those who will die ((PAHO, 2009).According to statistics of WHO, by the first week of September 2021, COVID-19 infected over 219 million people and claimed the lives of more than 4.5 million people globally, with confirmed cases in more than 210 countries.

Nigeria reported its first case of COVID-19 on February 27, 2020. After the discovery of the index case in Lagos State, the number of cases rose astronomically, spreading across the 36 states of the federation and Abuja, the Federal Capital Territory (FCT).While some countries have seen five consecutive epidemiological waves of the pandemic, Nigeria has so far experienced four waves of it. As of December 2022, NCDC confirmed 266,381 cases, out of which 259,756 cases were discharged. Within the same period, a total of 3,467 were active, while 3,155 deaths were recorded.

The implementation of country-wide NPIs featured prominently in Nigeria's response strategies for containing the pandemic. Although health communication cannot address all the problems of the health sector in Nigeria, it is seen as critical to informing the people about the disease outbreak and the risk it poses to their health, with the aim of encouraging them to take appropriate preventive measures, such as adhering to the NPIs. Such information helps to stem disinformation, prevents panic and encourages action.

Hence, this study is an attempt to ascertain the influence of mass media information about NPIs on the control of the COVID-19 pandemic in South East, Nigeria. The South East zone has five states, namely, Abia, Anambra, Ebonyi, Enugu and Imo. According to the Sixth Edition of the National Bureau of Statistics Demographic Statistics Bulletin, published in 2020, South East has an estimated population of 22 million people, predominantly of Igbo ethnic group.

The high literacy rate and the entrepreneurial inclinations of the people of South East Nigeria, make them highly mobile business people, known for travelling across different regions of the country, the African continent and the world. Hence, the study will help evaluate the influence of mass media information on adherence to NPIs in an area populated by highly itinerant people.

Statement of the Problem

Being a novel coronavirus disease that came with many new health challenges, there were multiple sources of information about COVID-19, amidst diverse beliefs and various health orientations. Although several vaccines have been developed and vaccination progressing across the world, the pandemic appears not to be over, as deadlier variants and sub-variants emerge.

Communication is central to the implementation of pharmaceutical and non-pharmaceutical measures for containing the disease. However, studies on the level of adherence to the non-pharmaceutical measures show big gaps between health prescriptions and attitudes, as well as practices that prevent COVID-19 disease in Nigeria (Ilesanmi and Afolabi, 2020). The findings of the present study will help to boost the capacity of journalists in health information packaging with respect to the pharmaceutical and non-pharmaceutical measures for containing the COVID-19 pandemic in South East, Nigeria.

Objectives of the Study

The specific objective of this study is to determine the influence of mass media NPIs on the control of COVID-19 in South East, Nigeria.

The general objectives are:

1. To determine the level of exposure to mass media information on COVID-19 in South East, Nigeria.
2. To assess the level of knowledge of COVID-19 disease in the region.
3. To examine the perception of COVID-19 susceptibility and severity in South East, Nigeria.
4. To determine if mass media information on COVID-19 disease influences the perception of effectiveness of the NPIs and self-efficacy to adhere.
5. We will also evaluate the adherence to the NPIs in South East, Nigeria.

Research Questions:

1. What is the level of exposure to mass media information on COVID-19 in South East, Nigeria?
2. What is the level of knowledge of COVID-19 in South East, Nigeria?
3. What is the perception of COVID-19 susceptibility and severity in South East Nigeria?
4. What is the influence of mass media information on COVID-19 disease on the perception of effectiveness of the NPIs and self-efficacy to adhere?
5. What is the level of adherence to the NPIs in South East, Nigeria?

Literature Review

Health Communication and Infectious Disease Control

According to the Society for Health Communication (SHC), health communication is a multidisciplinary field of study and practice that applies communication evidence, strategy, theory, and creativity to promote behaviours, policies and practices that advance the health and well-being of people and populations (SHC, 2017).

Finset et al. (2020) argue that health communication is a critical and important factor in saving lives during the COVID-19 pandemic. According to them, accurate and well developed health communication could facilitate how societies handle uncertainty and fear, promote and accomplish adherence to necessary behaviour change and foster hope in the face of a crisis.

To realise the goals of health communication, the media are very important because they provide the platform through which health messages and campaigns are successfully executed and must reach the target audience (Asema &Okeya, 2020). Konye (2020) notes that while such messages can come from different sources, people are more exposed to mass media health messages.

Consequently, researchers have explored the effects of health communication about infectious diseases on disease preventive behaviours. According to Rubbin et al. (2010), in the period of disease outbreak, effectively communicated information about the efficacy of protective behaviour will increase the application of these behaviours. They also foundthat other mediating factors, such as ethnicity, age, household status, socio-economic status and gender, played a part in determining whether someone engaged in a given behaviour or not.

Similarly, Lin and Lagoe (2013) identified interpersonal discussion and one's news dependency as important predictors of risk perception and influence on students' vaccination intent. Another research conducted during MERS outbreak suggests that in the time of an communicable disease outbreak, social media could considerably increase preventive behaviours (Oh et al., 2021).

Research in Nigeria shows that media have the proclivity to influence audience perception, knowledge, attitude and behaviour towards infectious diseases(Ajilore et al., 2017; Usuwa et al., 2020; Asema and Okeya, 2020& Erubami, 2022).

Mass Mediaand the Fight against COVID-19

Studies associatesubstantial mass media exposure with having a higher perception of illness severity and higher perceived control or intention to carry out prevention measures (Lin et al., 2020;Ning et al., 2020; Massaro et al., 2020; Vai et al., 2020). Lep et al. (2020) link the perceived credibility of received information not only with the lower levels of negative emotional responses but also with high adherence to the much needed self-protective measures, which aim to contain the spread of the disease.

Similarly, research has equally shown that disease knowledge and awareness, in addition to risk perception, are determining factors of how people respond to and engage in preventive behaviours (Karasneh et al. 2021; Mushi et al., 2021 & Mahmood et al., 2021. Fitzpatrick et al. (2021) found that COVID-19 information was positively correlated with reports of adoption of other NPIs that mitigate the spread of coronavirus, such as hand washing, mask wearing, increased social distancing and using hand sanitizer. The results of the study, however, suggest that even those with high levels of knowledge, continued to engage in informal gatherings, owing to socio-economic factors and reasons associated with mental health, among others.

In Nigeria, Ilesanmi and Afolabi (2020) found that gaps exist in the practices that prevent COVID-19. According to their findings, hand washing was more common among individuals with greater risk perception of COVID-19. On the other hand, Ukonu and Mbamalu (2021) found that social factors, such as age, gender, education and state of residence have more predictive influence on adherence to COVID-19 preventive guidelines more than credibility assessment of health messages. Liu (2021) indicates that health oriented people, who consumed COVID-19 information on social media, are more likely to engage in preventive behaviours.

In conclusion, evidence from this review converges to suggest that exposure to health communication is significantly associated with knowledge and attitudes toward the prevention of disease outbreaks or spread. It also suggests that health communication is a significant predictor of risk perception, higher perception of illness severity, higher response efficacy and higher intention to carry out prevention measures, such as NPIs. The review also supported the notion that health communication has significant influence on adherence to infectious disease containment measures. Finally, the review suggests that besides health communication, there are other factors associated with adherence to recommended disease preventive measures.

Theoretical Framework

This study was anchored on the Health Belief Model (HBM) and the Agenda-Setting Theory. The HBM is one of the most widely used models for understanding change in health behavior. This model was chosen based on its acceptability and applicability to previous studies relating to health crisis, including pandemics, such as HIV/AIDS and COVID-19 (Okpoko&Aniwada, 2018; Costa, 2020).

Health Belief Model is one of the most prominent evidence based public health frameworks for understanding why individuals may or may not act in the face of a threat to personal or community health. It has been used for decades to study vaccination, medication adherence, diabetes, self-care, condom use and other health behaviours that require modification of a patient's action to mitigate threat to health (Caricho et al., 2020). According to Caricho et al., this model suggests that individual beliefs and direct cues to action, inform behaviour and beliefs are in turn informed by ones background and are comprised of one's impression of perceived threat, perceived benefits of taking action, the perceived barriers to taking action and ones perceived ability to take action (Perceived self-efficacy).

The model, which was developed at the United States Public Service by social psychologists, Irwin M. Rosenstock, Godfrey M. Hockbaum, Stephen Kegeles and Howard Leventhal, grew out of a set of independent, applied research problems with which a group of investigators in the Public Health Service were confronted between 1950 and 1960.

We will complement the HBM with the Agenda-Setting Theory. The theory assumes that media stimulate the awareness of people regarding certain issues (Albalawi &Sixsmith, 2015). Put simply, the theory suggests that the media set agenda for the people to follow. According to Asema, Nwammuo and Nkwam-Uwaoma (2017),

the theory holds that most pictures we store in our heads, most of the things we think and worry about, most of the issues we discuss, are based on what we have read, listened to or watched in different mass media.

Benard Cohen popularised the Agenda-Setting theory, although Walter Lippman conceived the idea in his 1922 book, Public Opinion. Lipman argues that mass media are the principal connection between events in the world and images in the minds of the public. Although Lippman did not use the word Agenda-Setting, he was actually talking about the theory that we know today as Agenda-Setting.

Taking a cue from Lippman, Cohen observed that the "press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about." The ideas of Cohen were later developed by Maxwell E. McCombs and Donald Shaw in an empirical study on the 1968 American Presidential election.

The theory has been used to study the influence of both the traditional and social media on health education and promotion, risk messaging, health research policy, among others (Jones, 2017; Albalawi &Sixsmith, 2015; Kozel et al., 2020). We will apply the theory here to understand the influence of mass media non-pharmaceutical interventions on the control of COVID-19 in South East, Nigeria. It will help us to know that if people are exposed to the same media, they will place importance on the same issues.

Methodology

The survey research method was used for this study. The total population for this study comprises all the residents of the South-East, estimated at about 22 million, according to information obtained from the Headquarters of the National Population Commission (NPC) in Nigeria's Federal Capital Territory, Abuja.
An online calculator was used to compute the sample size. The computation was done using a population proportion of 50 percent, error margin of five percent and confidence level of 95 percent. The calculation generated a sample size of 385 for the cross sectional study.
We used a multi-stage cluster sampling technique, involving the simple random sampling and purposive sampling methods for this study. The instrument for data collection was the structured questionnaire. The respondents were persons of 18 years and above, and their consent to participate in the research was obtained verbally or in writing.

The questionnaire had two sections. The first section, which comprised questions 1 to 6, contained general demographic information such as gender, sex, age, educational qualification, marital status and income level. The second section, which comprised questions 7 to 18, contained key issues we were investigating in this research. In the second section, we focused on psychographic characteristics of the respondents to elicit information from them. Here, both open and closed-ended questions, as well as Likert scale questions, were used.

The instrument was subjected to face validation by some professors in the field of mass communication. We avoided ambiguous words and double barreled questions in order to make the instrument reliable. We subjected the questionnaire to reliability test, using the Cronbach's Alpha method. From the result: 0.808, we knew the instrument was reliable.
Face-to-face administration of questionnaire was done and adults 18 years and above were deemed to be qualified to participate in the survey. The return of the completed questionnaire was deemed as informed consent to participate in the study. A total of 361 copies of completed questionnaire were retrieved out of 385 copies administered in the course of the field work. The data was analysed using SPSS 2020 version.

Results and findings

Table 1

Sources of Health Information

Information Source	Frequency	Percentage
Newspaper		
Never	84	23.3
Rarely	143	39.6
Often	42	25.5
Very often	92	25.5
Magazine		
Never	82	22.7
Rarely	160	44.3
Often	57	15.8
Very often	62	17.2
Radio		
Never	9	2.5
Rarely	65	18.0
Often	145	40.2
Very often	142	39.3
Television		
Never	120	5.5
Rarely	37	10.2
Often	71	19.7
Very often	233	64.5
Social media		
Never	9	2.5
Rarely	30	8.3
Often	69	19.1
Very often	253	70.1

Table 1 addresses Research Question 1. Our findings show that an overwhelming majority of respondents were often or very often exposed to health information about COVID-19 through radio, television and social media. The minority were never or rarely exposed through the newspaper and magazine. From our findings, an overwhelming majority of respondents were very often or often exposed to mass media health information pertaining to COVID-19 transmission, symptoms, response to symptoms, treatment, self-protection, vaccines or vaccination.

Table 2

Knowledge of COVID-19

Knowledge	**Frequency**	**Percentage**
Corona virus disease		
Don't know	23	6.4
Correct	338	93.6
Chinese origin		
Don't know	18	5.0
Correct	343	95.0
Knowledge of symptoms		
Don't know	.1	.3
Incorrect	5	1.4
Severity		
Don't know	.1	.3
Incorrect	5	1.4
Correct	355	98.3
Knowledge of Spread		
Incorrect	.1	.3
Correct	360	99.7
Transmission process		
Don't know	5	1.4
Incorrect	6	1.7
Correct	350	97.0
Incubation period		
Don't know	40	11.1
Incorrect	5	1.4
Correct	316	87.5
NPIS effectiveness		
Don't know	48	13.3
Incorrect	167	46.3
Correct	146	40.4
Vaccines		
Don't know	5	1.4
Incorrect	9	2.5
Correct	347	96.1
Asymptomatic patients spread		
Don't know	15	4.2
Incorrect	1	.3
Correct	345	95.6

Concerning Research Question 2, Table 2 showsthat a significant majority among our respondents displayed high knowledge of COVID-19. They know about the cause, transmission, and incubation period, infectiousness of asymptomatic patients, spread and severity.
Although a simple majority were incorrect on the assertion that NPIs can stop the spread, a substantial number reported correctly.

Perception of Vulnerability to and Severity of COVID-19 Disease
Regarding Research Question 3, our findings revealed that an overwhelming majority of respondents (91.4%) strongly agree that COVID-19 is the most contagious disease. A significant majority (87.8%) strongly agree that they are very fearful of the disease. An overwhelming majority (85.9%) strongly agree that they can easily contract the disease if close to an infected person. Majority (65.7%) strongly agree that they can contract COVID-19 even after vaccination. However, majority (70.4%) either strongly disagree or disagree that their immunity is not strong enough to resist COVID-19. A significant majority (91.1%) strongly agree that preventive measures such as NPIs can protect them from the disease.
Perception of Severity of COVID-19
With regards to the perception of severity of COVID-19, an overwhelming majority (96.4%) strongly agree that COVID-19 is a very dangerous disease. Similarly, a significant majority (91.4%) strongly a threat to their overall health, and 90% that it can make them very sick. Majority (91.4%) strongly agree that COVID-19 can cause death if not treated quickly. However, a considerable majority (93%) disagree or strongly disagree that nobody can recover from it.

Perception of Effectiveness of NP1s
Our findings on Research Question 4, show that majority of respondents (88.9%) strongly agree that regular washing of hands with soap and running water protects them from COVID-19. Majority (89.8%) also strongly agree that use of alcohol-based hand sanitisers protects them. We also found an overwhelming agreement (87.8%) that COVID-19 can be prevented using facemask. Majority (87.3%) strongly agree that ventilation helps in preventing COVID-19. Majority (86.7%) agree that the disease can be prevented through disinfection of homes, offices and public places. Majority (85.9%) strongly agree that COVID-19 can be prevented by social distancing in schools, churches, social gatherings, avoiding large gatherings (86.1%) and adhering to travel measures (88.9%).

Concerning self-efficacy to adhere to NPIs, our results indicate that nearly all the respondents (99.4%) can engage in hand washing using soap and running water. Similarly, a significant majority (82.5%) strongly agree that they can use alcohol-based hand sanitiser in the absence of soap and running water. Majority (78.4%) strongly agree that they can use facemask outside their home. A significant majority (88.1%) strongly agree that they can ensure the ventilation of their homes.

A significant majority (86.7%) can disinfect environmental surfaces regularly, including homes and offices. Majority (78.9%) strongly agree that they can maintain social distancing and 68.7% can avoid large gatherings. A significant majority (95.3%) strongly agree or agree that they can adhere to travel measures. A significant majority (87.5%) strongly agree that they can maintain respiratory hygiene and cough etiquette. Finally, an overwhelming majority (93.4%) strongly agree that they can isolate if they have symptoms.

Table 3

Adherence to COVID-19 NPIS

Adherence	Frequency	Percentage
Hand washing		
Never	41	11.4
Rarely	8	2.2
Often	69	19.1
Very often	243	67.3
Alcohol hand sanitizer		
Never	30	8.3
Rarely	126	34.9
Often	90	24.9
Very often	115	31.9
Wear facemask		
Never	5	1.4
Rarely	62	17.2
Often	122	33.8
Very often	172	47.6
Ventilation		
Never	28	7.8
Rarely	7	1.9
Often	32	8.9
Very often	294	81.4
Cleaning and Disinfection		
Never	17	4.7
Rarely	26	7.2
Often	32	8.9
Very often	286	79.2
Maintaining social distancing and avoid large gathering		
Never	31	8.6
Rarely	110	30.5
Often	137	38.0
Very often	83	23.0
Compliance with travel measures		
Never	23	6.4
Rarely	44	12.2
Often	172	47.6
Very often	122	33.8
Avoid touching eyes, nose and mouth		
Never	24	6.6
Rarely	46	12.7
Often	61	16.9
Very often	230	63.7
Maintaining respiratory hygiene/cough etiquette		
Never	34	9.4
Rarely	7	1.9
Often	33	9.1
Very often	287	79.5

Research Question 5 evaluates the adherence to the NPIs in South East, Nigeria. Our findings as shown in Table 3, suggest that majority very often or often washed their hands with soap and running water, used hand sanitiser in the absence of soap and running water, wore facemasks, engaged in ventilation and cleaned and disinfected environmental surfaces-homes and offices-among others. Similarly, majority very often or often maintained social distancing, and avoided large gathering, complied with travel measures, avoided touching their eyes and maintained respiratory hygiene and cough etiquette.

Discussion of findings

The main purpose of this study is to investigate the influence of mass media non-pharmaceutical interventions the containment of the COVID-19 pandemic in South East Nigeria. With respect to the level of exposure to health communication about COVID-19, the findings of the study suggest that majority of respondents were vastly exposed to information about COVID-19 through mass media channels. The leading sources were radio, television and social media. Regarding the dominant subject-matters respondents were exposed to, majority indicated exposure to various subject-matters, including transmission, symptoms, response to symptoms, treatment, prevention, vaccines and vaccination.

Furthermore, most respondents displayed basic knowledge of aspects of the disease, including the cause, incubation, symptoms, transmission, seriousness, and preventive measures. Majority of the respondents see themselves as vulnerable to the disease. Majority also see COVID-19 infection as a very severe condition. Majority believe in the effectiveness of the NPIs and their self-efficacy to adhere to them. Concerning adherence to the NPIs in South East, Nigeria, we found that the majority of our respondents adhered.

Our findings agree with Rubbin et al. (2010) which held that in the time of disease outbreak, effectively communicated information about the efficacy of protective behaviours will enhance the uptake of these behaviours. Our results also correspond with Lin and Lagoe (2013), which identified interpersonal discussion and one's news dependency as significant predictors of risk perception and influence on students' vaccination intent. Our findings corroborate Ajilore et al. (2017), Usuwa et al. (2020), Asema and Okeya (2020), which all held that media have the tendency to influence audience perception, knowledge, attitude and behaviour towards infectious diseases

Our findings share similarity withOh et al. (2021), which held that in time of communicable disease outbreak, social media could meaningfully enhance preventive behaviour. Our results agree with Lin et al. (2020), Ning et al. (2020), Massaro et al. (2020) and Vai et al. (2020), all associating considerable mass media exposure with greater perception of illness severity and higher perceived control or intention to carry out prevention measures.

The present study also agrees with Mushi et al. (2021) and Mahmood et al. (2021), which both emphasise the influence of health communication on adherence to preventive measures for containing the COVID-19 pandemic. Mahmood et al. in particular submit that social media use predicts self-efficacy and perceived threat of coronavirus, both of which predicts preventive behaviour.

Conclusion

It is evident from our findings that mass media health information is crucial for the enhancement of public health, especially in this era of emerging infectious diseases. Mass media health information influences health beliefs, knowledge, attitudes and behaviours. It empowers the public with the knowledge to respond appropriately to diseases. In this pandemic era, exposure to mass media health information helps to influence social norms that may be detrimental to public health, increase risk perception and strengthen positive behaviours, such as adherence to NPIs for the containment of COVID-19 pandemic.

5. 3 Recommendations

Drawing from the reports of this study, the following recommendations were made.

1. The Government, working in collaboration with the media and other stakeholders should ensure that health communication is targeted at combating the misinformation about COVID-19.
2. Since the results of this research show that most of our respondents belong to the lower income group, information around COVID-19 should be tailored towards people in this group and directly delivered to them, using direct channels of communication, such as flyers in local languages, instant messaging, phone calls and social media.
3. Policy makers and health experts should intensify efforts towards COVID-19 risk communication to ensure increased perception of susceptibility and severity of the disease, which have been associated with adoption of behavioural practices for containment of infectious diseases.
4. Government and other stakeholders should leverage on the mass media, especially television, radio, and social media to raise awareness on the NPIs and other COVID-19 preventive measures.
5. As part of their corporate social responsibility, the media should engage in promotional campaigns for adoption of the NPIs.

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