

## REVIEW ARTICLE

# Health System Response to COVID-19. Lessons Learned and the Experiences of the United States of America – A Review of What worked and What Failed

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**Citation:** Toms K Thomas, Shalini Bhakta, Nayani Umesh Rajapaksha, Susan John V (2022) Health System Response to COVID-19. Lessons Learned and the Experiences of the United States of America – A Review of What worked and What Failed. J Hum Health Res 2: 102

## Abstract

The US health-care system mirrors the country's larger setting. It is mostly produced by the private sector, combining high amounts of finance with a limited level of government involvement. The United States invested significantly more money in the per capita health of its population than any other country in the world. The majority of Americans are covered by private health insurance companies; unusually for a high-income country, almost one-sixth of the population is uninsured, though this figure is predicted to be cut in half if the Affordable Care Act's primary provisions are implemented in 2014. Various external influences have an impact on a country's health-care services. Political climate, economic growth stage, technological progress, social and cultural values, physical environment, and population characteristics such as demographic and health trends are among these influences. Professionally engaged physicians of medicine, doctors of osteopathy, active nurses, dentists, pharmacists, and administrators employ almost 14.4 million people in various health-care settings. The US government has committed a significant amount of money to the advancement of health information technology.

The first case of COVID-19 was reported in America on 20th January and the first death was reported on February 2020. The number of Americans who have died as a result of COVID-19 was far greater than the total number of people who died in both World Wars and the Vietnam War combined. COVID-19 was the third leading cause of death in the United States in 2020, after heart disease and cancer. United States since the diagnosis of the first case of COVID19 had been consistently continuing on a high number of infected cases. However it is important to note that the death rate has been relatively less in the US in spite of the growing cases of infection. According to the stats till October 22, 2021; the total number of cases diagnosed with COVID is 46,175,985 out of which 98% (35,898,043) have recovered while 2% (753,763) have lost their lives. On November 20, 2020, the Pfizer-BioNTech alliance submitted an emergency authorization request to Food and Drug Administration, which quickly granted approval on December 11th. On the 18th of December 2020, FDA issued Moderna vaccine emergency use authorization, which was requested by Moderna on 30th of November 2020. Despite the fact that the

approval was issued early, the first doses of COVID-19 vaccination were given out on December 14, 2020. The CDC and each state maintain track of how many immunizations have been given out. Till October 22, 2021 411 million doses of COVID-19 vaccines have been administered to the American citizens out of which 57.2% (189 million) people are fully vaccinated.

**Keywords:** United States; COVID-19; Vaccination; Health-care; Insurance

## Introduction

United States has the world's largest economy and the world's highest gross national income per head with the area of 9,833,517 square kilometres and population around 331,003,651. The United States has a federal system of government, with substantial authority delegated to its regional governments of the 50 states. United States is a historical reluctance regarding central planning or controls either at the federal or state level [1]. The health-care system of United States reflects its wider context. It is developed largely through the private sector and combining high levels of funding with a relatively low level of government involvement. United States put in far more amount of money in the per head health of its population than any other country in the world; almost 53% more than that of the second-high spending country, Norway [2]. A majority of the American citizens receive their health coverage from private health insurance companies; unusually for high-income countries, over one-sixth of the population lacks health insurance, although this proportion is expected to be cut nearly in half if the main elements of the Affordable Care Act are implemented in 2014 [2].

## Material and Methods

This is a descriptive research study. The study analyzed the US Health system and its response during the COVID-19 pandemic. The national health system data and the international data has been analyzed by the group of researchers. The health system analysis has been done through a series of articles review and the historical review of the US health system. The COVID-19 situation analysis data base of the World Health Organization (WHO), Centre for Disease Control (CDC) United States and the world meter live data on the COVID-19 situation. Apart from that the research also documented the opinion of various expert across the globe on the Public Health. Since there was no primary field survey involved no ethical approval was required. However institutional ethical committee approval has been done by the SRM University Ethics Committee.

## COVID-19 as an important Health Challenge

The first case of COVID-19 was reported in America on 20th January. The President of America Donald Trump declared the U.S. outbreak a public health emergency on 31st January 2020. The first known death was reported in America in February 2020. On 13th March, the President declared a national emergency. The cases had been confirmed in all fifty U.S. states by mid-April and by November in all inhabited territories of U.S. In June 2020, a second rise in infections began following relaxed restrictions in several states, leading to daily cases surpassing around 60,000. Around the mid of October there was a third rise in infection, leading to daily a cases reaching over 100,000 by the end of the month. A fourth rise in infections began around the late March 2021 amidst the rise of a more easily transmissible new SARS-CoV-2 variant from the United Kingdom, just as COVID-19 vaccines began to be administered in the country [3].

## Major Global Land Marks in COVID19

The trend of COVID 19 progression from the China to the other countries showed an interesting pattern. This point to the many myths and early beliefs. The countries affected in the earlier growth were mostly Europe and North America. The first round of infection progression left many Asian countries including the neighbouring countries of China left unaffected. From China the

epicentre the infection has been shifted to Europe as the pandemic centre and then shifted to United States with very large numbers. Later the infection also spread exponentially to South America and South Asia with few countries infecting very highly including India in South Asia and Brazil in South America. The first month trend of infection and the countries affected is given in the following table.

Date	Countries Infected
02-Jan	China
13-Jan	Thailand
16-Jan	Japan
20-Jan	South Korea, United States
21-Jan	Taiwan
22-Jan	Honkong, Macau
23-Jan	Singapore, Vietnam
24-Jan	France & Nepal
25-Jan	Australia, Canada , Malaysia
27-Jan	Cambodia, Germany, Sri Lanka
29-Jan	Finland, UAE
30-Jan	India, Italy, Philippines
31-Jan	Russia, Spain , Sweden, UK

Source: [https://en.wikipedia.org/wiki/Timeline\\_of\\_the\\_COVID-19\\_pandemic\\_in\\_January\\_2020](https://en.wikipedia.org/wiki/Timeline_of_the_COVID-19_pandemic_in_January_2020)

Table 1: Early Infected Countries Jan 2020

## State Interventions in the US to Fight COVID-19

The state interventions have been of different categories in the United States from social restrictions to various preparedness measures. However there was a concern with regard to the delay in taking proactive action by the state on restricting the spread of the virus. The initial focus was though targeted at China and restricting travels to and fro from china and Chinese travellers. This in fact resulted in US slow at restrictions of movements with in the regions and other countries in Europe. The table below suggests that some of the measures that the government were delayed and has taken once significant spread already happened in the country. Serious measures were started mid 2020 when the spread has become large. US though have the advantage of slow spread during the first quarter of 2020. Till mid-march the number of cases was very negligible compared to the cases globally.

Date	Event	Number of Cases
31-Jan-20	The Trump administration issued a restriction on foreign nationals traveling to China. Isolating of China.	6
11-Mar-20	The Trump administration announced a 30-day travel ban for foreign nationals from European Union countries.	696
13-Mar-20	President Trump proclaimed a national emergency under the Stafford Act	1264
16-Mar-20	The United States House of Representatives enacted a coronavirus alleviation bill. Free coronavirus testing, two weeks of paid sick leave, and paid family and medical leave are all included in the proposal, according to Pelosi (NCB News, March 16, 2020).	1678
16-Mar-20	Trump released social distance recommendations, including limiting meetings to fewer than 10 people, avoiding eating and drinking in bars and restaurants, and avoiding unnecessary travel.	1678
24-Mar-20	FEMA stated that it would use the Defense Production Act to obtain 60,000 coronavirus testing kits.	42164

27-Mar-20	President Trump signs the third coronavirus relief package.	68334
08-Apr-20	US Department of Health and Human Services announced a \$500 million contract with General Motors under the Defense Production Act to construct 30,000 ventilators.	363321
21-Apr-20	The United States Senate approved a \$484 billion aid package that included more money for small business loans, hospitals, and testing.	751273
12-May-20	A \$3 trillion coronavirus relief proposal	1298287
19-Jun-20	The Department of Defense relaxed travel restrictions on additional military and civilian installations in 46 states and eight host countries, allowing military and civilian employees to visit them.	2149166
07-Jul-20	The federal government awarded Novavax Inc. \$1.6 billion for clinical trials of a coronavirus vaccine, and Regeneron Pharmaceuticals In. \$450 million to manufacture doses of an experimental COVID-19 therapy.	2877238
22-Jul-20	Pfizer and BioNTech, a pharmaceutical and biotechnology business, announced a \$1.95 billion deal with the US Departments of Health and Human Services and Defense to provide 100 million doses of a coronavirus vaccine to Americans by the end of 2020. (Pfizer, July 22, 2020)	3805524
03-Aug-20	President Donald Trump (R) signed an executive order that made key regulatory modifications permanent, allowing for the expansion of telehealth services, particularly in rural regions.	4582276
28-Aug-20	The US Food and Medicine Administration (FDA) stated that the drug remdesivir has been approved for treatment in all COVID-19 patients hospitalized in the United States. The FDA had previously approved the use of remdesivir in individuals with severe COVID-19 infections.	5855521
11-Dec-20	Pfizer and BioNTech's coronavirus vaccine received an emergency use authorization (EUA) from the US Food and Drug Administration (FDA) on December 11, 2020. This is the first European Union approval for a COVID-19 vaccination. The EUA permits the vaccine's distribution across the United States (U.S. Food and Drug, December 11, 2020).	15648098
18-Dec-20	The US Food and Drug Administration (FDA) gave an emergency use authorization (EUA) to Moderna's COVID-19 vaccine, allowing the federal government to begin distributing the vaccine to states.	17314834

The state intervention in the year 2020 was of three major categories

- i) Restriction of Movements
- ii) Relief Packages
- iii) Vaccine Development

**Table 2:** Major State Interventions to Address COVID19 in 2020

Date	Event	Cases
29-Jan-21	The Centers for Disease Control and Prevention (CDC) in the United States issued an order requiring all passengers utilizing public transit in the United States to wear a face mask that completely covers their nose and mouth. On February 1, 2021, at 11:59 p.m. EST , the order became effective.	23344423
17-Feb-21	President Joe Biden (D) announced a series of new financing efforts to battle the coronavirus pandemic including \$200 million to assist in the identification of new coronavirus strains through expanded genome sequencing. Biden also allocated \$650 million to help improve testing in elementary and intermediate schools, as well as \$815 million to increase testing supply production.	27221607
27-Feb-21	The Food and Drug Administration (FDA) gave Johnson & Johnson's COVID-19 vaccine an Emergency Use Authorization (EAU).	28174978
17-Mar-21	The US Department of Health and Human Services said that the Centers for Disease Control and Prevention (CDC) would allocate \$10 billion from the American Rescue Act of 2021, which was signed by President Biden (D) on March 11, to COVID-19 testing to assist schools in reopening. The funds will be used to pay for diagnostic testing to identify both symptomatic and asymptomatic teachers, staff, and pupils (The Hill, May 17, 2021).	29063401
09-Apr-21	Pfizer and BioNTech, a pharmaceutical and biotechnology business, filed a request with the Food and Drug Administration (FDA) to change the FDA's emergency use authorization to allow minors aged 12 to 15 to receive the COVID-19 vaccine. The vaccination was only available to persons aged 16 and up under the initial emergency use authorization.	30772857
26-Apr-21	White House officials claimed that the Biden administration was willing to distribute up to 60 million doses of the AstraZeneca COVID-19 vaccine with foreign countries provided the vaccine doses passed an FDA examination.	31656636
02-Jun-21	President Joe Biden (D) designated June a "National Month of Action" in order to meet his objective of having 70% of adult Americans vaccinated by July 4. Biden mentioned a variety of private-sector vaccine incentives, such as free beer from Anheuser-Busch and free flights from United Airlines (New York Times, June 2, 2021).	32916501
06-Jul-21	President Joe Biden (D) announced new actions his administration would take to boost vaccination rates and combat the Delta variety, including a community outreach push to get people vaccinated. He also stated that federal teams would be dispatched to areas with poor vaccination rates to assist local officials with contact tracing.	33829070

22-Jul-21	The Biden administration announced \$1.7 million in fresh funding for vaccination testing and outreach. Xavier Becerra, the Secretary of Health and Human Services, said \$1.6 billion would go toward testing in jails and homeless shelters, with roughly \$100 million going for vaccine outreach in rural regions.	34368138
03-Sep-21	The Biden administration announced "American Pandemic Preparedness: Transforming Our Capabilities," a \$65.3 billion strategy intended at setting the framework for future pandemic response. The strategy includes \$24.2 billion for vaccine development and \$11.8 billion for antiviral medicines. A \$15-20 billion centre, housed within the US Department of Health and Human Services, would coordinate a government pandemic response, according to the idea (CNBC, September 3, 2021 & The Hill, September 3, 2021).	35329390
04-Oct-21	The Department of Defense ordered that civilian employees must be completely vaccinated against COVID-19 by November 22, 2021 (The Hill, October 5, 2021).	35426060

**Table 3:** Major State Interventions Address COVID19 in 2021

The year 2021 in the US experiences a mixture of impact of COVID-19 virus spread. The state intervention also were too varied one of the important interventions is making the use of face mask mandatory in the country after almost a year of infection. The country also experienced political changes and the resulting strategic shifts in the approach to COVID management. It is important to note that the deaths in US were relatively very low compared to the global and the high infected countries in Europe. The deaths were consistently low since the start of the pandemic outbreak in the US.

### COVID-19 Cases- Trends in United States

The pandemic has disproportionately affected certain racial and ethnic groups, reflecting some of the longstanding disparities that persist in many of the measures [4]. The white non-Hispanic contributed the highest number of COVID 19 cases. Asians relatives were found to be less infected in numbers.

Race/Ethnicity	Percent of cases	Count of cases	Percent of US population
Hispanic/Latino	24	7464730	18.45
American Indian / Alaska Native Non-Hispanic	1	319632	0.74
Asian Non-Hispanic	3.3	1026301	5.76
Black Non-Hispanic	12.1	3751280	12.54
Native Hawaiian / Other Pacific Islander Non-Hispanic	0.3	94484	0.182
White Non-Hispanic	55.3	17168862	60.11
Multiple/Other Non-Hispanic	3.9	1207156	2.22

**Source:** <https://covid.cdc.gov/covid-data-tracker/#demographics>

**Table 4:** Cases by Race and Ethnicity in the United States as of Jan 10 2022

### COVID19 Cases by age group - Trends in United States

The age distribution of infected has found very interesting with 18-29 years being the highest infected group and the least infected were less than 17 years and more than 65n years of age. The age group 18 to 64 years has been found to be the largest risk group in the US. The table below explains this in detail.

Age Group	Percent of cases	Count of cases	Percent of US population
0-4 Years	2.8	1302889	6
5-11 Years	6	2789409	8.7
12-15 Years	4.4	2050290	5.1
16-17 Years	2.7	1275051	2.5
18-29 Years	21.8	10101488	16.4
30-39 Years	16.9	7840790	13.5
40-49 Years	14.4	6704139	12.3
50-64 Years	18.8	8731419	19.2
65-74 Years	6.9	3201185	9.6
75-84 Years	3.4	1596597	4.9
85+ Years	1.8	831971	2

Source: <https://covid.cdc.gov/covid-data-tracker/#demographics>

Table 5: Cases by Age group as of Jan 10, 2022

## Test Positivity Rate Trends in United States

The test positivity rate in the US also was relatively high since the beginning compared to the global TPR. In March 2020 it has been in the peak and the rate started declining from June 2020. However the infection rate started to increase again from December 2020. From the month of March 2021 we could see a significant decline in the test positivity rate and also the number of positive cases. The infection numbers keeps changing in the United States and US could be seen as a unique case with regard to the trend of spread of infection.

Date	Positive Cases	Tests Done	Test Positivity Rate
01-03-2020	7	348	2.0%
31-03-2020	26381	142267	18.5%
01-05-2020	35021	337413	10.4%
01-06-2020	16966	440155	3.9%
01-07-2020	51567	886420	5.8%
01-08-2020	59132	793746	7.4%
01-09-2020	42943	908705	4.7%
01-10-2020	46094	1224657	3.8%
01-12-2020	194029	1845997	10.5%
01-01-2021	166253	1256746	13.2%
01-02-2021	129364	1039089	12.4%
01-03-2021	54488	999662	5.5%
01-04-2021	79186	1446771	5.5%
01-05-2021	46660	904795	5.2%
01-06-2021	21495	708805	3.0%
01-07-2021	14376	642505	2.2%
01-08-2021	43836	570026	7.7%
01-09-2021	202250	2036761	9.9%
01-10-2021	152873	1821702	8.4%
01-12-2021	138615	1931108	7.2%

Source: <https://ourworldindata.org/coronavirus/country/united-states>

Table 6: Trend Test Positivity Rate

## COVID-19 Cases by Gender

The percentage of females outnumbered the number of male in COVID19 infection in the United States. While 47% of the infected were male 53% were female. The overall percentage of male and female also suggest females as the highest in terms of population

Gender	Percentage of cases	Count of cases	Percentage of US population
Female	52.6	24342054	50.75
Male	47.4	21961232	49.25
Other	<0.1	515	N/A

Source: <https://covid.cdc.gov/covid-data-tracker/#demographics>

Table 7: COVID-19 Cases by Gender

## COVID19 Deaths by Ethnicity

The COVID19 death reported has shown discrepancy according to the ethnicity. White non-Hispanic was the largest in terms of the number of deaths. The spread also were high among this category. Among the Latino and Asians also it is observed as low deaths. However it is important to explore the general deaths trend among these categories in case of other deaths.

Race/Ethnicity	Percent of deaths	Count of deaths	Percent of US population
Hispanic/Latino	17	103413	18.45
American Indian / Alaska Native Non-Hispanic	1.1	6747	0.74
Asian Non-Hispanic	3.5	21034	5.76
Black Non-Hispanic	13.5	81941	12.54
Native Hawaiian / Other Pacific Islander Non-Hispanic	0.2	1474	0.182
White Non-Hispanic	62.3	378912	60.11
Multiple/Other Non-Hispanic	2.3	14248	2.22

Source: <https://covid.cdc.gov/covid-data-tracker/#demographics>

Table 8: COVID19 Deaths by Race / Ethnicity in United States - Jan 10 2022

## COVID Deaths by Age Group

While the cases were less in the 65 plus age group the deaths have been showed high in the 65 plus category. Those above 85 years were the largest age group that noted in terms of death. 28% of the total deaths were in this category. A total of 75% of the total deaths were in the 65 years and above age group category. This needs to be further explored of the reasons for this trend of death. It could be worth exploring if the care and financing pattern in the country has anything to do with this high death rate among the elderly population. The table below explains this in detail. The death among people less than 18 years was very negligible.

Age Group	Percentage of deaths	Count of deaths	Percent of US population
0-4 Years	<0.1	345	6
5-11 Years	<0.1	225	8.7
12-15 Years	<0.1	256	5.1
16-17 Years	<0.1	253	2.5
18-29 Years	0.8	5338	16.4
30-39 Years	1.7	12435	13.5
40-49 Years	4	28138	12.3
50-64 Years	17.5	124285	19.2
65-74 Years	22	156796	9.6
75-84 Years	26	185166	4.9
85+ Years	27.8	198035	2

**Source:** <https://covid.cdc.gov/covid-data-tracker>

**Table 9:** Deaths by age Group in United States as of 10th Jan 2022

## COVID-19 & US Health System

While the COVID-19 pandemic poses issues for many countries, the United States' underfunded public health infrastructure, fragmented medical care system, and insufficient social protections make mitigating and managing the outbreak difficult and challenging. Years of underfunding of the country's federal, state, and local public health institutions, combined with state administration mismanagement, impeded the early response to the pandemic. Meanwhile, in the United States, impediments to care faced by the uninsured and underinsured could prevent COVID-19 treatment and impair containment efforts, resulting in negative medical and financial outcomes for infected people and their families, particularly those from disadvantaged communities. While the United States has a large number of ICU beds and most other health-care facilities, these resources are sometimes unevenly dispersed or deployed, leaving certain communities unprepared for a serious respiratory outbreak. These flaws and limitations have sparked a discussion regarding policy solutions. For example, recent legislation expanded coverage for COVID-19 testing for the uninsured and underinsured, and other reforms have been suggested. Comprehensive health-care reform, such as national health insurance, is required, however, to ensure that American families are fully protected during the COVID-19 outbreak and its aftermath [5]. In August, the healthcare expenditures of treating unvaccinated patients were \$3.7 billion nearly double the predictions for June and July combined. The entire cost of those three months that could have been avoided is now estimated to be \$5.7 billion [6-9].

### COVID19 Vaccination – Strategy to Manage Infection

United States is one of the countries that has started vaccination early. This is also because of the early preparatory activities that are followed by United States. US though has taken many measures to strengthen vaccination like investing in many vaccine companies the country has been able to roll out vaccines at an early date that cover the entire population. Nearly 75% of all population in United States is vaccinated against COVID-19. The 65 years plus population has almost 95% coverage of vaccinations. The strategy of US and the state intervention which explained in the early sections of this paper suggest how the country has invested in vaccine research and production. Vaccines has been also procures from many different producers to ensure the country will have adequate dose to provides vaccine cover to all the population and different age group.

Though the vaccination cover has been consistently increasing the United States the Virus Spread and new variants also have recorded an increase. In the new waves both the second and third waves the number of infected has increased exponentially through the country was able to manage the deaths and serious cases and the hospitalization. The table below suggest how the vaccination has progressed and the new cases progressed which pause doubts on the efficacy of vaccines in terms of managing COVID 19 infections.

Date	Total Cases	New Cases	People Fully Vaccinated	Total Boosters	People Fully Vaccinated / 100	Total Boosters / 100
13-12-2020	16471832	186685	4659	NA <sup>1</sup>	0	NA
31-12-2020	20163450	258099	37951	NA	0.01	NA
31-01-2021	26315322	115422	7274069	NA	2.19	NA
28-02-2021	28717728	51866	29502963	NA	8.89	NA
31-03-2021	30531835	66969	63481856	NA	19.12	NA
30-04-2021	32423089	58159	112980658	NA	34.03	NA
31-05-2021	33344166	6110	144390023	NA	43.49	NA
30-06-2021	33744536	16323	160603370	NA	48.37	NA
31-07-2021	35064608	34218	167837587	NA	50.55	NA
31-08-2021	39352829	171272	177422848	1524593	53.44	0.46
30-09-2021	43502278	109958	187082800	5948142	56.35	1.79
31-10-2021	46008043	31698	193184583	21787881	58.19	6.56
30-11-2021	48559401	117485	198062086	45966728	59.66	13.85
31-12-2021	54751469	474255	205406838	72215897	61.87	21.75

Source: <https://ourworldindata.org/covid-cases>

Table 10: Trend Test Positivity Rate

## Vaccine Booster Administration in United States

The plans for booster dose have also been done very early in United States. The discussion regarding vaccinating of different age groups was discussed as a policy at very early days of the pandemic. The state has been investing in the development of vaccines significantly through making grants available for vaccine research and production to various research and production agencies. However the vaccination coverage has not proved to be successful in managing COVID 19 infection among the population. The table below shows the booster dose administration guidelines in summary.

Vaccine Type	Who should get a booster	When to Get a Booster	Which Booster
Pfizer-BioNTech	Everyone 12 years and older	At least 5 months after completing your primary COVID-19 vaccination series	Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines) are preferred in most* situations . Teens 12–17 years old may only get a Pfizer-BioNTech COVID-19 vaccine booster
Moderna	Adults 18 years and older	At least 5 months after completing your primary COVID-19 vaccination series	Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines) are preferred in most* situations
Johnson & Johnson's Janssen	Adults 18 years and older	At least 2 months after receiving your J&J/Janssen COVID-19 vaccination	Pfizer-BioNTech or Moderna (mRNA COVID-19 vaccines) are preferred in most* situations

Table 11: Vaccine Booster Administration

## Conclusion

### Health Spending and Health Outcome

United States is spend on health significantly but not of the greatest quality. Despite spending significantly on healthcare compared to other high-income countries, the United States ranks low on a number of key health indicators, including life expectancy, avoidable hospital admissions, suicide, and maternal mortality. Despite the high cost, satisfaction with the current healthcare system in the United States is low [10]. This seems to be a contradiction and is due to the private sector dominance in the health care provision. The purchase and distribution of health care is private led which go with lots of criteria's that make many ineligible for a large number of necessary health care services. Though the affordable health care act has been implemented earlier that was not found to be influential in making impact in terms of transforming health outcomes. Because of the exorbitant prices and the large number of people who are underinsured or uninsured, many people are at risk of going bankrupt if they get sick. Prices vary greatly, making it difficult to compare the quality or cost of healthcare alternatives [10]. Even insured Americans pay more for healthcare out of pocket than people in most other wealthy countries. Some people buy drugs from other countries because they are cheaper. The status quo may be acceptable to health insurers, pharmaceutical firms, and certain well-paid healthcare providers, but our current healthcare system is unsustainable [11].

### Investment in Healthcare – Less on Prevention More On Cure

Emphasizing technology and specialty care. Rather than preventive care, US system concentrates on sickness, specialty care, and technology [10] has been criticized as an important gap in the investment targeting of US health care spending. The insurance based delivery and distribution undermine the preventive care and more focusing on curative care, which means spending high but not that equivalent of outcomes. This has been one of the important gaps in the COVID management also. The spending on public health and prevention has been very negligible while the country spending lot on vaccine, medicine imports, equipment production etc. Overemphasizing procedures and drugs also has been found an important element of US health System Spending. One of the example could be health insurance usually covers a cortisone injection for tendonitis in the ankle but similar preventive interventions probably better outcome driven are not covered.

Payment mechanisms for private or government-sponsored health insurance can hinder new approaches to healthcare. Patients may find that home-based treatments, such as some geriatric and cancer care, are more cost-effective and preferred compared top institutionalized care that is expensive. However, because present payment systems do not usually cover this type of care, these novel techniques may never catch on. Before the pandemic, tele-health, which could offer medical care to millions with limited access, was very uncommon, partially due to a lack of insurance coverage. Despite this, tele-health has grown in popularity as a result of necessity, indicating its effectiveness [12-13].

### Early Public Health Interventions

The early interventions especially public health interventions are very important for managing an unknown pandemic like COVID19. Many countries including United States spend significant of the time at hand in unnecessary discussions and arguments rather than effectively taking steps to protect the citizens. The information provided by the state in the early days of the pandemic was not effective in addressing the spread of the pandemic. There were confusion and disagreements on many of the preventive protocols including wearing of face mask which is still considered to be best 'vaccine' for COVID19.

### Learning from one another – Collaboration in Action

The collaboration of states has been found to be critical in containing COVID which many countries failed. Regional or continent specific protocols or joint preventive interventions are critical in early prevention and management.

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## Economic Rivalry – Limiting Collaboration

Economic rivalry between the different countries also has been a reason for slow containment of the pandemic. Many countries have done steps in boosting economy through a regional effort is not done in this direction. A collaboration than antagonistic action is critical in managing COVID19.

The management of pandemic like COVID requires more collaboration and joint action rather than financial investment. Financial investment should, be specifically targeted to strengthen the public health and preventive domain of the countries along with strengthening the infrastructure [14]. Political commitment and will both nationally and regionally are important to address the COVID pandemic better. Such pandemic has lots of ill effects on other sectors thus health sector interventions in a planned and intelligent and organized manner are critical. Where state should intervene and where community should intervene is all critical and the intervention needs to be decentralized and should be done at the micro level [15].

**Note:** Comments on this article are welcome and should be addressed to Dr. Toms K Thomas (toms.t@srmus.edu.in), Associate Professor, Department of Public Health, SRM University, Sikkim (India).

**Funding:** No funding has been received for this paper and this was self-funded

**Ethical Approval:** No ethical approval required since the paper used only the secondary information.

**Conflict of Interest:** No conflict of Interest.

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