

# 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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# Integra

Strengthening the evidence base  
for integrating HIV and sexual and  
reproductive health (SRH) services

## 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

<b>Period</b>	2008/2009 and 2010/2011 from 40 facilities in Kenya and Swaziland
<b>Data</b>	<ol style="list-style-type: none"><li>1. Client visits for 6 HIV and SRH services,</li><li>2. Clinical and non clinical staff FTEs</li><li>3. Capital stock (building, equipment and staff training)</li><li>4. 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.</li></ol>
<b>From</b>	Routine monitoring data at health facility level
<b>Analysis</b>	<p>Two stage DEA</p> <ol style="list-style-type: none"><li>1. 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.</li><li>2. 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.</li></ol>

# Relative technical efficiency - pooled data

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