Facility-Level Variation in Performance: Implications for Scaling Up of Essential Health Programmes in South Africa

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INTRODUCTION

- Constraints to scaling up health programmes exist at multiple levels in developing countries (Victora et al 2004). Of these, the significance of facility-level factors such as the the quality of local management, day to day organisation of services and provider attitudes are not well understood.
- REACH (**R**esearching **E**quitable **A**ccess to **H**ealth **C**are), is a four-year, multi-method programme documenting inequalities in access to and use of antiretroviral therapy (ART), TB and maternal health services in two rural and two urban sub-districts of South Africa.
- We carried out a multilevel analysis to determine the independent role of the facility as a group-level determinant of access and use in the subset of 1266 users of 12 ART services (facilities) who were interviewed/evaluated as part of the project.
- Access defined as the "degree of fit" between population needs and health system responses; it has both demand and supply side dimensions (Bärnighausen 2007, Thiede et al. 2009)

QUESTION

How much of the variation in access and use amongst ART user populations is attributable to the facility level when controlling for individual (age, sex and socio-economic status) factors?

METHODS

- Data collection included a 100-item structured questionnaire, record reviews and facility quality evaluations
- To determine the contribution of the facility to overall variance in access and use, we:
  - Fitted a multilevel logistic regression model (using Stata V10.1) that included fixed and random parameters, and a range of access and use items as the dependent variables (see Box 1)
  - Individual level parameters included age, sex, and a socio-economic (asset) score
  - Mean SES status of the facility user population was also included as a fixed facility level parameter
  - Residual facility level variance was estimated as a percentage of total variance

Box 1: Dimensions of access and patterns of health service use

SOCIO-DEMOGRAPHIC VARIABLES

•Age, sex, citizenship & where born, household assets (SES index), education, employment, social grants, migration and marital status.

ACCESS VARIABLES

•*Availability*: mode of transport; time required to reach a facility; support for adherence, information (e.g. knowledge of cd4 count) and household social support;

•*Affordability*: cost of transport to the service, socio-economic status (asset index), access to grants, borrowing, perceived ease/difficulty of expenses;

•*Acceptability*: provider (nurse/doctor) preference, experience of stigma, perceptions of staff attitudes and quality of service.

UTILISATION VARIABLES

• Baseline CD4 count (indicator of delayed uptake), adherence to doses and follow up visits, use of other providers, etc.

FINDINGS

- Table 1 shows the multilevel models for three binary access variables 1) travel by foot (Y/N) 2) perceived affordability of costs of care (easy/difficult) 3) perceived respect by staff (Y/N)
- At an individual level, gender and socio-economic status were associated with both travelling by foot and perceived affordability of care
- At a group level, facilities with overall poorer user populations (on mean SES scores) had lower levels of perceived respect
- The residual variance attributable to the facility level after controlling for individual and group characteristics ranged from 22-33%, and was highly significant (p=0.000) for all three variables examined
- These models demonstrate the influence of both individual and group/facility factors on the experience of access
- The role of the facility is further illustrated in Figure 1 which shows the level of variance around the "average" facility for the experience of respect
- Next steps include modelling facility level explanatory factors such as staffing levels, support/supervision, resources and urban-rural status.

Table 1: Multilevel model of selected access variables in ART users including individual and facility level parameters

Level 1: 1266 ART users Level 2: 12 ART service points (facilities)	Availability: Travelled by foot to the service		Affordability: Costs of care perceived as manageable*		Acceptability: Staff perceived as respectful**	
Fixed parameters	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
Individual-level						
Sex	1.44 (1.03-2.02)	*0.031*	1.42 (1.01-1.99)	*0.040*	0.94 (0.70-1.28)	0.666
Age	1.01 (0.99-1.02)	0.540	1.01 (0.99-1.02)	0.531	1.01 (1.00-1.03)	0.060
SES score#	1.27 (1.04-1.56)	*0.022*	0.62 (0.51-0.75)	*0.000*	1.09 (0.91-1.31)	0.348
Facility-level						
Mean SES score#	0.99 (0.32-3.06)	0.990	0.54 (0.22-1.37)	0.196	0.24 (0.10-0.56)	*0.001*
Random parameters						
Between-facility estimate of variance (95% CI)	1.65 (0.70-3.90)		0.99 (0.35-2.77)		0.95 (0.40-2.34)	
Likelihood ratio statistic	226.31; p=0.000		120.14; p=0.000		164.16; p=0.000	
Variance Partition Coefficient@	32.6%		22.6%		21.9%	

SES score based on multiple correspondence analysis (MCA) of assets; score inversely proportional to presence of assets i.e. a higher score denotes greater poverty * Those who indicated they found it "easy" to incur costs of attending the service ** Those who disagreed with the statement "Some staff are disrespectful to patients" @ Percentage variance attributable to the facility level in the model

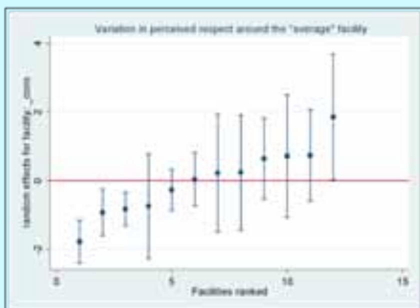

Figure 1: Facility variance (95%CI) in perceived respect above and below the "average" facility in 12 facilities providing ART services

DISCUSSION

- The analysis shows the extent to which access (as the degree of fit between demand and supply dimensions) varies between facilities, even when falling under the same local jurisdiction
- These differences may relate to local inequities in staffing and allocation of resources, micro variations in patient populations, the quality of facility managerial systems and the provider discretion and autonomy that exist at this level.

CONCLUSION

Scaling up initiatives and health system strengthening need to focus not only on training front-line providers but also on enhancing the performance of facilities and their responsiveness to patients and communities.

THE REACH PROJECT

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