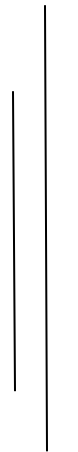




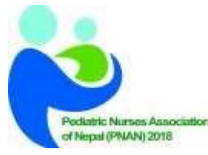
## Report on



## Resource mapping for hospitals with Pediatrics Care in Nepal



**Jun 11, 2021**



## Resource mapping of hospitals with Pediatrics Care in Nepal

### Acknowledgement

COVID pandemic has brought many challenges ahead. Human being rational has sort many ways to combat this pandemic through preventive and mitigation strategies. This report is prepared to know about the situation of pediatric facilities after collecting the data on pediatric facilities throughout Nepal for planning and preparedness for future waves of COVID 19.

We would like to express our deepest appreciation to contributors and all those who provided us the possibility to complete this report. We acknowledge the helpful comments received at different discussions held during different meetings.

We greatly appreciate the excellent cooperation received from Dr. Santosh Adhikari who computed the data. We thank all those who directly and indirectly helped us to prepare the report.

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## Resource mapping of hospitals with Pediatrics Care in Nepal

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## Resource mapping of hospitals with Pediatrics Care in Nepal

### Abbreviations

SARS : Severe Acute Respiratory Syndrome

INGO : International Non Government Organization

NGO : Non-Governmental Organization

NEPAS : Nepal Pediatric Society

PNAN : Pediatric Nurses Association of Nepal

NCPA : National Child Protection Alliance

OPD : Out Patient Department

ER : Emergency Room

PICU : Pediatric Intensive Care Unit

NIUC : Neonatal Intensive Care Unit

HDU : High Dependency Unit



## Resource mapping of hospitals with Pediatrics Care in Nepal

### 1. Introduction and Context

Since it began in Wuhan in December 2019, Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2),<sup>i</sup> has created sad public health stories all around the world with 174,930,003 cases and 3,770,961 deaths.<sup>ii</sup> Nepal reported the first diagnosis of COVID 19 in January 2020. Although the pandemic evolved slowly in Nepal affecting primarily the elderly during the first wave in 2020, the second wave of the pandemic caught the country much more abruptly and much larger number of younger people developed more severe disease requiring hospitalized care, that too intensive care. A greater proportion of people have died during the second wave in 2021 compared to the first wave of the pandemic in 2020 that saw sweeping acute shortage of health infrastructures across the country. During the second surge in COVID-19 total cases surpassed 598813 with more than 8179 deaths.<sup>iii</sup> Although children and adolescents under 20 years of age constituted 8% of all reported patients in the first wave of the pandemic,<sup>iv</sup> the proportion increased to around 10% in this second wave.

The government has introduced tough and meticulous public health measures along with scaling up of vaccination in response to the second wave of the pandemic. With the onslaught of this second wave, scientific community as well as the public are frightened that there may be a possibility of further waves in future which may be more damaging. Particularly, there are various reports and news in the media that the coming waves will affect the pediatric populations more intensely and this has created huge public uproar.

As an academy of Pediatricians in the country, Nepal Pediatric Society (NEPAS) currently holds the view that the future waves of COVID 19 and the extent of pediatric age group involvement with those surges in cases remains largely unknown and cannot be predicted with reasonable accuracy. Over much of 2020-2021, COVID 19 across different population groups has behaved more or less consistently in the sense that not all people who get COVID 19 develop severe disease requiring hospitalization and critical care. This proportion of about 15-20% of all COVID 19 infected patients requiring hospitalization or more advanced care has been fairly consistent across most part of the world. Nonetheless, changing disease epidemiology with time that has made more and more younger patients to get sick in very short span of time should prompt all health workers working for children to remain vigilant. There may never be a third wave and the third wave or the successive waves may not behave any differently than the previous waves of the pandemic. However, just like the second wave caught us unprepared, we should not leave any stone unturned to keep us all prepared to manage any number of children requiring specialized care how much large the number be.



## Resource mapping of hospitals with Pediatrics Care in Nepal

There are few common reasons for our children to be more vulnerable for possible future waves. Children are yet out of any vaccination coverage. There will be mass gathering of children after opening of schools and schools cannot always remain closed. School teachers and staffs are not vaccinated yet. Although children do follow behavioral changes more vehemently once trained, inducing behavioral changes in young children are not so easy or take time. Nepali children additionally have malnutrition as significant comorbidity and outcome of COVID 19 in this population largely remains unknown.

Nepal government, civil societies and I/NGOs have invested a lot in health infrastructure across the country during the two previous waves of COVID. An interaction with community leaders and stakeholders of child health across the country conducted by NEPAS and PNAN however concluded that children's services/ health needs have never been focused or given fair justice by allocating some resources to children during the entire period although they make almost 40% of the population. (Conclusion drawn from provincial dialogues organized by NEPAS, PNAN, NCAP/NCPA, report not published). The good news for all health workers working for children is that recently Government of Nepal has issued a directive/circular to allocate 20% of hospital services for pediatric COVID facility.<sup>v</sup>

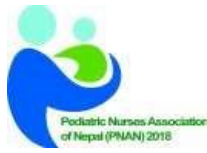
There is only one government pediatric hospital in Kathmandu. There are few private pediatric hospitals in Kathmandu valley. Though there are few pediatric private hospitals in Chitwan, Biratnagar, Butwal, Nepalgunj, Janakpuretc but no separate pediatric hospital exists in government facilities outside Kathmandu valley. Pediatric facilities are available in pediatric departments in provincial hospitals and teaching institutes across the country but these are in limited numbers. It is therefore necessary to map the current status of the pediatric services across the country for adequate preparation.

## 2. Objective

2.1 General Objective: The general objective of this initiative is to collect data on pediatric facility throughout Nepal for planning and preparedness for future waves of COVID 19.

### 2.1 Specific objectives:

1. To determine the total number of existing pediatric beds available in Nepal
2. To find out the total human resource (Pediatrician, Nurses) in pediatric services along with their service status



## Resource mapping of hospitals with Pediatrics Care in Nepal

3. To find out the available PICU and NICU beds and possibility of expansions.
4. To find out the requirements (human resource, equipment, training, physical infrastructure) for pediatric service extension in existing health care institute.

### 3. Methods

For this study, rapid survey was carried out among the pediatric doctors and nurses from different health institutions from all Provinces of Nepal from 1 to 5 June, 2021.

#### 3.1. Data Collection

The rapid Survey aims at collecting information on pediatric facility throughout in the Nepal. For this purpose, a goggle survey form was developed with questions on availability of pediatric hospitals, facility available within health institutions, human resources and other services. The survey Questionnaire was filled by the pediatric doctors and nurses working in different hospitals through the 7 Provinces have supported to have information accurate and short span of time. Therespondents who filled the questionnaire were again contacted for further clarification if there was any confusion in information.

#### 3.2. Data Analysis

Data Analysis was conducted from the small number of study team (Pediatric doctor, Pediatric nurse and child right activist) on the basis of information collected from the Google survey form. The data were transferred into the excel sheet and tabulated

### 4. Result and Discussion

The pediatricians and nurses representing 94 hospitals filled up the self-responded form. Among 94 hospitals, there were 14 Federal, 17 provincial, 2 local level, 32 private, 3 charity, 21 medical colleges and 6 community hospitals.



### Resource mapping of hospitals with Pediatrics Care in Nepal

The pediatricians and nurses representing 94 hospitals filled up the self-responded form. Among them 93 hospitals have already been providing the pediatric services and 84 hospitals have been providing the emergency, outpatient and admission (inpatient) services. (Table 1) Among the available pediatric beds, around 50% of all beds are available only in Province 3 and SudurPaschim Province has a small number of beds although information from Mahendranagar hospital in SudurPaschim Province was not available, this is unlikely to make significant difference. Based on the population, therefore emphasis should be given to the SudurPaschim Province

**Table 1: Number of beds and types of services available**

Province	Listed Hospital	Total beds	Pediatric services		Type of pediatric services		
			yes	no	OPD	OPD+ER	ALL
1	7	3181	7	0	0	0	7
2	13	1480	13	0	0	2	11
Bagmati	40	10894	40	0	2	1	37
Gandaki	5	1285	5	0	0	0	5
Lumbini	16	3745	16	0	1	0	15
Karnali	5	735	4	1	0	2	3
Sudurpaschim	8	467	8	0	0	1	6
<b>Total</b>	<b>94</b>	<b>21526</b>	<b>93</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>84</b>

When analyzing the pediatric beds, there are 2804 beds allocated to pediatric services. The number of PICU beds is 340 and NICU is 625. As free newborn care services are already in implementation, the number of NICU beds seems impressive. Bagmati province alone contributes around 50 % of pediatric beds as well as PICU beds but the numbers of NICU beds are around 30% in Bagmati province. There is need of PICU beds in hospitals of Province 1, Sudurpachhim and Karnali. Sudurpachhim province has huge scarcity of PICU beds. (Table 2)





## Resource mapping of hospitals with Pediatrics Care in Nepal

Table 2: Province wise number of pediatric beds, PICU and NICU Services

Province	Listed Hospital	Number of Pediatric bed	No. of PICU bed	No. of NICU bed
1	7	269	18	78
2	13	213	42	86
Bagmati	40	1613	166	286
Gandaki	5	132	25	51
Lumbini	16	461	81	114
Karnali	5	65	6	14
Sudurpaschim	8	51	2	23
<b>Total</b>	<b>94</b>	<b>2804</b>	<b>340</b>	<b>652</b>

### Human resource

Most of the pediatricians are in Bagmati province, there are very few in Karnali and SudhurPaschim. As same human resources worked in multiple hospitals, the number of human resource in a hospital does not reflect the real human resources scenarios but it gives the general idea about the number of pediatricians in the provinces. Pediatricians and nurses working in different types of hospitals are shown in the following table.

Types of Hospital	Pediatric Doctors	Pediatric Nurses	Trained Nurses
Federal	103	214	104
Provincial	27	70	66
Local	2	8	8
Private	122	639	263
Charity	8	67	23
Community	27	111	44
Medical College	159	644	350

We have not calculated the medical officers and general practitioners involving in pediatric care. This might be the alternative to train and mobilize in the areas where there is scarcity of the manpower.



### Resource mapping of hospitals with Pediatrics Care in Nepal

Likewise, when we analyze the nursing staffs, 1468 nurses are in system working in pediatric department and only one third are permanent. Rest are employed through either contract or scholarship. Among all, only 616 have some form of training and confident to handle the pediatric services.

This scenario of human resource shows there is inequitable distribution of the human resources. There is need of increase in confidence in work in pediatric wards especially nurses. This is more applied in PICU and NICU.

Here we have to compare as per government policy whether we have enough human resources for child population or not. We need to see permanent staff in government and private hospitals. On basis of this, we can recommend for permanent job creation. Also with this data, we can suggest to have schemes and other services for human resources to retain in their services.

Table 3: Human resources distribution in pediatric care.

Province	Total No. of Pediatrician	Type of Employee				Total No. of Pediatric nurses	Type of Employee				Trained Nurses
		Temporary	permanent	Scholarship	Bikasamiti		Temporary	Permanent	Scholarship	Bikasamiti	
1	40	11	29	3	1	211	134	70	2	5	94
2	31	18	11	1	2	110	90	7	0	13	83
Bagmati	308	176	245	16	16	861	494	330	8	29	293
Gandaki	16	6	9	1	2	42	22	16	0	4	26
Lumbini	44	30	29	0	3	207	96	102	0	9	103
Karnali	10	7	3	1	0	12	10	2	0	0	1
Sudurpachim	5	4	1	0	0	25	14	10	0	1	16
<b>Total</b>	<b>454</b>	<b>252</b>	<b>327</b>	<b>22</b>	<b>24</b>	<b>1468</b>	<b>860</b>	<b>537</b>	<b>10</b>	<b>61</b>	<b>616</b>



### Resource mapping of hospitals with Pediatrics Care in Nepal

There is possibility of third wave of COVID 19 pandemic and there is speculation of affecting the children more. Government is also planning to increase the number of HDU beds and care for children. Among 94 respondents, 18 respondents didn't not show the possibility of expansion of PICU /NICU. Those respondents who showed the possibility of increasing the NICU/PICU beds, expect the help in all components such as human resource, equipment, physical infrastructure and human resource training. Very few institutions seem to be capable of increasing the capacity with help of equipments only.

Table 4: Possibility of expansion and expectations for the expansion

Province	Listed Hospital	Possibility of expansion of Pediatric services with NICU/ PICU		Your requirements to expand pediatric care services				
		yes	no	human resource	equipment	Physical infrastructure	training	all of the above
1	7	6	1	0	0	0	1	5
2	13	10	3	1	1	0	1	10
Bagmati	40	34	6	2	1	0	0	37
Gandaki	5	4	1	2	0	0	0	3
Lumbini	16	12	4	0	1	0	0	15
Karnali	5	3	2	0	0	0	1	5
Sudurpaschim	8	7	1	1	0	0	0	7
<b>Total</b>	<b>94</b>	<b>76</b>	<b>18</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>82</b>

## 5. Limitations

We gathered the information from the pediatrician or pediatric nurses of two professional organizations. They have filled up the formed with consultation with the hospital administration. There might be some administrative errors as they might not be fully aware of staff administration. We have taken the data related to manpower, beds and possibility of expansion. But we did not collect the data related to equipment, maintenance facilities,



## Resource mapping of hospitals with Pediatrics Care in Nepal

capacity enhancing programmers, need of training and its type and referral portals and guidelines.

## 6. Conclusion

There are pediatric beds throughout Nepal but more in Bagmati province. The PICU and NICU beds are less in SudurPaschim Province. There are issues in human resources (doctors and nurses). Equipment along with proper training is the must to strengthen the pediatric care throughout Nepal except Bagmati Province.

## 7. Recommendations

This is a rapid survey along with Google form. The responses were given by the pediatricians and the pediatric nurses working in particular health facility. Based on the information collected following recommendations can be made:

1. Develop data base of Pediatric human resources at Federal, Provincial and local levels.
2. Detail information regarding the availability and equipment and spare parts, biomedical helps, drugs and accessories,
3. A referral system should be in place from community to different level of hospitals
4. Human resources working in pediatric require capacity building hands on training on pediatric care, critical care and emergency care to respond children in emergencies/ pandemic.
5. The I/GOS and inter-ministerial collaborations and information regarding provincial and local government issues are also not encompassed in this survey.
6. A detail survey having this kind of information is must to make the action plan to mitigate the effect of future COVID 19 Pandemic in pediatric population.



## Resource mapping of hospitals with Pediatrics Care in Nepal

### 8. References

<sup>i</sup>Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses. *J Adv Res.* 2020 Mar 16;24: 91–98. doi:10.1016/j.jare.2020.03.005

<sup>ii</sup><https://www.worldometers.info/coronavirus/> Last Accessed 10th Jun 2021

<sup>iii</sup><https://covid19.mohp.gov.np/> Last Accessed 10<sup>th</sup> Jun 2021

<sup>iv</sup> Ministry of Health, Nepal. Coronavirus disease (COVID-19) outbreak updates & resource materials Available at: <https://heoc.mohp.gov.np/update-on-novel-corona-virus-covid-19> [ Accessed 17 Oct 2020]

<sup>v</sup><https://heoc.mohp.gov.np/#press-release-circulars> Last Accessed 10th Jun 2021

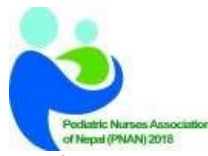


## Resource mapping of hospitals with Pediatrics Care in Nepal

### 1. Annex

#### a. List of participating Hospital

1. Koshi Hospital Biratnagar
2. Bardiya Hospital
3. Dadeldhura Hospital
4. Seti Provincial Hospital
5. Mugu district hospital
6. National Trauma Centre
7. Tikapur hospital kailali
8. Narayani Hospital Birgunj
9. Matrishishu Miteri Hospital
10. Bheri District Hospital
11. Nobel medical college
12. Surya hospital
13. Chitwan Medical College
14. Tinau International Hospital , Butwal
15. Kirtipur Hospital
16. Niko Children's Hospital
17. Dhulikhel hospital
18. KIST medical college and teaching hospital
19. Hospital for Advanced Medicine and Surgery
20. Dhulikhel hospital
21. Children's Medical Diagnosis Center (CMDC), Chabahil, Kathmandu
22. Terai Hospital
23. Karnali Academy of Health Sciences, Jumla
24. Nepalgunj medical college
25. College of Medical science, Bharatpur
26. Hetauda Hospital
27. Grande International Hospital
28. Siddhartha Children and Women Hospital
29. Norvic International Hospital
30. DMCRI
31. Field Hospital Bardibas
32. Ishan Womens and Childrens hospital ,Basundhara
33. United Mission Hospital Tansen
34. Shree Birendra Hospital
35. Kavya Hospital
36. Nepalgunj Medical college
37. Sumeru city hospital
38. Chandrakala hospital / ram janki hospital
39. Paropakar Maternity and Women's hospital
40. Nepal medical college and teaching hospital
41. Narayani Hospital
42. Bharatpur hospital
43. TUTH, Maharajgunj
44. Godavari Modern Hospital , Janakpur
45. Grande International Hospital
46. Civil Service Hospital
47. Phul kumari mahato memorial Hospital karjanha, siraha
48. Chitwan Medical college
49. Nepal Medical College
50. Chaurjahari hospital Rukum
51. Nepal Korea Friendship Municipality hospital
52. International friendship children hospital
53. Provincial Hospital Janakpur
54. Nepal A.P.F Hospital
55. Khwopa Hospital, Chyamasingh, Bhaktapur
56. Ram janki hospital pvt.ltd, janakpur
57. Lumbini Medical College
58. Scheer Memorial Adventist hospital
59. Manipal Teaching Hospital



## Resource mapping of hospitals with Pediatrics Care in Nepal

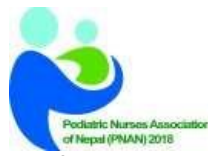
60. Universal College of Medical Sciences
61. Pokhara academy of health Sciences
62. Mehalkuna Hospital, Surkhet
63. Kathmandu Medical College Teaching Hospital
64. Lumbini provincial hospital
65. Siddhi Memorial Hospital
66. Birat medical college and teaching hospital
67. B&B hospital
68. Nisarga Hospital and Research Center
69. Nova hospital
70. Navajeevan hospital private limited
71. Kanti Arogya Hospital Pvt Ltd
72. District hospital accham
73. Mechi Hospital
74. J. R. Hospital, Janakpur-21
75. Janakpur Children Hospital
76. Manmohan Memorial Eastern Regional Community Hospital, Birtamode
77. Bayalpata Hospital
78. Bheri Hospital
79. Charak Memorial Hospital
80. Yashoda Hospital
81. Kanti Children's Hospital
82. Patan Academy of Health Sciences, Patan hospital
83. Tulsi Hospital
84. BPKIHS
85. Om hospital chabahil
86. Paropakar maternity and women's hospital
87. Sukraraj Tropical and Infectious Disease Hospital.
88. Trishuli hospital nuwakot
89. District Hospital Lamjung
90. Dhading hospital
91. Province Hospital, Surkhet
92. Shankarapur Hospital Pvt Ltd, Gokarneshor
93. Yashoda Hospital, Nepalgunj
94. Manmohan memorial hospital

### **b. Introduction of organization Involved**

**Nepal Pediatric Society (NEPAS):** NEPAS is the professional, non-profit making, social welfare organization of the pediatricians of Nepal committed to strive for the overall development of the children of Nepal. Through support for child right issues, child health including preventive measures and professional upgrading and welfare of its members.

The Society was established in 1981 A.D. by a group of pediatricians working in Nepal. Since its inception it has played pivotal role in the development of community child health by its endorsement of child health policies strategies and interventions developed by WHO, UNICEF, USAID and other agencies working in the field of child health and also work closely with these agencies in establishment of ORT units training of health manpower in ARI, diarrhea, malnutrition, breastfeeding, vitamin A and IMCI etc

It has played a major role in carrying out training for doctors and nurses for districts hospital in clinical management of diarrhea and ARI through a project sponsored by USAID in 1985. NEPAS has issued the Position paper on children's issues during



## Resource mapping of hospitals with Pediatrics Care in Nepal

COVID pandemic 2020, published treatment guidelines for children with COVID 19, and epidemiological research article regarding COVID with Children .

**Pediatric Nursing Association:** Pediatric Nurses Association of Nepal (PNAN) is purely a professional organization of nurses working in the area of child health, development and welfare of children within the country. It is non- political, non-religious and non-profit making, social welfare organization.

PNAN was established in 2018 A.D. by a group of pediatric nurses working in Nepal. Since its inception it has played crucial role in area of health, development and welfare of children through conducting different level of policy advocacy dialogs, events related to child health, breast feeding, child rights and protection. PNAN is working collaboratively with different I/NGOs and professional bodies.

During COVID 19 Pandemic, PNAN has contributed to develop Child Care Management during COVID 19: A Reference Guide for HealthCare Practitioners, involved as Co-organizer of Provincial on Child Protection and Child Case Management at Health Institution in Emergency Situation and Resource Mapping for Hospitals with Pediatrics Care in Nepal.

**National Alliance for child protection (NCPA)** The National Child Protection Alliance is a National Network of NGOs working in the area of Child Protection primarily established to initiate child rights and child protection movement in Nepal with the voluntary initiatives of NGOs. It was Initiated in 2010 and Founded in 2011 and formally registered in Kathmandu District Administration Office. It was formally launched on 23 November 2011 with 17 founder member organizations. Later on, 45 members were expanded from all 7 state of the nation. Currently, there are 53 member organizations and the chair of the NCPA is Swatantrata Abiyan Nepal. This alliance is the common alliance of all the organizations and conducts civil campaign with democratic techniques, non-violence, and ethnic nonpartisan, political and communal, neutral, and public-oriented campaign; create national dialogue in the child protection issue, and maintain status to express civil concept. Thematic areas of the alliance include child labor, strengthening child protection system, child protection in crisis situation.