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# Pharmaceutical messianism and the politics of COVID-19 in the United States

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**ABSTRACT**

Throughout the COVID-19 pandemic, public officials in the United States – from the President to governors, mayors, lawmakers, and even school district commissioners – touted unproven treatments for COVID-19 alongside, and sometimes as opposed to, mask and vaccine mandates. Utilising the framework of 'pharmaceutical messianism', our article focuses on three such cures – hydroxychloroquine, ivermectin, and monoclonal antibodies – to explore how pharmaceuticals were mobilised within politicised pandemic discourses. Using the states of Utah, Texas, and Florida as illustrative examples, we make the case for paying attention to pharmaceutical messianism at the subnational and local levels, which can very well determine pandemic responses and outcomes in contexts such as the US where subnational governments have wide autonomy. Moreover, we argue that aside from the affordability of the treatments being studied and the heterodox knowledge claiming their efficacy, the widespread uptake of these cures was also informed by popular medical (including immunological) knowledge, pre-existing attitudes toward 'orthodox' measures like vaccines and masks, and mistrust toward authorities and institutions identified with the 'medical establishment'. Taken together, our case studies affirm the recurrent nature of pharmaceutical messianism in times of health crises – while also refining the concept and exposing its limitations.

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## 1. Background

The COVID-19 pandemic demonstrated how politicians typically respond to health crises: by offering their publics easy solutions like miracle cures and wonder drugs. Be it during the pandemic's first few months or the numerous variant surges (and moments of great uncertainty) that followed, there was no shortage of examples of politicians endorsing a particular substance as an antidote to COVID-19 – from the United States' Donald Trump touting hydroxychloroquine (HCQ) (AP Archive, 2020) to the Philippines' Rodrigo Duterte speaking of 'horse antibodies' (Malig, 2020); from Sri Lanka's Minister of Health endorsing a quasi-Ayurvedic decoction (Rambukwella,

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2023) to a Venezuelan congresswoman promoting a natural remedy allegedly based on 'nanotechnology' (Gutierrez, 2020).

The resort to these cures has been the subject of scholarship. For instance, Casarões and Magalhães (2021) studied the promotion of HCQ by the presidents of the US and Brazil, calling them part of a 'hydroxychloroquine alliance' that brought together far-right leaders, 'alt-scientists', businesspersons, and the media. Using HCQ in France, ivermectin in the Philippines, and a herbal preparation called Covid-Organics in Madagascar as illustrative examples, Lasco and Yu (2022) coined the term 'pharmaceutical messianism' to describe why and how leaders tout so-called miracle drugs, proposing that this phenomenon (1) emerges during times of extraordinary crisis, (2) builds on preexisting knowledge or practices, (3) relies on some kind of heterodox authority, and (4) resorts to readily available substances (see also Bharti & Sismondo, 2024). Lasco and Yu (2022) further used historical examples from the as-yet-unended HIV pandemic to show that this messianism is not unique to COVID-19 – but has in fact been a familiar, recurrent response to epidemics and other crises of such magnitude.

Such scholarship notwithstanding, the specific literature on the politics of pharmaceuticals remains limited and has largely focused on national leaders. Left mostly unexamined are the subnational levels of governance, even as these levels have played decisive roles in shaping the outcomes of the pandemic from Asia to Latin America (Adhikari & Budhathoki, 2020; Pradana et al., 2020; Ramírez De La Cruz et al., 2020).

Equally under-examined are the specific political milieux of the performances of actors who may be described as 'populist' in the broadest constructions of the word (see Moffitt, 2016). Beyond national politicians – and even beyond politicians – who are the actors that participate in (or challenge) the promotion, procurement, and distribution of pharmaceuticals, and what are the logics involved? In one notable example showing the analytic value of this exercise, Bharti and Sismondo (2024) demonstrated how Coronil – an Ayurvedic preparation promoted as an 'evidence-based cure' – was pushed in India by a Yoga guru and his consumer goods company by leveraging populist ideas of cultural pride and appealing to nationalist sentiments. In this sense, Casarões and Magalhães' (2021) notion of an 'alliance' becomes a useful concept in thinking about the constellation of actors, including 'alt-science' adherents (see also Cesarino & Silva, 2023; Da Silva & Au, 2022) and 'influencers' (see also Baker & Maddox, 2022; Thompson, 2023), who are involved in popularising so-called cures.

This article contributes to the above-mentioned literature by looking at *subnational* pharmaceutical messianism in three US states: Utah, Texas, and Florida, in the process elucidating a pharmaceutical dimension to the pandemic politics that unfolded in the country. In each state, a different substance – HCQ in Utah, ivermectin in Texas, and monoclonal antibodies (MAbs) in Florida – was heavily touted by political actors as an antidote to COVID-19 and mobilised in ways that fell within the country's political and cultural divides, often pitting the substance's defenders (and their administrations) against the Democratic-led federal government of President Joseph Biden. In writing this article, we also hope to refine the notion of pharmaceutical messianism and further identify its implications for public health. As shown by the rise of poisoning cases with bleach and disinfectants following Trump's suggestion that those substances can kill the coronavirus (Kluger, 2020), pharmaceutical messianism can have grave public health implications, thereby necessitating sustained critical reflection even in this 'post-global health emergency' era. In looking at the present-day efficacies of drugs beyond the pharmaceutical, we can contribute to contemporary accounts of how politics shape public health responses, and conversely, how public health prescriptions mold political landscapes.

## 2. Methodology

Following the approach of earlier scholars (Casarões & Magalhães, 2021; Hedges & Lasco, 2021; Lasco & Yu, 2022), we present three case studies depicting pharmaceutical messianism in the US in the time of the COVID-19 global public health emergency. Here, we employ a descriptive

approach; we have concerned ourselves not with scientific or biomedical correctness that might have accompanied the popularisation of each drug, but with how these ostensibly scientific substances became political – and politicised – objects within each state's respective pandemic narrative (see Lasco & Curato, 2019). In this sense, our approach simultaneously elucidates 'how particular politics [became] pharmaceuticalized', to echo Bharti and Sismondo (2024, p. 373).

As scholars and social scientists who have surveyed the global pandemic situation since its beginnings, we ended up selecting our case studies based on three factors. The first is geographical diversity with respect to the drug involved: We chose a particular state where a particular drug – seemingly more than other drugs – captured public and political discourse. The second is temporal diversity: We chose a drug to represent a different temporal standpoint of the global public health emergency, hopefully not only to demonstrate the differences with which each narrative unfolded over time, but also to show the similarities of each narrative irrespective of time. As such, HCQ in Utah represents the start of the pandemic in 2020; ivermectin represents mid- to late-2021, as the world endured one variant surge after another; and MAbs represent the latter half of 2021 to early 2022, during which time the first ostensibly 'mild' variant (omicron) emerged, paving the way for the eventual relaxation of pandemic protocols. Finally, we chose places where the public and political debates surrounding science and public health, COVID-19 mitigation measures and alternative cures, were fiercest and most stark. Hence, we zeroed in on Republican states, or those where subnational leadership is vastly under the Republican Party. While arguably an analytical limitation (and indeed, we go into further detail on this later in the article), it is also a practical consideration: Put simply, to study the discourse, we went where the discourse was loudest – in this case, to places where Republican politics and ideologies reigned supreme, and consequently, as Ehrenreich (2022) established, where resistance to public health authorities and scientific measures like masking and vaccination were strongest; where mistrust in institutions and belief in alternative cures were most pronounced.

We drew from a variety of sources using targeted online searches, beginning with a more general survey of pandemic narratives before zeroing in on the particular time period when debates surrounding each drug in each state were most conspicuous. To reconstruct each narrative, we relied heavily on local journalistic reportage from major print, online, and broadcast media in each state (e.g. *The Salt Lake Tribune* and *Deseret News* in Utah, *Houston Chronicle* and *The Texas Tribune* in Texas, *Sun Sentinel* in Florida). We also used material from national media outlets with broader, international circulation (e.g. *CNN*, *The New York Times*). Where applicable, we used archival material of press conferences of relevant actors (e.g. Trump's press conferences at the start of the pandemic, as archived on YouTube). And we also used material from government releases or

**Table 1.** Summary of cases.

| | Moment of extraordinary crisis | Antecedents | Medical proponents in the state | Outcome |
|---|---|---|---|---|
| Hydroxychloroquine in Utah | Start of the pandemic (March to April 2020) | Endorsement by Donald Trump | Dr. Marc Babitz, Dr. Kurt Hegmann, Utah Medical Association | Sharp decline after drug procurement anomalies found and as emerging studies showed poor efficacy against the virus |
| Ivermectin in Texas | Delta variant surge (July to September 2021) | Use by other countries; endorsement by Dr. Pierre Kory, president of the Front Line COVID-19 Critical Care (FLCCC) Alliance, and conservative figures | Dr. Joseph Varon, Dr. Mary Bowden, and other prominent medical practitioners | Eventual decline as COVID cases dwindled |
| Monoclonal antibodies in Florida | Delta and omicron variant surges (August 2021 to February 2022) | Trump's endorsement and FDA's emergency use authorisation | Florida Surgeon General Joseph Ladapo and other state health officials | Eventual decline as COVID cases dwindled and as studies showed poor efficacy against omicron |

websites of relevant politicians (e.g. Governor Ron DeSantis' webpage). Table 1 summarises the salient points of each case study with respect to the framework of pharmaceutical messianism.

## 3. Illustrative examples

### 3.1. Hydroxychloroquine in Utah

HCQ has long been a widely available, prescription-only drug in the US, used for the treatment of diseases like malaria, lupus, and rheumatoid arthritis. But, on March 19, 2020, it was pushed into national headlines as a possible COVID-19 cure, following Trump's televised declaration of it as a 'game changer' (AP Archive, 2020). Describing it as a 'very powerful drug', Trump promised to make HCQ 'available almost immediately' while also noting that, since it is an old drug, 'it's not going to kill anybody' (AP Archive, 2020).

The following day, state and health authorities in Utah started collectively advocating for the drug. Most prominent among this pro-HCQ faction were Dr. Marc Babitz, deputy director of the state's Department of Health, and Dr. Kurt Hegmann, director of the University of Utah's Rocky Mountain Center for Occupational and Environmental Health. At a press conference at the state capitol in Salt Lake City, Hegmann portrayed the drug as literally miraculous: Referencing the studies done in China and France in the preceding months (see Lasco & Yu, 2022), he compared the COVID patients who had received the drug – and been allegedly cured as a result – to the Biblical figure of Lazarus, as 'people almost dead coming back [to life]' (Davidson, 2020). Babitz, on the other hand, invoked the pandemic's unprecedented nature to assert the need for the drug even without what he termed 'FDA-type evidence': 'The risk to the patient [from using HCQ] is very low', Babitz said, 'and the potential benefit … is very high' (Davidson, 2020). In a later conference, Babitz again stressed the need for the drug, calling it 'a win' for the whole health system and framing its use in terms of risk-benefit analyses: 'If I weigh the benefits and the risks of this medicine versus the risks of not doing anything, it's an easy decision to me. We need to do something … ' (Adams, 2020).

The days that followed saw the scaling up of vocal support and legislative efforts regarding using the drug for COVID-19. The Utah Medical Association released official recommendations – supposedly sanctioned by the state's health department and apparently penned by Babitz himself, according to investigative reports – for the use of HCQ and its metabolic parent chloroquine (McCombs, 2020; McKellar, 2020b). Backed by the state's Senate Pres. Stuart Adams, a group of influential individuals that included Hegmann and Babitz started working on a policy to allow pharmacies to dispense the drugs even without a physician's prescription to those who tested positive for COVID-19 (Joseph, 2020; Roche, 2020). Most significantly, before the month ended, the state had ordered some USD 800,000 worth of HCQ from a private supplier (McKellar, 2020a).

However, the support for the drug was not unanimous, especially within the local medical community – and this pushback from health practitioners and authorities was crucial in hindering the drug's momentum in the public and political consciousness. For instance, within days of issuing the aforementioned recommendations to use HCQ, the Utah Medical Association reversed its position, attributing this about-face to evolving guidance from the state department and the emerging 'lack of convincing evidence' as to the drug's effect on COVID-19 (McCombs, 2020). In reality, this decision came swiftly in the wake of an open letter penned by some 50 infectious disease specialists and pharmacists in the state, who called out the recommendations as not based on 'data demonstrating efficacy' (McCombs, 2020; Rodgers, 2020a). Emails obtained by investigative reporters also revealed that even the state epidemiologist disagreed with Babitz and his cohort's push for the drug (McKellar, 2020b). Amid all this opposition, the plan to allow pharmacies to freely dispense HCQ did not come to fruition (Joseph, 2020).

In late April 2020, it was discovered that the USD 800,000 order for HCQ was in fact not wholly approved by the state government – only certain departments knew the order had been placed – and

that the chosen supplier, Meds in Motion, had a disreputable legal record (Becker, 2020; McKellar, 2020a). Investigations revealed that high-ranking officials including Babitz and Adams had, from the start, been working with Meds in Motion chief executive officer Dan Richards to process what many considered an overpriced procurement (Becker, 2021; Joseph, 2020; Rodgers, 2020b). Compounding the picture of collusion between political and private individuals, a board member of Meds in Motion was discovered to be behind a tech startup pushing for an online COVID-19 assessment tool that included allergies to HCQ (and implicitly, the possibility of treatment) among its questions (Baird, 2020; Lenz, 2023). Around this time, the first US study on the drug's effect on COVID-19 showed its ineffectiveness against the disease (Magagnoli et al., 2020), while the country's Food and Drug Administration (FDA) warned that the drug may even cause potentially fatal heart rhythm problems (*FDA Cautions*, 2020). As scientific, political, and public opinion toward the drug rapidly turned, Gov. Gary Herbert himself – who had then largely been in the background – publicly declared the purchase a possible 'mistake' while maintaining his ignorance over the plausibly fraudulent order (Curtis, 2020). Before the month ended, Meds in Motion had been made to refund the state for the full, cancelled order (Joseph, 2020).

The case of HCQ in Utah demonstrates how pharmaceutical messianism operates not only along a 'bidirectional', 'transnational' plane (Lasco & Yu, 2022, p. 6), or between countries; it also works within local arenas, trickling from the national to more regional stages. As investigative reports showed, Babitz and his colleagues were clearly inspired by Trump's early proclamations in support of HCQ, hoping the former President's words would 'help with community acceptance' of the drug (Joseph, 2020; McKellar, 2020b). Additionally, this case shows the constant vulnerability of health-related decision-making, especially in the highest levels of government, to political and private interests, emphasising the need to safeguard the independence of those in charge of making such decisions (Lasco & Yu, 2022).

### 3.2. Ivermectin in Texas

Ivermectin is a human and animal anti-parasitic discovered in the 1970s. In the US, its formulation for humans is available on prescription for the treatment of diseases like lymphatic filariasis and river blindness.

While already popular as a COVID-19 cure in places like Peru and Bangladesh in mid-2020, ivermectin gained traction in the US only toward the latter end of that year, becoming a political flashpoint of hyper-partisanship amid the 2020 presidential elections (Barnett et al., 2022). In December 2020, the drug was arguably catapulted to national fame by Dr. Pierre Kory, president of the Front Line COVID-19 Critical Care (FLCCC) Alliance, the collective of physicians and journalists who consistently championed ivermectin – among other proposed COVID treatments – throughout the pandemic, even as significant evidence emerged disputing its effectiveness. Kory's proclamation of ivermectin as a 'miracle drug' could not have been more opportune: When he did so as an expert witness before the Senate, the country was already averaging over 200,000 new infections per day ('COVID-19: US Reports,' 2020). Thereafter, ivermectin was steadily assimilated into the rhetoric of conservative media figures such as Laura Ingraham and Joe Rogan, and in the anti-vaccine activism of numerous Trump allies (Blake, 2021a; Huang, 2021).

Among other states, Texas became an exemplar of ivermectin's popularity: A study by the US Centers for Disease Control and Prevention (CDC) found that, between March 14, 2020 and April 2, 2021, the state had the highest estimated dispensing rates of the drug nationwide (Lind et al., 2021). By mid-2021, as hospitalisations spiked exponentially from the delta variant, state politicians, as well as physicians, were openly advocating for ivermectin. In August, against the advisories of the CDC and FDA, Republican Cong. Louis Gohmert – a close ally of Trump – endorsed ivermectin, among other drugs, at the Texas Youth Summit (Blake, 2021b). Around the same time, Dr. Joseph Varon – the chief medical officer of the United Memorial Medical Center in Houston – publicly admitted to administering ivermectin to 'a few thousand patients' without

witnessing 'a single significant side-effect' ('Against FDA Warning,' 2021). An active member of FLCCC, Varon had earned media acclaim for claiming to have worked nonstop throughout the pandemic, in addition to his established career in medicine (Cullinane, 2020). In Austin the following month, Dr. Cliff Porter of Texas Direct Medical Care also went public with having prescribed the drug to 'hundreds of patients in the past year', and described the resistance to ivermectin as 'politically motivated' (Crown, 2021). Later in October, Allen West, former chair of the state Republican Party, announced that he was taking ivermectin (and HCQ) after developing COVID symptoms (Medina, 2021). At the time, West was running against Gov. Greg Abbott for state governor and, throughout his campaign, famously opposed vaccine mandates.

This patronage of ivermectin by influential state politicians and health workers cohered well with the conservative leadership's stance around mask mandates, vaccination, unproven treatments, and the pandemic in general. For example, while never explicitly endorsing ivermectin or alternative cures, Abbott notably opposed the federal government's mask and vaccine mandates, announcing in August 2021 a sweeping ban against such mandates and barring anyone receiving public funds from issuing vaccine requirements – moves that came just two days after the FDA granted full approval to the Pfizer vaccine (Svitek, 2021). The state lieutenant governor Dan Patrick also frequently resorted to incendiary, right-wing rhetoric – in the process, building his political capital – from portraying stay-at-home measures as an economically harmful overreaction to blaming the COVID surges on supposedly unvaccinated Black Americans (Livingston, 2020; Lybrand & Subramaniam, 2021).

In a milieu marked by highly visible state figures' opposition to 'conventional science' and their endorsement of accessible alternative cures, use of ivermectin thus flourished in Texas, even against CDC and FDA warnings. In certain cases, it even became the subject of legal controversy. One such case involved Jason Jones, a Tarrant County sheriff's deputy who was hospitalised – and eventually intubated – due to COVID at a Fort Worth hospital: Jones' family sued the hospital to allow an outside doctor to give the patient ivermectin, which the hospital had refused to administer (Prosser, 2021a). The doctor, Mary Talley Bowden, testified to having treated countless patients with the drug and was eventually granted by the court temporary privileges to do so to Jones; this decision was later reversed, and Bowden, who was famously against vaccines, was suspended from her Houston hospital for her 'harmful personal and political opinions' regarding the pandemic (Prosser, 2021a, 2021b).

Its resolution notwithstanding, this case and its associated lawsuit is a fitting demonstration of the ivermectin frenzy in Texas that became intricately tied to debates on individual choices and rights, and enveloped by populist strategies to assail vaccination and masking efforts. The drug's affordability probably enhanced its attractiveness, especially in an environment of desperation, mistrust toward authorities, and political polarisation. Unsurprisingly, the statistics reflected the state population's heavy use of the drug: In August 2021, the Texas Department of State Health Services reported a 150 percent surge (compared to the previous month) in the number of calls to the Texas Poison Center Network regarding ivermectin exposure, while also noting that a third of the calls for the year thus far concerned individuals experiencing severe symptoms of ivermectin ingestion (*Health Alert*, 2021).

In a news report, Dr. Peter Hotez, a leading expert of vaccinology from Baylor College of Medicine, Houston, identified ivermectin as reflecting the 'canon of anti-science disinformation that we're seeing from the political right' (Gill, 2021). The politically weaponised, anti-science momentum for ivermectin use continued throughout 2021 and ebbed only with the slowing down of the pandemic.

### 3.3. Monoclonal antibodies in Florida

While MAbs had been floated as a potential COVID treatment since the start of the pandemic, the first nationally publicised instance of their use can be said to have occurred in October 2020. This

involved no less than Trump himself, who credited MAbs for his recovery from COVID that month: 'They gave me Regeneron, and it was, like, unbelievable. I felt good immediately … It just made me better, okay? I call that a cure' (Haberman & Thomas, 2020). The following month, the FDA granted emergency use authorisation for two MAbs, casirivimab and imdevimab, to be administered together for 'mild to moderate COVID-19 in adults and pediatric patients' (*FDA Authorizes*, 2020). Four months later, in February 2021, another pair of MAbs, bamlanivimab and etesevimab, received similar authorisation (*FDA Authorizes*, 2021).

Such antecedents notwithstanding, it was in August 2021 – amid the delta variant surge and several months after the start of vaccinations – that MAbs gained heightened, nationwide interest. From 27,000 per week in July, orders across the country peaked at around 168,000 per week that month, with those from seven Southern states accounting for 70 percent of total orders (Mueller, 2021a).

One such state was Florida, where Gov. Ron DeSantis was an early champion of MAbs. On August 4, as daily averages of COVID cases hit 18,000 (from around only 1,500 two months earlier), DeSantis held a press conference with hospital leaders at Tampa General Hospital, encouraging the public to avail of MAb treatments (Colombini, 2021). Six days later, DeSantis announced a 'rapid response unit' for MAb therapies in Jacksonville – the first of 'additional long-term sites across the state' (*Governor Ron DeSantis Announces*, 2021). The same press release quoted Dr. Kenneth Scheppke, chief medical officer of the Florida Division of Emergency Management, as saying:

> The treatment reduces severe illness, hospitalization and death risk by 70%, and reduces the odds of household contacts developing COVID-19 by 82%. [MAb] therapy helps prevent the COVID-19 virus from attaching to human cells, and is effective against variants of concern, including the Delta variant. Thank you to Governor DeSantis for his continued dedication to innovative and multi-faceted solutions as we have responded to COVID-19. (*Governor Ron DeSantis Announces*, 2021)

Two weeks later, DeSantis again stressed his support for MAbs, stating in a press release that '21 different sites [have] been able to provide nearly 30,000 treatments of [MAbs] all throughout our state' (*Governor Ron DeSantis Highlights*, 2021a). The release also featured testimonials from various local officials praising the governor and vouching for MAbs' efficacy. When the *Associated Press* linked a top DeSantis donor to investments in Regeneron (a top manufacturer of MAbs), DeSantis' spokesperson dismissed the story as a 'baseless political narrative' ('AP: Top Donor,' 2021).

Unlike HCQ and ivermectin, which were rejected by international health agencies like the World Health Organization and health authorities like Dr. Anthony Fauci, MAbs were 'the rare coronavirus medicine to achieve near-universal acceptance' (Mueller, 2021a). What alarmed experts at the time, however, was how support for MAbs was driven by vaccine skepticism and anti-vaccination sentiments – a point raised quickly by opposition figures like Democrat Rep. Anna Eskamani, who described DeSantis as 'not a full-blown anti-vaxxer' who also 'doesn't want to upset those who don't support the vaccine' (Lemongello, 2021). The steep cost of each dose – around USD 2,100 – was also the subject of tense debate between the Democrat-controlled White House and Republican governors like DeSantis ('U.S. Govt. to Purchase,' 2021).

These debates dissipated with the decline of cases by late September 2021, but the exponential surge of what were later identified as cases of the omicron variant in December renewed the demand for (and political debates over) MAbs – even as early evidence suggested the treatments were ineffective against the variant (Mueller, 2021b). On December 17, DeSantis touted Evusheld, a new MAb therapy from AstraZeneca (*Governor Ron DeSantis Highlights*, 2021b). On December 31, Florida Surgeon General Joseph Ladapo – an outspoken vaccine and mask skeptic appointed to the job just months prior – called on the federal government to allocate more MAbs to states, prompting Eskamani to criticise the surgeon general for 'asking for potential treatments that don't work' (Stofan, 2021). By then, DeSantis had become more explicit in his anti-vaccination

stance, supporting laws against vaccine mandates in November and dismissing vaccines as 'jabs' or 'injections', as *The New York Times* observed (Mazzei, 2021).

Tensions between federal and state governments peaked following January 24, 2022, when the FDA announced that MAbs were 'highly unlikely to be active against the omicron variant', and that the federal government would thus limit access to those treatments (Cavazzoni, 2022). Within a day, DeSantis (2022) had threatened to sue the federal government, tweeting, 'Without a shred of clinical data to support its decision, the Biden Administration has revoked the emergency use authorisation for lifesaving antibody treatments'. At MAb treatment sites set up by the DeSantis administration – there were 46 by then – signs were installed that read: 'The Biden administration has removed the ability for any state to administer Regen-Cov or Bam-Ete monoclonal antibody treatments' (Greenberg & Settles, 2022). The state Department of Health likewise opposed the FDA decision, stating: 'Florida disagrees with the decision that blocks access to any available treatments in the absence of clinical evidence. To date, such clinical evidence has not been provided by the [FDA]' (*Monoclonal Antibody Sites*, 2022).

Within weeks of such furor, COVID cases, hospitalisations, and deaths would plummet and never again reach the same levels witnessed at the start of the pandemic. Consequently, the political valence of MAbs would also dissipate, especially with growing evidence that these substances were not effective against the omicron variant (Hoffmann et al., 2022).

Overall, Florida's months-long embrace of MAbs shows the selective invocation of 'science' when it comes to pharmaceuticals, and how attitudes toward COVID-19 treatments were inexorably linked to attitudes toward vaccines. Moreover, this case shows that products do not have to be affordable to be objects of pharmaceutical messianism, especially during times of crisis when huge amounts are being spent by the government itself. Nonetheless, questions of cost and efficacy eventually caught up with the political efficacy and protracted popularity of MAbs, ultimately spelling the end of their use, medical or otherwise.

## 4. Discussion

### *4.1.* Orthodox *medical actors*

While earlier works on the rise of miracle cures during the COVID-19 pandemic highlighted the influence of heterodox medical authorities or alt-scientists (Casarões & Magalhães, 2021; Lasco & Yu, 2022), our article has demonstrated the equally prominent role of orthodox medical actors in introducing certain pharmaceuticals as wonder drugs to the public consciousness. In Utah, two of the earliest champions of HCQ (Drs. Babitz and Hegmann) were top-ranking figures in the state health department or university medical centres, and their endorsement of the drug was further amplified by a (quickly rescinded) memo from the state medical association. In Florida, publicised statements in support of MAbs, such as the one made by Dr. Schepkke, no doubt validated Gov. DeSantis' position, imbuing his push for MAbs with an air of medical legitimacy.

Tracking the rise and fall of HCQ in the US in 2020, Gould and Norris (2021, p. 3) wrote that a 'clearer distinction between facts and subjective interpretation' – in this instance, between evidence-based cures and unproven miracle drugs – can be achieved when scientists and health authorities, instead of politicians, are in 'control of the narrative' during health crises. But our case studies directly refute that statement. In particular, the case of ivermectin in Texas further complicates the idea of 'medical legitimacy'. Individuals like Dr. Varon already had storied, respectable careers prior to the pandemic, and their pronouncements regarding medicine and science would have been perceived immediately as legitimate-unless-proven-otherwise. Viewed this way, Dr. Varon's popularity – and existing credibility as someone aligned with the scientific establishment – may have made it difficult to discredit his endorsements. Here, scientific evidence derived from rigorous, clinical trials and peer-reviewed research became secondary to the

authorities embodying 'supposed' evidence: With the likes of Dr. Varon and Dr. Kory endorsing ivermectin, it quickly became irrelevant whether or not ivermectin was genuinely effective against COVID-19.

All this raises the question of what counts as 'scientific', how 'science' is presented to the public, and who are deemed by the public as 'experts' of science. Much has been written about society's collective (over)reliance on experts – or, at least, the people it anointed as 'experts' – in responding to the pandemic: how expertise can have its limits in the face of an unprecedented crisis (Lavazza & Farina, 2020; Pietrini et al., 2022), and how a 'tyranny' of expertise has been counterintuitive to the success of pandemic responses (Bylund & Packard, 2021). Our article extends these collective arguments further to show how 'science', 'scientific evidence', and 'expertise' can not only decide pandemic outcomes; they can also be *staged* to legitimise strategies that inevitably affect those outcomes. In other words, 'what constitutes "evidence" … and even "science," are open to revision' in times of extraordinary crisis (Rhodes et al., 2020, p. 255).

In all three case studies, advocates of the miracle cures invoked, or at least alluded to, existing scientific data to support their claims – never mind that the data were still laboratory studies whose findings were swiftly proven inapplicable to real-world settings (as in HCQ), or that health authorities had issued warnings against using the said cure (as in ivermectin), or that manufacturers themselves had admitted to the cure's inefficacy against more recent COVID variants (as in MAbs). Instead, what mattered was that 'evidence' was presented to legitimise the miracle cure – and done so in ways that appropriated scientific language. This can be seen as key to the success of the cures pushed by the FLCCC; indeed, the very existence of the FLCCC has been couched on scientific language: 'frontline', 'critical care', even as the group has advocated for ineffective or questionable treatments.

Complimentarily, this 'public staging of science' – by orthodox actors deploying authoritative, orthodox medical language – also figured in the defense for these very actors. For example, an open letter published in late 2022 in the *Journal of American Physicians and Surgeons* condemned the decisions to review the board certification of Dr. Kory and other like-minded doctors, problematising the existence of 'well-established medical facts' as well as the right of public health agencies or societies to adjudicate these 'facts' (Gkioulekas et al., 2022). Overall, the letter, with almost 1,200 signatories, defended the medical profession in general – while noting that 'physicians on all sides have arguments based on analysis of evidence, and all appear to strongly believe their positions'. If anything, such statements underscore the need to look at the role of medical actors in the pandemic politics and policy.

### 4.2. Wonder drugs versus 'orthodox' prescriptions

Another significant point of discussion is the interrelationship between political and medical opinions on wonder drugs and the more 'standard' prescriptions for COVID-19 prevention, such as vaccination and mask mandates.

In Florida, the support for wonder drugs was closely associated with opposition to vaccines, to which these medications were perceived as an alternative. Gov. DeSantis downplayed the importance of vaccination in the same breath as touting MAbs, becoming more explicitly against vaccines as his presidential campaign for the 2024 elections intensified (curiously, with support from his state surgeon general Ladapo) (Bendix & Dixon, 2023). In Texas, Gov. Abbott's successive executive orders challenging the federal government's mask and vaccine mandates complemented the endorsements of ivermectin by orthodox medical figures, heterodox agents, and politicians of the state. While Abbott himself never overtly pushed for the drug, those around him did so vocally, including his opponent for the gubernatorial race, Allen West. An exception appears to be Utah Gov. Herbert, who largely followed CDC recommendations, including imposing a mask mandate in November 2020 (Wamsley, 2020). Already on the brink of retirement by then, Herbert perceivably had little stake in engaging in COVID-19 politics.

In most instances, though, wonder drugs were clearly being touted by political and medical actors long before vaccination was even a concrete option – in further demonstration of the recurrent nature of pharmaceutical messianism, as well as its particular resonance in times when wonder drugs can be weighed against 'the risks of not doing anything', to quote Utah's Dr. Babitz. Indeed, DeSantis and Abbott were both also early champions of HCQ, with the former ordering a million doses for his state in April 2020 (Rohrer & Lemongello, 2020; Weber, 2020). Whether as a phenomenon in its own right or as a building block of vaccine hesitancy and anti-vaccination sentiments, such recurrence throughout the pandemic only underscores the need to study not just drug trajectories, but also their socio-political ecologies. Further, while scholars like Warf (2021) have pointed to the enduring tradition of anti-intellectualism in the US as a major reason for Americans' wide embrace of oftentimes fraudulent miracle cures – and their simultaneous rejection of 'orthodox' prescriptions – our case studies have shown that this embrace was not a one-way street: People were keen to accept miracle cures, but 'experts' and 'health authorities' just as keenly pushed for those cures.

### 4.3. The limits of pharmaceutical messianism

Finally, our cases show the temporal limits to pharmaceutical messianism. While the concept describes the prominence of certain drugs and their opportunistic endorsements by certain actors in times of extraordinary health crises, it does not – as our article has demonstrated – outlast such crises, nor is it coterminous with them.

Each of our case studies has a definite beginning and a fading away that can very well constitute the 'end' of each drug. Perhaps the most obvious factor we can associate with these outcomes is the perceived end of the crisis itself; the declining number of cases and the decreasing biomedical threat of the pandemic meant there was also little need or concern for proposed preventives and treatments. Indeed, by the end of 2022, there was hardly any political discourse around these substances.

However, the trajectories of these moments of pharmaceutical messianism *within* the time of the global public health emergency point to various other elements at play other than the fading away of the crisis itself. Demonstrable failure or non-efficacy of a certain substance could have discouraged its use. The retraction of published scientific articles may have diminished the popularity of ivermectin and HCQ, while emerging evidence of poor efficacy against omicron could have hastened the declining relevance of MAbs in Florida. Evidently, there is still a need – never greater than in the last three years, as Gould and Norris (2021, p. 3) declared – for 'critical appraisal, peer review, clear communication of … data and evidence, and a distinction between evidence and its interpretation' – especially in light of pharmaceutical messianism. And adding to these developments, the exigencies of local politics and the corresponding political actions of medical actors meant that the drugs experienced independent trajectories at the subnational level. Thus, within the crisis itself, pharmaceutical messianism can diminish due to a coalescence of certain events, calling attention to the factors shaping the 'demand side of populism' (Zulianello & Guasti, 2023), including media coverage (Chadwick et al., 2021) and experiential knowledge (Atkinson et al., 2021; Roth & Gadebusch-Bondio, 2022).

## 5. Conclusion

The limitations of our study include the fact that the three states we studied were run by Republican governors. As mentioned earlier, this is a function of our inclusion criteria: None of the Democrat-led states endorsed such treatments – at the very least, to the level with which such endorsements took off in their Republican counterparts. How such endorsements unfolded in those Democratic states, among other research questions, should herald more studies on the figurations and roles of various substances in health crises, especially with the medical, economic, political and social stakes

of pharmaceutical messianism. At present, by adding a *subnational* layer to the politics of COVID-19 pharmaceuticals, we have revealed a complicated picture not just of politicians being pit against the 'medical establishment', but of different politicians and medical establishments being pit against each other – all of which underscores the importance of considering different levels of politics in any analysis of health crises.

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