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# IMPROVING PATIENT MANAGEMENT CAN FURTHER ENHANCE



## EFFICIENCY OF ANTIRETROVIRAL TREATMENT CENTRES

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### EXECUTIVE SUMMARY

More than a million people are on Antiretroviral Treatment (ART) in India. Treatment is initiated at the ART centres and the system is supported by a large network of link ART and Care and Support Centres (CSCs), which provide follow-up service.

In the setting of increased patient load in most of the ART centres, the National AIDS Control Organisation (NACO) decided to examine the efficiency of all the ART centres and commissioned secondary data analysis under the umbrella of National Data Analysis Plan-phase-II (NDAP-II).

The data analysis found that improving patient flow management in the ART centre would further improve the efficiency of its service delivery and provide quality service along with better coverage. The overall system performance and efficiency could also be compared over a period of time to measure the changes occurred as a result of newer modalities of service delivery. Finally, the method used in this study and the national tool (the scorecard) are committed to a similar purpose, and therefore, a study could be conducted to compare both tools and incorporate the most effective one in the program.



### THE ISSUE

More than a million people are on ART therapy in India. With implementation of Test and Treat policy nearly a million more people are expected to be on ART<sup>1</sup>. Antiretroviral therapy is initiated at the ART centres and the system is supported by a large network of link ART and CSCs which provide follow-up service. Through 'Mission SAMPARK', a flagship initiative to reach out to lost to follow-up cases, more People Living with HIV (PLHIV) have been brought back to the system, which resulted in increasing the footfall at the ART centres.



More than **a million people** are on **ART** in India.

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<sup>1</sup>Ministry of Health and Family Welfare. Test and Treat Policy for HIV Patients [Internet]. Press Information Bureau. 2018 [cited 2018 Oct 1]. Available from: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=169598>



## THE STUDY

In the scenario of increased patient volume in most of the ART centres, NACO decided to examine the efficiency of all the centres and

commissioned a secondary data analysis exercise under the umbrella of National Data Analysis Plan, Phase-II (NDAP-II).



## THE METHODOLOGY

Data envelopment analysis is an econometric tool that measures performance in terms of technical efficiency of centres<sup>2</sup>. Technical efficiency is the effectiveness with which a given set of inputs is used to produce an output. A unit/ART centre is said to be technically efficient if a firm is producing the maximum output from the minimum quantity of inputs, A unit/ART centre is said to be scale efficient when its size of operations is optimal so that any modifications on its size will render the unit less efficient. This analytical technique uses non-parametric linear programming method and attempts to find the optimum output that can be achieved for a given set/combination of inputs. Available secondary program data from care,

support and treatment (CST) division, NACO, until December 2017 was used for the analysis, after due approval under NDAP-II. These analyses considered two primary outputs which included: (i) outpatient load for quantity; and (ii) retention on treatment for 12 months. Four inputs namely human resources, medication costs, laboratory tests and operations (Table-1) were converted to equivalent cost data using information provided by NACO. With the aim of maximizing the outputs, we used an output-oriented data envelopment analysis to analyse the technical efficiency of centres delivering ART. The data envelopment analysis method has been used by various authors including others from India to examine the technical efficiency in health system<sup>3,4,5</sup>.



**Antiretroviral therapy** is initiated at the **ART centres** and the system is supported by a **large network of link ART and CSCs** which provide follow-up service. Through **'Mission SAMPARK'**, a flagship initiative to reach out to lost to follow-up cases, more **People Living with HIV (PLHIV)** have been brought back to the system.

<sup>2</sup>Coelli T. A Guide to DEAP Version 2.1: A Data Envelopment Analysis (Computer) Program [Internet]. CEPA Working Papers. New South Wales; 1996. (96). Report No.: 8. Available from: <https://economics.uq.edu.au/cepa/software> |

<sup>3</sup>of Uttarakhand (India). Int J Oper Res [Internet]. 2016;25(3):371–99. Available from: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84959365155&partnerID=40&md5=0d36c5b86040f69b495d8aedff7d75c3> |

<sup>4</sup>Tigga NS, Mishra US. On Measuring Technical Efficiency of the Health System in India: An Application of Data Envelopment Analysis. J Health Manag. 2015;17(3):285–98 |

<sup>5</sup>Zeng W, Shepard DS, Chilingirian J, Avila-Figueroa C. How much can we gain from improved efficiency? An examination of performance of national HIV/AIDS programs and its determinants in low-income and middle-income countries. BMC Health Serv Res [Internet]. 2012 Mar 24 [cited 2018 Sep 7];12(1):74. Available from: <http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-12-74>

**Table 1: Input and output variables**

Variables	Values
OPD (SPELL)	567 (0-279939)
Retention percentage	(0-100)
<b>Human resource Cost</b>	<b>Cost per month</b>
Senior Medical Officer	45,000
Medical Officer	36,000
Rest of Staff	13,000
Care Coordinator	6,500
<b>Operational cost</b>	<b>Cost per month</b>
ART	12,500
Link Art+/Link Art	3,083
CoE (SPELL)	16,667
FI ART (SPELL)	4,167
<b>Laboratory Test cost</b>	<b>Per test</b>
CD4	250
Viral Load	1,200
Cost of other lab investigations	625
<b>Treatment Cost</b>	<b>Per person per month</b>
First line	450
Second line	1417
Third line	9750
Anti-tubercular medicine	583
Isoniazid	30
Sulphamethoxazole- Trimethoprim	30



## FINDINGS

- Based on availability of data for the selected six variables, 494 of the 530 ART centres were included in this analysis.
- A total of 21 centres were found to be at the frontier of analysis with maximum technical efficiency. The average overall technical efficiency score was 0.76 out of maximum score of 1.
- The average score of scale efficiency, which indicates efficiency of operations size with respect to the outputs was 0.93 out of maximum 1.
- Also 194 centres performed well in the scale efficiency measurement. This indicates that investing in improving scale efficiency will not make windfall gain in efficiency system.
- The average pure technical efficiency score, which indicates management efficiency at the centre level, was 0.78 out of maximum score of 1, indicating in an average the centres can improve their performance 22%.
- A total of 49 centres had the maximum pure technical efficiency score of 1.



## RECOMMENDATIONS

- Improving patient flow management in the ART centres will further improve the efficiency of its service delivery and provide quality service along with better coverage.
- The overall system performance and efficiency can be compared over a period of time to measure the changes occurred as a result of newer modalities of service delivery.
- The methods used in this analysis and the national tool/scorecard seek to evaluate similar outcomes; a comparative study could be conducted between the two, which will help to inform the optimal strategy to evaluate efficiency in ART centres.

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