Technical efficiency of integrated HIV and sexual reproductive health services in low and middle income settings: An application of data envelopment analysis

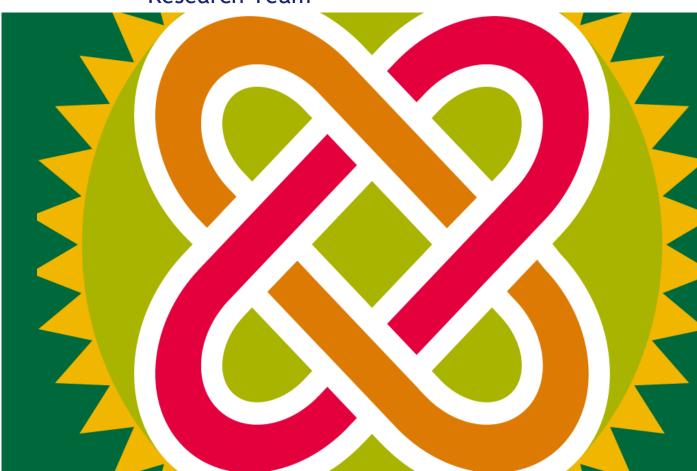
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International Health
Economics
Association
July 9, 2013
Sydney, Australia











Introduction

- Well articulated rationale for integrating HIV and SRH services in low income high prevalence settings
- However little remains known about the efficiency gains associated with integrating these services
- Purpose of the study are:
 - to compare the relative technical efficiency of a sample of health facilities providing integrated HIV and SRH services in Kenya and Swaziland; and
 - to determine whether the level of integration of HIV and SRH services affects technical efficiency.



Data and methods

Period	2008/2009 and 2010/2011 from 40 facilities in Kenya and Swaziland
Data	 Client visits for 6 HIV and SRH services, Clinical and non clinical staff FTEs Capital stock (building, equipment and staff training) Measure of integration (Composite integration score): number of services in facility; number of services in MCH unit; range of services per clinical staff; and range of services in one consultation room.
From	Routine monitoring data at health facility level
Analysis	 Two stage DEA Output oriented DEA model: 3 inputs - 2 categories of labour and unit size (proxy for capital stock) and 6 outputs: numbers of HIV and SRH visits. Tobit regression of bias corrected DEA scores against environmental variables: facility size (categorised by bed capacity); facility ownership (public/private); level of integration; catchment population; and proportion of HIV client visits.

Relative technical efficiency - pooled data

	Observations	Mean (SD)	Kruskal-Wallis test (P-value)
Year	TE ar	nd year	
1 (2008/2009)	40	0.71 (0.28)	
2 (2010/2011)	40	0.76 (0.31)	0.3432
Country	TE and country		
Kenya	60	0.68 (0.30)	
Swaziland	20	0.91(0.18)	0.0020
Facility size	TE and facility size		
Large (150 -350 beds)	14	0.84 (0.23)	
Medium (10-90 beds)	18	0.55 (0.31)	
Small (< 10 beds)	48	0.78 (0.29)	0.0070
Ownership	TE and ownership		
Private	16	0.82 (0.28)	
Public	64	0.71 (0.30)	0.1206
Location	TE and	location	
Urban	34	0.86 (0.22)	
Rural	46	0.64 (0.31)	0.0047
	No of efficient	units on frontier	
Year 1 (2008/2009)	15/40		
Year 2 (2010/2011)	22/40		



Determinants of efficiency

Explanatory variables	Coefficient	t-statistic	
Constant	0.916	2.86	
Voor 2010/11	0.006	1 10	
Year 2010/11	0.096	1.18	
Swaziland	0.345*	1.90	
Catchment population	-0.024	-0.42	
Proportion of HIV visits	0.383	0.92	
Integration index	-0.134	-1.31	
Public	-0.032	-0.13	
Rural	-0.409*	-1.81	
Medium facility (10-90 beds)	-0.147	-0.61	
Small facility (< 10 beds)	0.173	0.79	
Number of observations	8	80	

^{*}Statistical significance at the 10% level



Conclusion

- Considerable variation in TE but on average high level of TE across study sites
- Associations found between TE and country, facility size and location
- No clear evidence to support conventional assumption that more integrated health facilities operate more efficiently
- Challenges of real world economic evaluation other contextual factors possibly affecting efficiency of HIV/SRH service delivery

Next steps

Quality dimensions to be incorporated in subsequent analysis of TE Ministry of Health, Swaziland
Ministries of Health, Kenya
Family Health Options Kenya (FHOK)
Family Life Association of Swaziland (FLAS)

Learn more at:

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Support for this study was provided by the Bill & Melinda Gates Foundation. The views expressed herein are those of the author(s) and do not necessarily reflect the official policy or position of the Bill & Melinda Gates Foundation

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