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

Carol Dayo Obure, Rowena Jacobs, Lorna Guinness, Anna Vassall and the Integra Research Team

International Health Economics Association
July 9, 2013
Sydney, Australia

Population Council

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

IPPF

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

Period	2008/2009 and 2010/2011 from 40 facilities in Kenya and Swaziland
Data	1. Client visits for 6 HIV and SRH services, 2. Clinical and non clinical staff FTEs 3. Capital stock (building, equipment and staff training) 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.
From	Routine monitoring data at health facility level
Analysis	Two stage DEA 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. 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.

Relative technical efficiency - pooled data

	Observations	Mean (SD)	Kruskal-Wallis test (P-value)
Year		***TE and 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		

Integra
Strengthening the evidence base for integrating HIV and SRH services

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

Integra
Strengthening the evidence base for integrating HIV and SRH services

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

Integra
Strengthening the evidence base for integrating HIV and SRH services

Ministry of Health, Swaziland
Ministries of Health, Kenya
Family Health Options Kenya (FHOK)
Family Life Association of Swaziland (FLAS)

Learn more at:
www.integrainitiative.org

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

For a copy of this presentation please visit same.lshtm.ac.uk

Integra
Strengthening the evidence base for integrating HIV and SRH services