COWIN

An Exclusionary Vaccination Process
By Design?

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The second wave of the COVID–19 pandemic has hit India far more devastatingly than the first wave,[1] with an official total of 2.72 crore COVID cases and a death toll mounting to 3.11 lakh.[2] If news reports are to be believed, the number of deaths are much more than official figures[3]. Since the first wave hit India in March 2020, the central government has been questioned over its preparedness to tackle the outbreak of the virus[4].

Now, since March 2021, people were left without critical medicines, oxygen or hospital beds[5]. As helplessness gripped the country, people died in their homes or while waiting outside hospitals for beds[6]. Social media, particularly Twitter, was flooded with appeals for help[7]. Graveyards and crematoriums alike have been overrun by dead bodies, with shocking visuals of corpses floating in the Ganga flashing across screens nationwide[8]. According to public health experts, the only way to control this ongoing scourge is the procurement of vaccines and an acceleration of the vaccination drive[9].

In an official statement, the Union Health Minister of India, Dr. Harsh Vardhan said that India will have procured 267 crore COVID vaccines by the end of 2021, out of which 51 crore COVID–19 vaccine doses will be made available by July and a further 216 crore more doses being made available between August and December.[10] He further added that India will be in a position to inoculate all of its adult population by the end of 2021. The year-long wait for COVID-19 vaccines seemed to have ended in January 2021, with the hope that the pandemic would gradually recede. The vaccination drive was started in three phases:

> "The year-long wait for COVID-19 vaccines seemed to have ended in January 2021, with the hope that the pandemic would gradually recede"

[1]Express Web Desk. (2021, May 21). Coronavirus Highlights: Over 300 districts showing decline in case positivity, says Health Ministry. *The Indian Express.* https://indianexpress.com/article/india/coronavirus-india-live-updates-karnataka-maharashtra-tamil-nadu-delhi-lockdown-vaccine-7320898/ [21 May 2021].

[2]Data at the time of writing this report on 26 May 2021.

[3]Gamio, L., & Glanz, J. (2021, May 25). Just How Big Could India's True Covid Toll Be? *The New York Times.* https://www.nytimes.com/interactive/2021/05/25/world/asia/india-covid-death-estimates.html [21 May 2021].

[4]Deutsche Welle. (2021, May 7). COVID: Indian courts demand government accountability. Deutsche Welle. https://www.dw.com/en/covid-indian-courts-demand-government-accountability/a-57463723 [21 May 2021].

[5]Ibid.

[6]Kumar, S. (2021, April 14). Covid patient dies at gate of Ranchi hospital, wailing daughter blames health minister. India Today. https://www.indiatoday.in/coronavirus-outbreak/story/-covid-patient-dies-at-gate-of-ranchi-hospital-wailing-daughter-blames-health-minister-1790707-2021-04-14 [21 May 2021].

[7]Choudhary, S. R. (2021, May 25). Indians turn to social media for help as Covid crisis overwhelms the health-care system. CNBC. https://www.cnbc.com/2021/05/25/india-covid-crisis-people-use-social-media-to-find-hospitals-medicine.html [21 May 2021].

[8]India Today. (2021, May 18). After Kanpur & Ghazipur, bodies now seen floating on river Ganga in UP's Prayagraj. India Today. https://www.indiatoday.in/india/video/kanpur-ghazipur-bodies-banks-of-ganga-up-prayagraj-1804160-2021-05-18 [21 May 2021].

[9] Jameel, S. (2021, May 13). How India Can Survive the Virus. The New York Times. https://www.nytimes.com/2021/05/13/opinion/india-coronavirus-vaccination.html. [21 May 2021].

[10]Express Web Desk. (2021, May 21). Coronavirus Highlights: Over 300 districts showing decline in case positivity, says Health Ministry. The Indian Express. https://indianexpress.com/article/india/coronavirus-india-live-updates-karnataka-maharashtra-tamil-nadu-delhi-lockdown-vaccine-7320898/ [21 May 2021].

- From 16 January 2021 onwards, an estimated three crore healthcare workers and frontline workers would be vaccinated.[11]

- From 01 March 2021 onwards, there would be voluntary vaccination of around 27 crore people above 50 years of age, along with under-50 population groups with co-morbidities.[12]

- From 01 May 2021 onwards, a vaccination drive for all citizens above the age of 18 was rolled out only after repetitive demands by opposition leaders and medical experts.[13]

This was touted as being the largest vaccination drive in the world. With limited stocks of vaccines and with the aim of inoculating the maximum number of eligible people in the shortest time span, Prime Minister Narendra Modi announced a '*Tika Utsav'* [vaccine festival] between 11 and 14 April 2021. According to Modi, "India is vaccinating people at world record pace and we will continue this with even greater momentum"[14]. During this time, however, the number of doses administered were less than any other days in April, thus raising questions over the *Utsav*'s effectiveness.[15] Despite the tall claims by the central government, India has been able to fully vaccinate only 3.1 percent of the total population, while administering a first dose only to 11 percent of the total population[16].

In order to schedule appointments, citizens were encouraged to register via online portals and mobile applications, such as COWIN (Covid Vaccine Intelligence Network) or Arogya Setu (which is integrated with COWIN)[17]. Applications via these apps were initially made mandatory, and the Indian Union Ministry of Health & Family Welfare (MoHFW) and the National Health Authority (NHA) issued guidelines on how to use these apps[18]. However, these guidelines were issued under the assumption that all citizens of India have access to or own digital portals, and that they have a clear understanding of the nitty-gritties of how to access and use these portals.

> " However, these guidelines were issued under the assumption that all citizens of India have access to or own digital portals, and that they have a clear understanding of the nitty-gritties of how to access and use these portals. "

[11]Sarkar, K. (2021, April 20). Covid-19 vaccination open to all above 18 years from May 1: Key points. Hindustan Times. https://www.hindustantimes.com/india-news/covid19-vaccination-open-to-all-above-18-years-from-may-1-key-points-101618881465129.html [21 May 2021].

[12]Perappadan, B. S. (2021, January 9). Coronavirus: First phase of vaccination to start on January 16. The Hindu. https://www.thehindu.com/news/national/india-to-start-covid-19-vaccination-drive-on-jan-16/article33536670.ece [21 May 2021].

[13]Special Correspondent. (2021, January 17). Free vaccine and for all should be government's policy, Congress tells Centre. The Hindu. https://www.thehindu.com/news/national/free-vaccine-and-for-all-should-be-governments-policy-congress-tells-centre/article33594972.ece [21 May 2021].

[14] Sarkar, K. (2021, April 20). Covid-19 vaccination open to all above 18 years from May 1: Key points. Hindustan Times. https://www.hindustantimes.com/india-news/covid19-vaccination-open-to-all-above-18-years-from-may-1-key-points-101618881465129.html [21 May 2021].

[15]The Wire Staff. (2021, April 5). How Effective Was Modi's 'Tika Utsav'? Not at All, According to the Data. The Wire. https://thewire.in/government/modi-tika-utsav-vaccine-doses [21 May 2021].

[16]Holder, J. (2021, January 29). Tracking Coronavirus Vaccinations Around the World. The New York Times. https://www.nytimes.com/interactive/2021/world/covid-vaccinations-tracker.html [21 May 2021].

[17]FE Online. (2021, April 24). April 24 or April 28 – When is CoWin registration opening for May 1st Covid vaccination drive? Your 5-point guide. The Financial Express. https://www.financialexpress.com/lifestyle/health/cowin-portal-covid-19-vaccination-for-all-above-18-years-registration-process-date-how-to-book/2238134/ [21 May 2021].

[18] https://www.mohfw.gov.in/pdf/GuidancedocCOWIN2.pdf

The Architecture of Exclusion

India will launch its vaccination drive in August 2021, with an aim to inoculate 300 million people. The centralised vaccine management system called COWIN was ideated for this purpose. From handling registrations, creating vaccination schedules, informing recipients of their scheduled vaccination slots via text messages, sending people to the right vaccination centres, and creating a vaccination certificate after receiving both doses, COWIN is considered as the backbone of the entire vaccination drive[19].

The rationale behind this digital centralisation was that the entire process would be made easy for all citizens. Real-time vaccination data would also then be available to officials monitoring the rollout, in order to curb the usage of proxies and to reduce the wastage of vaccine doses.[20]

On 28 April 2021, when online registration for the third phase was commenced, the realities of the portal, as well as digital inequalities, were laid bare. Users faced multiple errors such as server issues, or inability to access a simple One-Time Password (OTP). Other issues faced included a complete freezing of the page and a total crashing of the portal.[21]

The most obvious question raised about the COWIN platform was about its efficiency, particularly when there is a massive digital divide in the country[22]. This was also raised by the Supreme Court on 10 May 2021[23]. Justices DY Chandrachud, L Nageswara Rao and Ravindra Bhat expressed apprehensions about the 'Liberalized and Accelerated National COVID-19' vaccination strategy which mandated the use of COWIN platform as it would deprive a large class of citizens from the vaccination.[24] The Central Government defended its decision, arguing that citizens who do not have access to digital resources can take help from family, friends, NGOs, Common Service Centres[25] (CSC) - privately-run, Internet-enabled outlets meant to provide government-to-consumer (G2C) services across rural India -- grassroot level bodies etc[26].

> " Justices DY Chandrachud, L Nageswara Rao and Ravindra Bhat expressed apprehensions about the 'Liberalized and Accelerated National COVID-19' vaccination strategy which mandated the use of COWIN platform as it would deprive a large class of citizens from the vaccination. "

[19]Bansal, V. (2021, February 10). India is betting on glitchy, unproven software to help inoculate 300 million people by August. MIT Technology Review. https://www.technologyreview.com/2021/02/10/1017860/india-covid-vaccine-cowin-software/ [21 May 2021].

[20]Press Trust of India. (2021, January 10). CoWIN app shall form foundation of Covid-19 vaccination drive: Centre. Business Standard. https://www.business-standard.com/article/current-affairs/cowin-app-shall-form-foundation-of-covid-19-vaccination-drive-centre-121011000533_1.html [21 May 2021].

[21]Khanna, M. (2021, April 28). CoWin App Crashes: Above 18 Users Report Server Error In Covid Vaccine Signup. IndiaTimes. https://www.indiatimes.com/technology/news/cowin-app-crashes-above-18-users-covid-vaccine-signup-539340.html [21 May 2021].

[22]FE Online. (2020, September 17). Modi's 'Digital India' still a far-fetched dream for hinterland; not even 30% of rural India has internet. The Financial Express. https://www.financialexpress.com/economy/modis-digital-india-still-a-far-fetched-dream-for-hinterland-not-even-30-of-rural-india-has-internet/2085452/ [21 May 2021].

[23]The Leaflet. (2021, May 10). Centre defends its vaccine policy before the Supreme Court; asks it to trust the wisdom of the executive. The Leaflet. https://www.theleaflet.in/centre-defends-its-vaccine-policy-before-the-supreme-court-asks-it-to-trust-the-wisdom-of-the-executive/ [21 May 2021].

[24]Ibid.

[25]CSCs are physical centres, run by the IT Ministry and located across the country to provide public utility services, social welfare schemes, healthcare, financial, education and agriculture services to citizens without direct access to such amenities.

[26]The Leaflet. (2021, May 10). Centre defends its vaccine policy before the Supreme Court; asks it to trust the wisdom of the executive. The Leaflet. https://www.theleaflet.in/centre-defends-its-vaccine-policy-before-the-supreme-court-asks-it-to-trust-the-wisdom-of-the-executive/ [21 May 2021].

"After the country entered the digital era, almost all gram panchayats have established common service centres which have a digital platform to be used by the people. This CSCs and its (sic) infrastructure is widely and effectively used in rural areas for various purposes and is found to be an effective module taking the development to the grassroot levels. This provides access to the Internet to a vast variety of persons, who may not be adept in using it or may not have direct access to it", argued the Central Government[27].

While the central government claims that CSCs as a reliable source for mass vaccination registration, the data reveals that out of 2.53 lakh gram panchayats[28] in the country, only 2.40 lakh panchayats have CSCs, i.e., around 13 thousand gram panchayats (GP) do not have such centres.[29] This also means that people would be required to travel to their nearest CSCs to get registered and, in the case of 13 thousand gram panchayats with no CSCs, it would mean that the citizens of these GPs would be required to travel to their neighbouring villages in search of a CSC.

Even those gram panchayats/villages that have CSCs often fail to deliver government services to villages due to structural issues, such as patchy internet connectivity and electricity[30]. Empirical evidence suggests that people have to often visit CSCs multiple times for basic amenities, such as the ability to apply for a death certificate[31]. To reach CSCs, people often have to travel long distances, and sometimes even get overcharged for services. These unchecked hardships and financial burdens are counter-productive to the design and purpose of the accelerated vaccination process.[32] To endure all these hardships just to register for vaccines which are not even available currently adds only tedium and uncertainty to the procedure.

Manipulating the System?

Despite a stark urban-rural digital divide, with its sharp tilt in favour of urban dwellers with access to ICT devices, internet and digital literacy, there have been reported instances of people circumventing the hassle of going through the COWIN platform to get their vaccine registration booked.

Some city-dwellers have been booking vaccination slots in the nearest villages and driving as far as 20-22 kilometres to get their jabs[33]. In yet more instances, several tech companies and software developers have

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[27]Ibid.

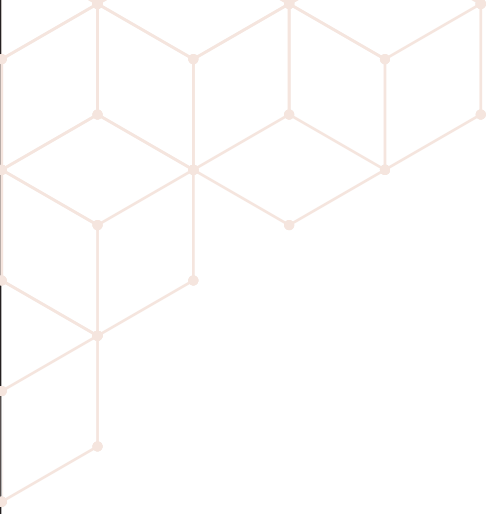[28]Data as of 31 March 2020 as mentioned in CSC Annual Report 2019-2020.

[29]Sur, A. (2021, May 10). Pitfalls of leveraging Common Service Centers for rural vaccine drive. MediaNama. https://www.medianama.com/2021/05/223-rural-india-covid-vaccine-csc/ [21 May 2021].

[30]Parthasarathy, A., & Narayanan, R. (2019, November 25). Digital India's 'Magic Wand' Creates More Problems Than Solutions In Jharkhand, Finds Survey. Indiaspend. https://www.indiaspend.com/digital-indias-magic-wand-creates-more-problems-than-solutions-in-jharkhand-finds-survey/ [21 May 2021].

[31]Ibid.

[32]Ibid.

[33]Dwivedi, S. (2021, May 19). City Dwellers Turn To Greater Noida Villages For Covid Vaccination. NDTV. https://www.ndtv.com/cities/uttar-pradesh-greater-noida-bisrakh-city-dwellers-turn-to-greater-noida-villages-for-covid-vaccinations-2445314 [21 May 2021].

leveraged or misused the open Application Programming Interface (API[34]) of the COWIN application, by creating applications/tools which streamline the whole process. One way of doing this is to send alerts about the availability of vaccination slots to Whatsapp, email or Telegram.[35] Other platforms like getjab.in,[36] findslot.in, vaccinateme.in[37] and under.45.in[38] allow you to join state-wise groups on Telegram to get notifications about open slots.

Even though the development of these tools are hailed and are often eulogised them as 'help[39]' or' tricks-tips[40]', does not remove the fact that tech-savvy engineers are grabbing slots at the expense of a majority of the population. Apart from an understanding of the COWIN platform and its embedded stages of OTP and Captcha[41], these engineers are also aware of third-party apps as well as their operations. This creates an extra layer of exclusion for technologically disempowered people, thereby widening the existing digital divide and healthcare system. People who have easy access to all three — COWIN, websites and messaging apps — would obviously have an advantage over people who lack digital devices and/or are struggling with the technology.

This underlines unequal power distribution and digital access and reiterates already existing imbalances between the privileged and marginalised. Srinivas Kodali, a digital activist and researcher, described it as a 'free market race.' He explained, "Those who can navigate this information economy are doing it. We're all trying to survive the system we're in."[42]

Public health experts, while questioning the efficacy of the current vaccination drives, have often referred to previous mass inoculation drives like those for pulse polio that were carried out successfully by visiting each home in order to list the people who would need the drops, i.e., without a tech-governed barrier disguised as a 'convenient medium'[43]. These methods are still in continuation for other diseases, like polio and measles. Each year the government administers vaccines

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[34]API is a protocol which allows machines or programs to talk to each other. APIs are often made publicly available to developers in order to come up with different solutions which make the program even more useful. In the case of Co-Win, the API was made available on April 28.

[35]Sharma, U. (2021, May 7). Struggling to find an open Covid vaccination slot on CoWin? Get help from these websites, apps. The Print. https://theprint.in/health/struggling-to-find-an-open-covid-vaccination-slot-on-cowin-get-help-from-these-websites-apps/654013/ [21 May 2021].

[36]https://getjab.in/

[37]https://www.vaccinateme.in/covid/?districtId=&districtName=&stateId=9&type=district

[38]https://under45.in/

[39]Singh, K. (2021, May 6). Finding vaccination slots. YourStory. https://yourstory.com/2021/05/covid-19-vaccination-slots-healthify-healthtech-startup-the-moms-co/amp [21 May 2021].

[40]NDTV News Desk. (2021, May 10). How To Book Vaccination Slots On CoWIN, Aarogya Setu: Tips And Tricks. NDTV. https://www.ndtv.com/india-news/how-to-book-vaccination-slots-on-cowin-aarogya-setu-tips-and-tricks-2439118 [21 May 2021].

[41]Captcha stands for Completely Automated Public Turing test to tell Computers and Humans Apart. In other words, Captcha determines whether the user is real or a spam robot. Captchas stretch or manipulate letters and numbers, and rely on human ability to determine which symbols they are. Read more: https://www.pandasecurity.com/en/mediacenter/panda-security/what-is-captcha/#:~:text=CAPTCHA%20stands%20for%20Completely%20Automated,determine%20which%20symbols%20they%20are

[42]Vakharia, S., & Zelenko, M. (2021, May 12). Need a vaccine? In India, knowing how to code helps. Rest of World. https://restofworld.org/2021/coders-in-india-are-hacking-vaccine-websites-to-get-appointments/ [21 May 2021].

[43]Lalwani, V. (2021, March 11). A stark class divide is emerging in India's Covid-19 vaccination drive. Scroll.in. https://scroll.in/article/989081/a-stark-class-divide-is-emerging-in-indias-covid-19-vaccination-drive [21 May 2021].

for these diseases to 55 million infants and pregnant women[44]. Experts have, hence, expressed the need to go back to these methods in order to successfully administer 600 million doses of the COVID-19 vaccine[45].

Epidemiologists like Dr. Girdhari Babu, who is also a part of COVID-19 Technical Task Force in India, cites previous vaccination campaigns and believes mass vaccination can only be achieved by creating a comprehensive list of people to be vaccinated[46]. Babu believes that self-registration through COWIN may only work for the urban and educated and not for the rural population, and that "incomplete registration will then lead to incomplete vaccination[47]."

Techno-Solutionism

A departure from existing health infrastructure and an experiment with a technology governed system, whilst ignoring the digital divide, will only hamper India's vaccination drive and exclude a large section of people from getting vaccinated, thereby impeding the country's fight against the coronavirus. Technology based solutions like COWIN are centralised digital platforms which centralise the responsibility of vaccination on the public, leaving them to grab vaccination slots whenever and wherever available. This leads to what Pratap Bhanu Mehta calls 'a social Darwinism - the strong do what they can, the weak suffer what they must. A perfect metaphor for our healthcare system[48].' Thus, COWIN is creating a competition for even a basic medical amenity like vaccines. This is happening when the central government has not even booked enough vaccines on time and has gifted them to other countries as a goodwill gesture, despite being aware of the high population and emergent situation of the country[49; 50].

In its report on Uttar Pradesh's Gautam Buddh Nagar, NDTV covered the reasons behind the low vaccination rate — unawareness about the COWIN platform and digital knowledge; apprehensions or doubts regarding comorbidities and after-effects of vaccines; difficulties in travelling to far off vaccination centers due to old age, lack or conveyance, extra financial burden and difficulty in finding slots for even a family of 5 in one go, which, in turn, would be difficult for members of a single family to go for vaccinations one by one[51].

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[44]Bansal, V. (2021, February 10). India is betting on glitchy, unproven software to help inoculate 300 million people by August. MIT Technology Review. https://www.technologyreview.com/2021/02/10/1017860/india-covid-vaccine-cowin-software/ [21 May 2021].
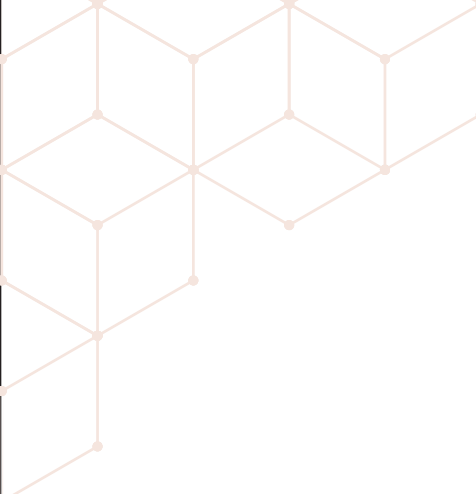
[45]Ibid.

[46]Ibid.

[47]Ibid.

[48]Mehta, P. B. (2021, April 28). The ruthless politics of the Centre's vaccine strategy. The Indian Express. https://indianexpress.com/article/opinion/columns/second-wave-coronavirus-india-vaccine-strategy-modi-govt-7291644/ [21 May 2021].

[49]AP. (2021, May 22). Why 'world's pharmacy' India is short on Covid vaccines. The Mint. https://www.livemint.com/news/india/why-world-s-pharmacy-india-is-short-on-covid-vaccines-11621657555951.html [26 May 2021].

[50]Sharma, K., & Banerjie, M. (2021, May 16). "India Sent More Vaccines Abroad Than...": Yashwant Sinha's Attack On PM. NDTV. https://www.ndtv.com/india-news/india-sent-more-vaccines-abroad-than-yashwant-sinhas-attack-on-pm-2442985 [21 May 2021].

[51]NDTV. (19 May 2021). https://www.youtube.com/watch?v=ELkel6VuBFY [21 May 2021].

Apart from the assumption that people have access to ICT devices and an understanding of the portals like COWIN (including OTP and Captcha); this procedure also assumes that all people are willing to get vaccinated and that there are no barriers of misinformation or hesitancy of any kind. Prof. Harish Naraindas historicises the smallpox vaccination drive, explaining how a mix of micro-level involvement of volunteers, religious heads and bureaucratic heads was needed to convince the residents of Bihar's Pawapuri to be vaccinated in the 1970s[52]. Platforms like COWIN, with its strategy of putting the onus of registering for vaccines on citizens completely ignores reality which requires ground level micro-planning and a smart public health communication strategy.

COWIN — Health ID; Privacy; Consent

The central government's approach to manage COVID–19 vaccination programme has also raised eyebrows over the concerns of consent and privacy, the latter of which has been declared a fundamental right by the Supreme Court of India. Like Arogya Setu, an application to track active cases, basic information related to the development and functioning of the COWIN platform is not transparent[53]. Moreover, the use of automated systems from booking slots in order to notify those looking for slots is via a third-party platform[54]. This only increases the vulnerability of the users in terms of data and privacy. In a response to an RTI seeking information from the developers of COWIN, auditing and costs incurred were not revealed by the government[55]. Currently, COWIN does not have its own specific privacy policy. The platform does not state how collected sensitive data of users will be used or processed[56].

Instead of a specific privacy policy of its own, the platform has hyperlinked the privacy policy of Health Data Management Policy 2020, a Union Health Ministry document, dealing with the creation of national health IDs and digitising of health records[57]. Moreover, many users have complained that health IDs are being generated without their consent. Similar to the Aadhar card, a Unique Health ID (UHID) has been advocated by the central government for a long time. In an effort to accelerate the National Digital Health Mission (NDHM), a health ID was introduced. Currently, it seems that the Health ID has been created with the available information collected through the vaccine registration process — that is to say, name, year of birth, gender, mobile number photo ID, and type of photo ID[58].

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[52]Naraindas, H. (2020, May 1). Past and Present. The India Forum. https://www.theindiaforum.in/article/past-and-present [21 May 2021].

[53]Rakheja, H. (2021, April 29). No Privacy Policy For CoWin App, India's Health Ministry Says In RTI Response. Inc42 Media. https://inc42.com/buzz/no-privacy-policy-for-cowin-app-health-ministry-says-in-rti-response/ [21 May 2021].

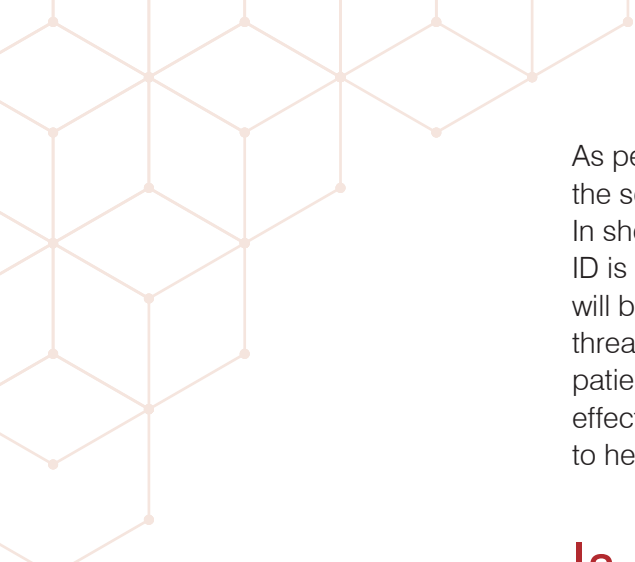[54]https://under45.in/

[55]Rakheja, H. (2021, April 29). No Privacy Policy For CoWin App, India's Health Ministry Says In RTI Response. Inc42 Media. https://inc42.com/buzz/no-privacy-policy-for-cowin-app-health-ministry-says-in-rti-response/

[56]https://www.cowin.gov.in/ [21 May 2021].

[57]Ibid.

[58]Dogra, S. (2021, May 24). Took Covid vaccine using Aadhaar? Your National Health ID has been created without

As per the Ministry of Health and Family Welfare, NDHM is a push for the seamless integration of digital health infrastructure in the country[59]. In short, the initiative is a step towards digitising healthcare in India. The ID is opportunistically being created in order to vaccinate people and will be used for "uniquely identifying persons, authenticating them, and threading their health records (only with the informed consent of the patient) across multiple systems and stakeholders[60]." In the absence of effective data protection laws, any mishandling of sensitive data related to health will have grave consequences for millions of users.

Is Decentralisation the answer[61]?

As per the interviewees, as the government began the vaccination drive and mandated the use of COWIN portal, it was observed that the majority of the people found the COWIN portal inconvenient and difficult to book slots for vaccination. Main reasons being that despite having smartphones, English language became a barrier to get through the steps required to book slots. Moreover, additional steps like OTP and CAPTCHA were beyond the understanding of many. Due to all these endemic issues, COWIN almost seems redundant on the ground. A hyper-localised approach seems to be working in rural parts of the country.

Gram Panchayats along with district doctors, Auxiliary Nurse Midwives (ANM), Accredited Social Health Activists (ASHA) organise vaccination camps in villages. As per our discussions, such drives take place in a systematic manner — ANM and ASHA workers visit each house in the respective village; take down their details like Aadhaar Card and mobile number; give the beneficiary a token number and designate them a time for vaccination. Such village level drives take place either weekly or once in 10 days.

As per our discussions with people active on ground, Primary Health Care (PHC) and Community Health Centres (CHC) are important cogs in the entire vaccination drive, but there are certain issues that are important to highlight. First, these centers are quite far from villages and people often have to travel up to 10-15 kilometers to reach their nearest health centers. Second, these health centers are highly overburdened. Each health center has a responsibility of at least five to six villages. This when compounded with the vaccine shortage would reveal that a very low percentage of the population would be able to get themselves vaccinated.

However, when offline or walk-in registration became an available option for the people, travelling to the vaccination center became a big hurdle for many as the relaxation period of lockdown is quite short in many areas — 07 in the morning to 12 Noon. To travel back and forth to PHCs
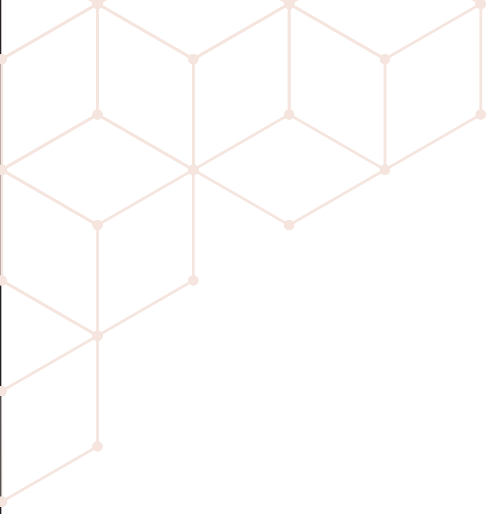
> The ID is opportunistically being created in order to vaccinate people and will be used for "uniquely identifying persons, authenticating them, and threading their health records (only with the informed consent of the patient) across multiple systems and stakeholders." In the absence of effective data protection laws, any mishandling of sensitive data related to health will have grave consequences for millions of users.

your permission. India Today. https://www.indiatoday.in/technology/features/story/took-covid-vaccine-using-aadhaar-your-national-health-id-has-been-created-without-your-permission-1806470-2021-05-24 [26 May 2021].

[59] https://www.nhp.gov.in/national-digital-health-mission-(ndhm)_pg

[60] https://www.nhp.gov.in/national-digital-health-mission-(ndhm)_pg

[61] Based on telephonic interviews with people on ground.

in the given time frame is not only difficult for people but will also hamper the goal of mass vaccination quickly.

Moreover, one issue that was persistent among all the regions that we encountered was the vaccine shortage. Despite having two entry points for vaccination i.e. online and walk-in registration/vaccination, people are finding it difficult to get vaccinated as after travelling to PHCs and/CHCs, which is minimum 10-15 kms far, they often have to return back without any vaccines. They then have to start the drill from scratch the next day. It is on the 'first come, first serve' basis, as one of the interviewee argued. And as explained above, conveyance during the lockdown is not an option.

Vaccine drive through a centralised system underlines the importance of incorporating views of those people in developing any system who will operate and implement it on ground. Clearly during the development of the COWIN, suggestions from ASHA Workers, ANM, and local administrations were not taken which has created a mess in the vaccination drive. During our conversations, one thing was clear: whatever vaccination is happening on the ground, a decentralised approach is playing a critical role. Almost every district has made up its own model of vaccination. Some are doing it by sending a van in villages, where people are asked to come to take a jab while some have made a vaccination centre in every panchayat.

Along with shortage of vaccination, and complication with exclusionary COWIN, hesitancy towards vaccines is alarmingly high in rural parts of the country. One rumor seems to travel everywhere: 'people who are being vaccinated are dying'. Along with large scale procurement of vaccines, an urgent and public-health communication strategy is needed to accelerate vaccination drive. Otherwise, the dream of vaccinating all the people of the country will remain a distant dream[62].

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[62]India Today. (2021, May 28). India to vaccinate all by the end of this year: Prakash Javadekar. India Today. https://www.indiatoday.in/coronavirus-outbreak/video/india-to-vaccinate-all-by-the-end-of-this-year-prakash-javadekar-1808159-2021-05-28 [01 June 2021].