

# EFFICIENCY OF PUBLIC SECTOR HEALTH FACILITIES IN BIHAR

Technical efficiency for 36 public sector health facilities in four districts of Bihar was estimated. All facilities can produce additional outputs with the current level of inputs.

Technical efficiency of a health facility indicates how much it is maximizing its outputs with the given level of inputs. Globally, there is ample evidence to suggest that inefficiency is a major problem in most health systems. Better understanding of health facility efficiency is important for ensuring effective use of health care resources, especially in countries with involvement of government in health care provision.

Limited work has been done in India to document efficiency of the health system, with the most recent attempt being the Access, Bottlenecks, Costs, and Equity (ABCE) study in India across six states. Utilising the ABCE project approach, we conducted the Access, Capacity, Cost of care and Outputs Study of the public health care delivery systems in four districts of Bihar - Aurangabad, East Champaran, Purnea, and Samastipur.

## TECHNICAL EFFICIENCY WAS RELATIVELY LOW ACROSS ALL THE HEALTH FACILITIES, WITH AN AVERAGE OF 56%

Technical efficiency scores were estimated for 36 facilities using the two fiscal years of data, 2016-17 and 2017-18. The efficiency score reflects the relationship between the facility-based resources and the facility's total patient volume during the assessment period (Figure 1). Technical efficiency scores ranged from 19% to 88%.

## HIGHER TECHNICAL EFFICIENCY IS ASSOCIATED WITH LOWER CHILD MORTALITY RATES AT THE DISTRICT LEVEL

We found a pattern between the neonatal and under-5 mortality rates at the district level with that of the average technical efficiency score of the facilities in the district (Figure 2). Samastipur district had the highest average technical efficiency score and the least neonatal and under-5 mortality rates. This pattern needs to be explored further in a larger sample of facilities across more states to fully understand implications of improved technical efficiency on child mortality and possibly other outcomes.

Figure 1: Ensemble model of efficiency was run with two sets of inputs (italics) but same outputs

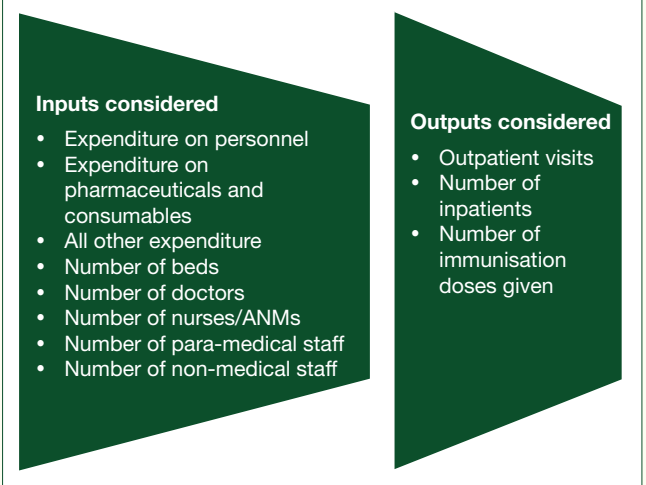
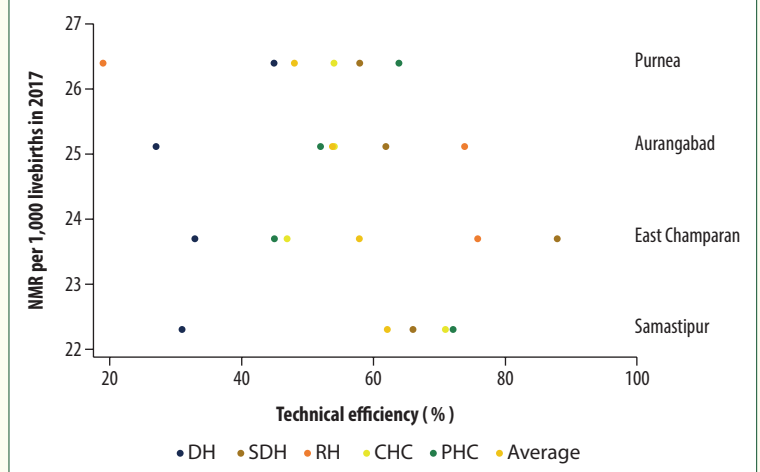
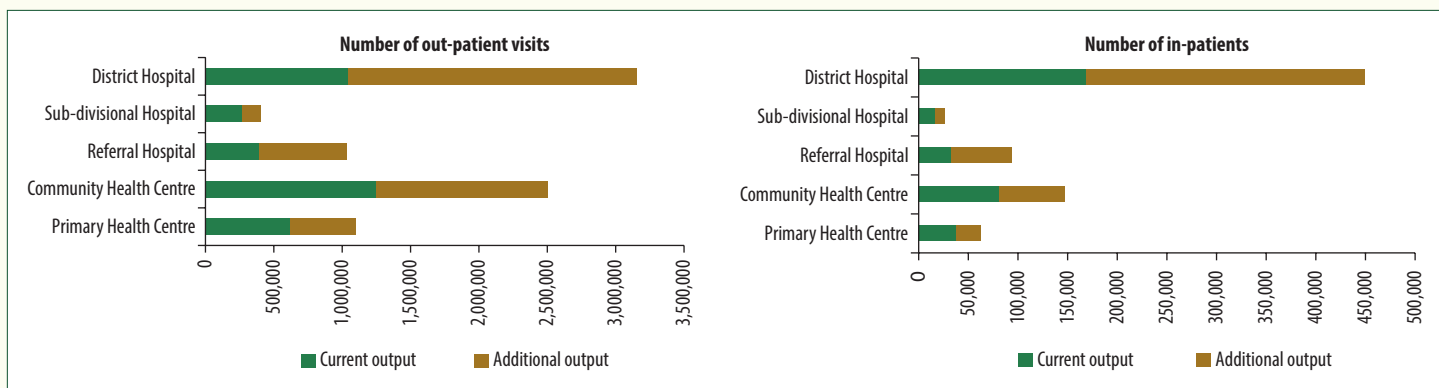


Figure 2: Relationship between district level neonatal mortality rate (2017) and efficiency scores of all sampled facilities in a given district



## GIVEN THE LOW LEVELS OF EFFICIENCY, MOST OF THE FACILITIES HAVE CAPACITY TO HANDLE MUCH LARGER PATIENT VOLUMES THAN CURRENTLY HANDLED

On an average, the number of patients seen can be increased by 1.3 times with the current inputs. If all the facilities were to be 100% efficient, the most additional out-patient outputs were possible for district hospitals (200% increase) followed by the referral hospitals (165% increase) and community health centres (100% increase). For the in-patients, the most additional outputs are possible for referral hospitals (185% increase) followed by the district hospitals (166%).



## WAY FORWARD

While these findings generally contrast with more prevalent view of the health facility capacity in Bihar, and what is considered as performance of a facility based on outputs only, these findings are similar to those reported for public sector facilities in six other Indian states in the ABCE study. To improve technical efficiency, the Government of Bihar could consider the following:

- Assess the performance of a facility not “simply based on outputs” but on “how efficiently the inputs are utilised to provide the outputs”. All the sampled health facilities were capable of handling more volume of patients.
- Routine system of monitoring technical efficiency for the facilities in the state will allow for more evidence-based allocation of resources at the facility level.
- Improve the documentation of expenditure at the facility-level for a more robust assessment and monitoring of how the resources are utilised.
- Variability in the technical efficiency across the facilities indicates that there are intrinsic and extrinsic factors which determine a given level of technical efficiency. Investment in understanding of these factors would be important to improve efficiency of a health system grappling with significant resource constraints. Since public sector health facilities do not compete in the marketplace, alternative strategies must be devised for improving efficiency of resource use.
- Reviewing the technical efficiency with a variety of patient outcomes at the facility level is desirable.

## About ACCO Study

The Access, Capacity, Costs of Care and Outputs (ACCO) study of Public Health Care Delivery Systems in Four Districts of Bihar, is a collaboration between the Centre for Health Policy, Asian Development Research Institute, Bihar and the Public Health Foundation of India, Gurugram. The goal of the study was to provide decision-makers with the best possible evidence on efficiency of the public sector facilities. In addition, facility capacity for service provision, human resources and patient satisfaction were assessed in detail. A total of 84 facilities were included across Aurangabad, East Champaran, Purnea and Samastipur districts.

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