SDG 3
GOOD HEALTH AND WELL BEING

PROBLEM STATEMENT

To analyse and suggest policy making to curb under 5 mortality rates (SDG) in the districts of Telangana.

Introduction

We are a team of 4 students from IIT Gandhinagar under the team name, Avabodh. The word Avabodh is used in Sanskrit literature which means get aware from insights of data. For selecting a problem statement among the given challenges, we researched the different data provided and targets specified under these SDGs. After a thorough discussion, we boiled down the problem statement related to the SDG 3 Good health and well being. After preliminary superficial studies we could observe and further narrow down the prompts based on the performance of the Telangana state in SDG stats.

Prompt / Question

Based on the Niti Aayog's report of SDG 3 (2019-20, 2020 - 21) indices of India. We observe that Telangana was doing fine in SDG 3 at index score of 66 and with India at index score of 61. It was 3rd in overall SDG ranking. In 2021 Niti Aayog's SDG report of India Telangana scored an index of 67 and was at sixth rank among all the states. India was at 74 index score. We did a detailed analysis of all the prompts SDG 3 and their categories. We found that some categories / prompts were below the target set by Niti aayog. The prompts are enlisted in the given table comprising data of Telangana, Kerala, India and Target in which Telangana underperformed with respect to the top performer in that particular prompt.

Table 1: Data of NIti Aayog report 2019-20[1]

State/Target/India	Under 5 mortality rate (per 1,000 live births)	HIV incidence per 1,000 uninfected population	Total physicians, nurses and midwives (per 10,000 population)
Telangana	32	2.6	11
Kerala	7	0.3	112
India	50	0.7	38
Target	25	0	45

Table 2: Data of NIti Aayog report 2020 - 21[1]

State/Target/India	Under 5 mortality rate (per 1,000 live births)	HIV incidence per 1,000 uninfected population	Total physicians, nurses and midwives per 10,000 population	Suicide rate (per 1,00,000 population)	Death rate due to road traffic accidents (per 1,00,000 population)
Telangana	30	0.08	10	20.6	18.68
Gujarat	31	0.05	41	11.2	10.88
India	36	0.05	37	10.4	11.56
Target	25	0	45	3.5	5.81

After rigorous research on data available and finding more data resources provided by Hackathon organizing authority from Niti Aayog website. We narrowed down to the one prompt “Under 5 mortality rate” because of the amount and quality of data available.

Methodology

The analysis started with the selection of SDG 3. There are different targets under this SDG defined by the WHO. On further research carried out based upon subject literature and data available we were able to choose the prompts whose results were not promising for the Telangana state. In this way, the prompts were narrowed down.

After selecting the prompt important for our study, we looked upon the data of the individual category on which the selected prompts depend. The quantification of the influence of each individual category was impossible to retrieve due to the fact that the overall performance of a prompt was not available. On the other hand, the data that we have are relative to different base populations. Thus analyzing all the indicators together will require the data of the base population which was not available. The best way to analyze this kind of data is to observe the trend of the individual categories. The difference between the maximum and minimum of data provides a notion of unequal distribution of resources that leads to the disparity in the levels of individual categories in different states. Overall, this is bad for Telangana. Furthermore, calculating the mean and standard deviation would give some idea of the entire Telangana state based on the data of individual districts.

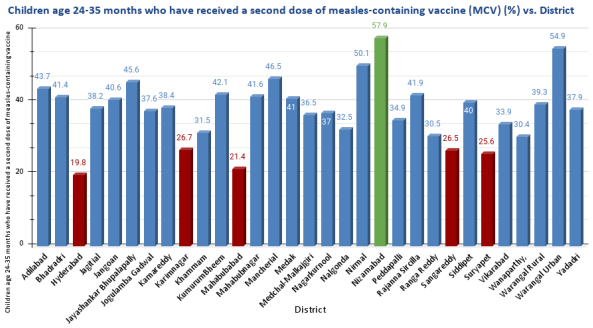
Each of the prompts was observed carefully and those were selected whose performance was not up to the mark. In 2019 Kerala was the top performer in the SDG 3. By considering the stats of Kerala we can get some benchmark to formulate the policy based on the low performance of Telangana in the same prompts. We can see that Telangana outperforms India in the Under 5 mortality rate.
In 2020, the mortality rate in Telangana has improved from the previous year. The total number of physicians is lesser in Telangana which affects the hospitality at the health centers. This in turn affects the mortality rates of some sort. The suicide rate is high as compared to the target to

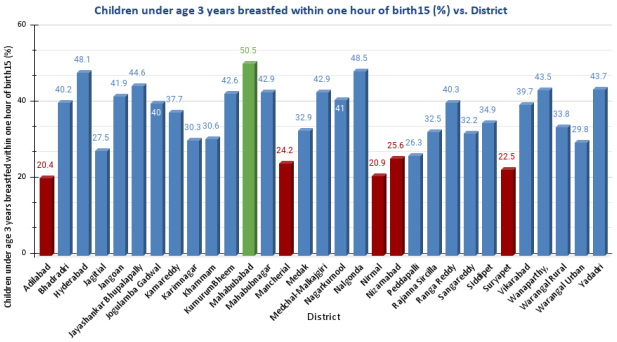
be achieved. Gujarat shows more promising data in suicide rates but it is also far from the target. The death rate in Telangana is greater than that of the top performer, Gujarat.

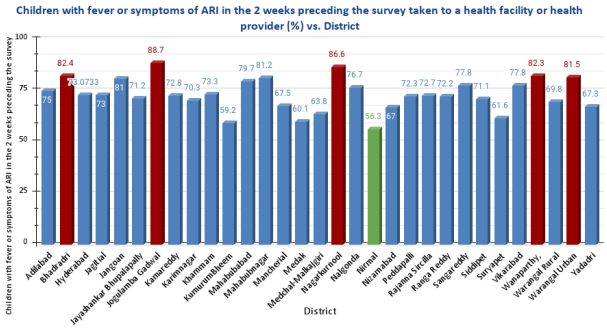
Reason for focusing on Standard Deviation to do the analysis:
Take the example of **Children aged 24-35 months who have received a second dose of measles-containing vaccine (MCV) (%).** The less the vaccination the higher is the **under 5 mortality rate,** (assuming a negative correlation between the two). There could be two reasons why the state of Telangana is not achieving its target of vaccination:

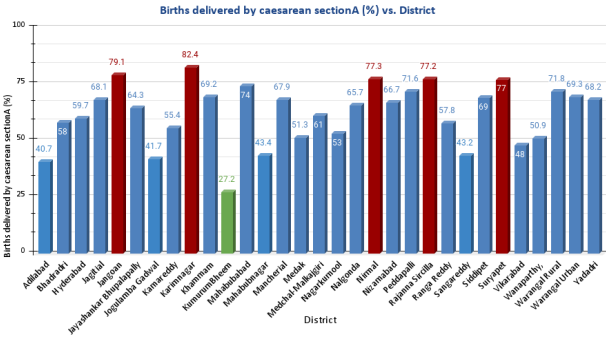
1. Firstly, all of the districts of Telangana are performing poorly in vaccinating their kids. But we cannot be sure that this is the case since we do not have target vaccination of MCV given under UN SDG.
2. Secondly, there could be an unequal distribution of vaccines across districts. We take the example of Covid vaccines to better understand this point. Rich countries like the US and UK are on their way to vaccinate their people for the third time while some poor countries of North Africa have not been able to supply vaccines to vaccinate more than 1% of their population. Similar could be the case between the districts of Telangana. Some districts are having great supplies while others are laggards. This unequal distribution significantly accounts for the lower ranking of Telangana in this category and hence affecting **the Child Vaccinations and Vitamin A Supplementation** keeping the **Under 5 mortality rate high** ultimately bringing down the ranking of Telangana in SDG-3.

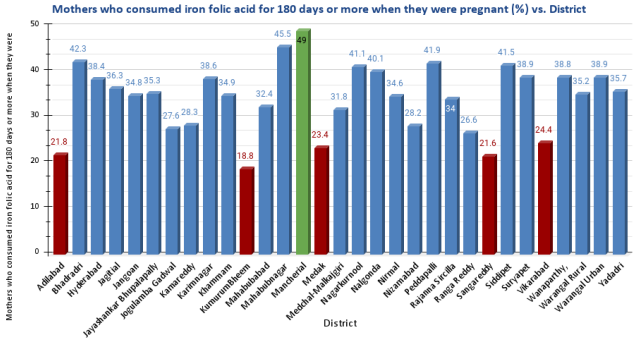
Results











CRITICAL INDICATORS FOR UNDER 5 MORTALITY RATE	5 WORST STATES	BEST DISTRICT
Children age 24-35 months who have received a second dose of measles-containing vaccine (%)	Hyderabad, Mahabubabad, Suryapet, Sangareddy, Karimnagar	Nizamabad
Children under age 3 years breastfed within one hour of birth15 (%)	Adilabad, Nirmal, Suryapet, Mancherial, Nizamabad	Mahabubnagar
Children with fever or symptoms of ARI in the 2 weeks preceding the survey were taken to a health facility or health provider (%)	Jogulamba Gadwal, Nagarkurnool, Bhadradri, Wanaparthy, Warangal Urban	Nirmal
Births delivered by cesarean section (%)	Karimnagar, Jangoan,	Kumuram Bheem

	Nirmal, Rajanna Sircilla, Suryapet	
Mothers who consumed iron-folic acid for 180 days or more when they were pregnant (%)	Kumurum Bheem, Sangareddy, Adilabad, Medak, Vikarabad	Mancherial

Conclusion

The 5 indicators affect the Under 5 mortality rate in the following ways:

1. Mothers who consumed iron-folic acid for 180 days or more when they were pregnant (%): Folic acid can help prevent birth defects known as neural tube defects, including spina bifida. Deficiency could be fatal for children.
2. Births delivered by cesarean section (%): 'Deaths from cesarean sections 100 times higher in developing countries: global study' says a WHO report.
3. Children with fever or symptoms of ARI in the 2 weeks preceding the survey taken to a health facility or health provider (%): 'Acute respiratory infections (ARI) are responsible for almost 20% of all deaths of children aged less than 5 years worldwide' says a WHO report.
4. Children under age 3 years breastfed within one hour of birth15 (%): 'Nearly one lakh children die every year in India due to diseases that could have been prevented through breastfeeding' The Hindu article.
5. Children age 24-35 months who have received a second dose of measles-containing vaccine (MCV) (%): 'in 2018, there were more than 140 000 measles deaths globally, mostly among children under the age of five' says a WHO report.

Policy

1. For reducing the deaths due to measles in the worst attacked district we can start awareness campaigns and mass vaccination. The researchers from King George's Medical University, the Ministry of Health and Family Welfare in India, the Post Graduate Institute of Medical Education and Research, and the National Institute of Medical Statistics analyses revealed that the mass immunization campaigns prevented between 41,000 and 56,000 measles deaths in children (which corresponds to a reduction of 39–57%). In campaign states, mortality rates fell more than in states without a campaign.
2. Establishment of Anganwadi to create the opportunity to make the district-specific solution due to an increase in the workforce. A general policy fails to cover the disparity among the district.
3. Mahabubnagar district authorities have effectively curbed the stigma around breastfeeding and the attitude towards breastfeeding has improved. The other districts should work in the same direction especially, Adilabad, Nirmal, Suryapet, Mancherial, and Nizamabad.

4. Other districts should devise plans to improve vaccination rates like Nizamabad has done. They have increased the reach of measles vaccines to children under the age of 5 through proper handling and reduced wastage.

References

[1] https://www.niti.gov.in/sites/default/files/SDG-India-Index-2.0_27-Dec.pdf
[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6456291/