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COVID-19 pandemic in Nepal: Emerging evidence on the effectiveness of action by, and cooperation between, different levels of government in a federal system

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ABSTRACT

A new coronavirus disease (COVID-19) caused by a novel pathogen (SARS-CoV-2) spread rapidly around the world in early 2020, and it was declared a pandemic by the World Health Organization (WHO) on 11 March. COVID-19 continues to have a large impact on individuals, societies, and on national health systems across the globe. Due to its novelty and impact, it has challenged all health care systems. The ways in which governments and health systems have responded have varied widely across the world. In the case of Nepal, the pandemic represented a major test for the newly decentralised health system, created as a result of the implementation of the 2015 federal constitution. This paper forms a part of our large on-going study of the decentralisation of the country's health system. The study is run by the Universities of Sheffield, Huddersfield and Bournemouth in the UK and PHASE Nepal and Manmohan Memorial Institute of Health Sciences in Nepal, and is funded by the UK Health Systems Research Initiative. This paper presents some of the early evidence (as of July 2020) on the effectiveness of the actions taken by Federal, Provincial and Local Governments and the levels of cooperation and coordination between them.

Keywords: Health systems, COVID-19, decentralisation, political science, health care

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INTRODUCTION

A country's health status is closely related to its wider political context, including the availability of resources and the exercise of good governance.¹ The Declaration of Alma Ata (1978) stated that every responsive health system should be able to deliver well designed packages of promotive, preventive, curative and rehabilitative health programmes to the population. Yet large-scale health emergencies such as natural disasters or outbreaks of infectious diseases highlight whether and how a country's health care system works in practice, and then quickly reveal its strengths and weaknesses. Globally, the COVID-19 pandemic has exposed serious inequities in health care delivery and access to services both within and between countries - as well as emphasizing issues such as the lack of adequate Personal Protective Equipment (PPE) for health care workers, inadequate contact tracing arrangements, shortages of testing facilities, equipment and reagents, and the generally low levels of investment into many national health systems.

Crises not only put additional pressure on already overstretched health systems, but also take attention and resources away from existing health problems, causing further challenges for health service delivery. For example, despite the huge death toll caused by the Ebola outbreak in Guinea, Liberia and Sierra Leone in 2014-16 (over 11,000 deaths amongst almost 30,000 confirmed cases), it was later noted that during that crisis more people in the affected countries died from measles, malaria, HIV/AIDS, and tuberculosis than from Ebola itself.² This served as a clear illustration of the knock-on consequences

of health systems being moved into a 'crisis response' mode of operation, in which routine prevention, treatment and care services come under strain.

On the other hand, in some cases crises can lead to positive effects on other health issues. Anecdotal evidence from UK hospitals suggests that the rigorous handwashing advised by the government to combat COVID-19 has resulted in fewer cases of the infectious disease *Clostridium difficile* (commonly known as *C. difficile*). The "lockdown" measures have also reduced air pollution in major cities worldwide.³ For example, China's Hubei province reduced the notorious air pollution in Wuhan, the provincial capital,⁴ which must have had a positive effect on patients with COPD (Chronic Obstructive Pulmonary Disease), with similar findings reported from Barcelona, Spain⁵ and Milan, Italy.⁶ Interestingly, the lack of tourists in Venice, Italy, due to COVID-19 travel restrictions resulted in much cleaner water in its canals.⁷

The COVID-19 pandemic struck at a particularly challenging time for Nepal's health system. In some areas, services are yet to fully recover from the decade-long civil war (1996-2006) and the massive earthquakes of 2015, and the country has since begun a major process of health system reform after the promulgation of the 2015 Constitution. Health system decentralization has been an important part of the Nepali state's effort to devolve greater power and resources in recent years. The Local Self Government Act in 1999 introduced some of the core values of decentralisation and produced some elements of devolution based on the subsidiarity principle. Efforts were made to build and improve health service provision

at grassroots level. However, under the 2015 constitution this move towards decentralisation significantly expanded. What had previously been a relatively centralised model, with the key decisions being made in the Ministry of Health and Population in Kathmandu, became significantly and rapidly decentralised, with important new mandates and responsibilities for the new provincial and local levels of government.

Although this decentralisation process was well-underway when the first case of COVID-19 was detected in Nepal in January 2020, many aspects of the transition to the new system were incomplete and new structures and relationships had not had a chance to establish or 'bed down'. Even more than many other countries, then, Nepal's health system faced an additional set of challenges, especially how to cope with, and effectively respond to, COVID-19.

One of the commonly claimed advantages of more decentralised health systems is that they can provide greater responsiveness to local conditions and needs.⁸ Indeed, in many countries that have implemented similar health system reforms to those underway in Nepal, the desire to ensure greater local responsiveness has been one of the primary reasons for implementing decentralization. A responsive health service system has to (1) address medical and non-medical needs and expectations of the population proactively to improve health-related indicators; (2) minimize financial risk (e.g. individual catastrophic health expenditure); and (3) control the spread of disease. It should be adaptable and address disparities in the level of

health problems between different areas of the country and between different sub-populations.

A responsive health service system has to address both medical and non-medical needs and expectations of the population proactively to improve health-related indicators, to minimise financial risk to the population (for example, those related to catastrophic expenditures), but also, in the current COVID-19 crisis, to effectively control the spread of disease and treat the sick. A responsive system should also be able to adapt to effectively address disparities in the level of health problems between different areas of the country or between different sub-populations.

As Nepal's COVID-19 epidemic has developed, there have been significant differences in the extent to which provinces and districts have been affected (Table 1). In this paper, written in the summer of 2020 during the epidemic and therefore necessarily preliminary in its conclusions, we examine responses to the crisis at different governance levels. It includes the extent to which the ongoing process of decentralising the health system has indeed allowed for a greater degree of responsiveness to local conditions, and whether the levels of government can coordinate their actions to ensure an effective response to the crisis.

COVID-19 in Nepal: The spread of the epidemic through the country

The first case of COVID-19 in Nepal was reported in mid-January 2020, in a Nepali student returning from Wuhan, China.⁹ By July 29, Nepal still had relatively few cases (n= 19,273) for a country with some 28

million people, and had recorded a relatively low number of COVID-related deaths ($n= 49$).¹⁰ It is known with some certainty that, as in most countries, the limited testing conducted will mean that these figures considerably underestimate the actual scale of infection in the country. However, even taking into account such under-detection of cases, something can still be said about the way in which the virus spread through the country.

In comparison with many other countries, Nepal reacted relatively early. A travel ban was put in place for visitors from the most affected regions (Europe, West Asia and the Gulf Countries, Turkey, Malaysia, South Korea and Japan) on 18th March¹¹ - at which point Nepal had only one confirmed case. The borders were closed to all incoming travelers soon after (on 22nd March 2020). The Government of Nepal also moved early to implement a lockdown - including in Kathmandu which, at the time of the lockdown, had reported only two cases (both in recent returnees from

abroad) and zero deaths. Although reliable data are limited by the lack of testing, anecdotal evidence suggests that at this stage there was not widespread undetected community transmission. Although there were controversies around undertreatment, medical negligence, and suicide at a quarantine facility, the overall result of these actions was that, in the early stages of Nepal's COVID-19 epidemic, cases and deaths were concentrated in the Terai. These were mostly among travelers returning over the land border from India, or those who had direct contact with migrants returning from India. Both India and Nepal had implemented a lockdown strategy at similar times (mid-March), but after two months, travel restrictions were eased in India and Nepali migrants started returning home. The hill and mountain areas - including Kathmandu - were affected relatively little at this stage. But despite these efforts, the country only managed to delay the spread, and did not succeed in preventing the transmission of the virus through the population.

Table 1. Distribution of COVID-19 cases by province (July 29, 2020)²⁶

Province	Population (2011)	Total confirmed cases (% of total cases)	Active cases n=	Deaths n=
1	4,532,943	1,018 (5.28)	235	0
2	5,404,145	5,016 (26.03)	2,046	13
Bagmati	5,529,452	1,017 (5.28)	505	10
Gandaki	2,403,757	1,537 (7.97)	326	5
Lumbini	4,741,716	4,291 (22.26)	403	10
Karnali	1,327,957	1,984 (10.29)	303	4
Sudurpaschim	2,552,517	4,410 (22.88)	1,542	7
Total	26,792,487	19,273 (100%)	5,360	49

Gradually, then - despite restrictions on internal movement - the virus spread into new areas of the country. Low levels of risk awareness, the failure to effectively

manage movement across the Indo-Nepal border, poorly managed quarantine facilities, the irrational use of face masks, insufficient water for hand hygiene, the

continuation of meetings/gatherings in defiance of lockdown rules, and a lack of proper physical distancing, and many other factors, all played a part in contributing to the spread. At the time of writing (July 2020), cases have been identified in all seven provinces - albeit the distribution remains uneven (Table 1).

The need for both national and local responses

The uneven development of the epidemic throughout the country highlights the need for both national and local responses, which should in theory effectively implement the overall policy direction set by the national government, but in a way that is adapted to local conditions. Again, this is not unique to COVID-19. It is often even more true of other kinds of health emergencies, such as those caused by landslides, volcanic eruptions or floods, which tend to be localized events affecting only part of a country. Having local capacity and agency allows emergency responders to adopt a more focused approach, channeling attention to the afflicted area and population by drawing on resources from other parts of the country.

However, as we have seen with the development of the national-level epidemic over time, what sets COVID-19 apart from other kinds of disasters is that it has the propensity to affect many regions simultaneously. A pandemic is made up of multiple national epidemics, and a national epidemic is made up of multiple localized outbreaks. For localized outbreaks, local responders who know their area - and have strong links with key stakeholders and communities - are best able to ensure outbreak responses that are

tailored to the local community. It is not easy for local outbreaks to be managed from a distance. Rather than imposing a top down model of prescriptive solutions to address local needs, locally developed plans and initiatives are more effective at tackling problems at a local level.

In order to achieve that degree of responsiveness, local teams need the necessary resources to respond appropriately, such as access to relevant virological and serological tests, disease surveillance systems, expert advice, and additional skilled human resources where necessary, as well as more general operational resources and capacity. Strengthening primary health care services and the empowerment of local agencies are some of the effective measures which are important to urgently mitigate the crisis situation. National government therefore has a role to play in supporting and facilitating the efforts of local agencies, as well as frontline workers.

At the same time, there may also be actions (for example, those relating to border restrictions) which will inevitably require the national government to take the lead. Therefore, a balance - and cooperation between levels - is required: while centralised control may not always be efficacious, purely localized responses risk being fragmented and dis-coordinated, especially if the outbreak spans local geographical boundaries which require the efforts of multiple areas to be joined up. It seems clear, therefore, that the key to an effective response in Nepal lies in effective action at all levels of government (Local, Provincial and Federal), with strong coordination between the levels, and with resources

flowing down (and information flowing up), rapidly and reliably. In the remainder of this article, we examine the emerging evidence from the COVID-19 response so far (as of July 2020) to consider whether this has been achieved by the health system (and the wider government system) in Nepal. As we argue below, in the early phase of the pandemic there has been a lack of adequate support by the central government to cope with the current crisis, local government has often been lacking proper guidance, and the necessary technical and financial resources, and coordination between levels, has often been problematic.

Local, Provincial and Federal responses to COVID-19: emerging evidence

Since this article is being written in the midst of the pandemic, its findings can by definition only be preliminary.

Nevertheless, in this section, we examine the emerging evidence on the effectiveness (or otherwise) of (1) local, provincial and national responses, and (2) communication and coordination between governance levels.

Local and Provincial responses

The diverse nature (social, economic, topographical) of Nepal means that each local area faces a unique set of challenges. In addition, the provinces vary widely in their resources, including in the health system. Table 2 shows that as of July 2020 there were 28 COVID-19 testing laboratories active across the country, however these remain concentrated in Bagmati Province (n=10), which includes Kathmandu, and testing capacity in other provinces (which includes areas where a large number of people have been quarantined) remains limited.

Table 2. COVID-19 testing laboratories and tests conducted by province²⁶

Province	Laboratories conducting PCR tests	PCR tests conducted n=	Quarantined
1	3	46,523	1,644
2	3	21,759	9,490
Bagmati	10	1,57,960	1,522
Gandaki	2	22,655	2,285
Lumbini	5	50,191	14,629
Karnali	3	39,645	2,840
Sudurpaschim	2	19,611	15,829
Total	28	358,344	48,239

On many occasions, limited testing capacity in some provinces has meant that swab collections had to be halted,¹² and samples transferred to the central laboratory. As a result, the testing of thousands of collected swabs has been delayed, and the daily figures stated at the Ministry of Health's press briefing have

seriously underestimated the actual level of risk prevalence in the community. Such problems have led not only to delays in timely identification of COVID-19 cases but have also increased the duration of people's stay in quarantine centers, thereby increasing the risk of new COVID infections. The variation in capacity

between provinces during the pandemic reflects pre-existing inequalities: whilst the country as a whole suffers from a shortage of trained health professionals (the doctor-patient ratio, to use just one indicator, is 0.17 per 1,000 population - substantially less than the WHO recommended 2.3 doctors per 1,000)¹³, and the existing human resources are spread very unevenly, with the remote areas such as Karnali Province having even greater shortages than other parts of the country.

As well as the Provincial governments, local governments (and local healthcare facilities) have important roles to play in responding to COVID-19 - and again, these have been hampered by the resources available, as well as by the effectiveness of management. Locally-run quarantine centers - especially in areas close to the Indian border - have often been found to be inadequate for appropriately and safely managing the huge influx of migrant returnees. Often excessively crowded and in some cases lacking in basic facilities such as water, sanitation and adequate sleeping facilities, these quarantine centers have been labeled as "virus incubators" and "hotspots for COVID-19".¹⁴ Quarantine centres have also had cases of suicide,¹⁵ fatal illnesses such as typhoid and diarrhea, cases of sexual assault, and of people escaping, for example in Naumule Rural Municipality in Karnali Province.¹⁶

There is, however, some evidence of effective local action and crisis management - highlighting some of the benefits of decentralization and reflecting the constitutional responsibility of local government for basic health and

sanitation (Schedule-8, Constitution of Nepal, 2015). Local governments have played significant roles in, for example, reaching marginalised communities with public health information, and providing practical support. District administration offices in border districts facilitated the return of Nepali migrants stuck at the Indo-Nepal border after the lockdown was enforced and, along with the federal and provincial governments, various civil society organizations were engaged in a diverse set of roles to facilitate the return of migrants to their homes. The adoption of Local Health and Sanitation Acts in many jurisdictions has also enabled the acceleration of local-level policy formation, providing new legal powers for emergency response and allowing faster adaptation to the developing situation on the ground.¹⁷ Other local efforts, e.g. the distribution of relief packages to those impacted by lockdowns, have made a real difference, even though resources have been constrained.

Contact tracing of confirmed cases has been another major task at the local level and has often required both outside support and the imposition of local lockdowns. To take one example, when a woman from Katuwal Pauwa in Dhading District tested positive, a WHO team from Kathmandu visited the village to conduct contact tracing, and the village was sealed off for four days (under the Infection Disease Act 2020, Section 2 & Local Administration Act 2028, Section 6, Subsection 2). However, contract testing capabilities are increasingly coming under strain. Although contact tracing has been effective in preventing transmission in the early phase of the national epidemic, the increasing number of cases means that

contact tracing has become one of the biggest challenges facing the government's COVID management committee due to the lack of sufficient staff and the rate of positive cases increasing daily.

National responses

As in many other countries around the world, the national government in Nepal has faced a huge range of COVID-19 related issues, including both the direct health effects of the disease, but also the wider economic and social problems the pandemic has generated. We noted above that (compared to many other countries) Nepal locked down relatively early. In this section we examine some of the consequences of that decision, before moving on to look at the role of the federal government the development of laboratory facilities to enhance testing capacity.

Although it is too early to properly judge the effectiveness of the timing or duration of the lockdown adopted by the Government of Nepal on 24th March 2020, the decision seems (initially at least) to have slowed the spread of the virus within the country. However, as in other countries, the policy also had significant socio-economic consequences. The massive outflow of migrants from the Kathmandu valley to other districts revealed the problems facing the working class in the initial days of lock down. The lack of transportation meant many were forced to walk hundreds of kilometers to reach their villages, creating particular problems for women, children and the elderly. For both those who stayed and left the city, the financial losses and job insecurity faced by many households were

severe, with many lower-income groups - particularly daily labourers - being especially badly affected. The knock-on consequences of lockdown also included problems relating to food production and distribution,¹⁸ mental health and wellbeing,¹⁹⁻²¹ gender-based violence, and an increased rate of suicide.²² Even though there were substantial numbers of suicides pre-COVID, the rate increased during (as did reporting of them in the media). In addition, misinformation and disinformation related to COVID-19 - often spread by social media - has created concern and anxiety amongst many people.²³⁻²⁴ Nepal was certainly not the only country to experience all of these consequences, and it is difficult to argue that the lockdown decision was 'wrong'. Yet it is clear that, at best, the government only partially managed to mitigate the socio-economic effects of the decision.²⁵

One significant achievement, led by the Federal government, has been the increase in laboratory capacity referred to above. In March 2020, Nepal had only one testing lab (in Kathmandu) which was only able to process a maximum of 600 tests per day (and in practice far fewer). At the time of writing this has been expanded to 28 labs across the country (see Table 2) with the capacity to process around 8,000 tests a day (although at the time of writing the actual number of tests done per day is in the 4-5,000 range). This is an impressive achievement by any measure, and one that has undoubtedly increased the ability of authorities at all levels to detect cases, and (where possible) to implement contact tracing to limit the spread of the virus.

Coordination between levels

The COVID-19 crisis quickly created the need for new coordination mechanisms to manage the national response. After the media, civil society and health activists pressured the government to respond proactively, a high-level coordination committee for COVID-19 prevention and control was formed on 1st March 2020. The inter-ministerial committee, chaired by the Deputy Prime Minister, was restructured to form the Corona Crisis Management Centre (CCMC), which has moved forward with measures like lockdown along with mass testing, a quarantine strategy, relief supplies for those in need, and a massive public awareness campaign. Despite this, there have been areas in which coordination has not functioned effectively.

In some cases, as with quarantine centres, Local government felt that the Federal government had passed them the responsibility without the necessary support and resources. The Federal government prepared a protocol on quarantine management, but this protocol faced many barriers to effective implementation at the local level, including a lack of availability of health workers and security personnel, not having a building with CCTV (closed-circuit television) or proper sleeping facilities, sanitation facilities, and so on. At the same time, local governments had already spent a large amount on relief distribution and procuring medical supplies. The result was that central and local government blamed each other for some of the failures around quarantine, which also created frustration among citizens. At times there has been a sense that other issues, including inter-

party conflict and border issues, have diverted the government's focus away from COVID-19. Although the government has promised to increase the health budget for next fiscal year, the limited health budget as a proportion of GDP (Gross Domestic Product) and uneven allocation between Provinces - combined with poor coordination between different levels of Government - has restricted local-level COVID responses.

With Provinces gaining greater policy-making powers, there have been contradictory messages and actions. In the case of inter-district travel, for example, Kathmandu announced that people entering the valley would have to show a COVID test certificate, but government testing sites have strict guidance on whom to test, and needing to travel to the capital is not one of the criteria. Kathmandu dropped this requirement after about two weeks, as it was not practicable. Some districts have imposed strict quarantine on everyone entering, while others have not seemed to control those entering. To some extent these devolved decisions are a good indicator of a system that is displaying local responsiveness. The epidemic has followed different trajectories in different localities - just as it has in other countries (e.g. COVID-19 policies differ between the four nations of the UK, with lock down restrictions varying between say England and Scotland or between Northern Ireland and Wales). However, in some cases the differences in approach seem to have been less about variations in local transmission rates, and more about the lack of a common and coordinated approach across the country.

CONCLUSION

Even within the first few months of the pandemic in Nepal, we have seen some differences in health service provision and wider response policies across different provinces and districts. Some of these differences will relate to the unequal spread of COVID-19 across the country (i.e. epidemiology) and other differences are bound to relate to differences developing between Provincial and Local health systems. Still others may relate to different prioritisations of existing health organisations. Some say: 'crises offer new opportunities'. The COVID-19 crisis will not be over in the short term, and there are important lessons to be learnt from the initial phase in terms of the strengths and weaknesses of Nepal's newly decentralised health system. How can the benefits of local responsiveness be captured, without losing the benefits of a coordinated national approach? Our research project as outlined above was designed before COVID-19 emerged, was always planning to examine precisely these kinds of tensions. The COVID-19 pandemic has given it a new urgency and importance. We hope that this contributes to ensuring that Nepal maximises the ability of the health system to respond effectively, to control the disease and to save lives.

Conflicts of interest

Prof. Sujan Marahatta is a Member of the Research Committee; Incident Command System (ICS) for COVID 19 Responses MOHP.

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