

Measuring service integration over time: A multidimensional index ... A (continuing) story of measurement challenges & innovation

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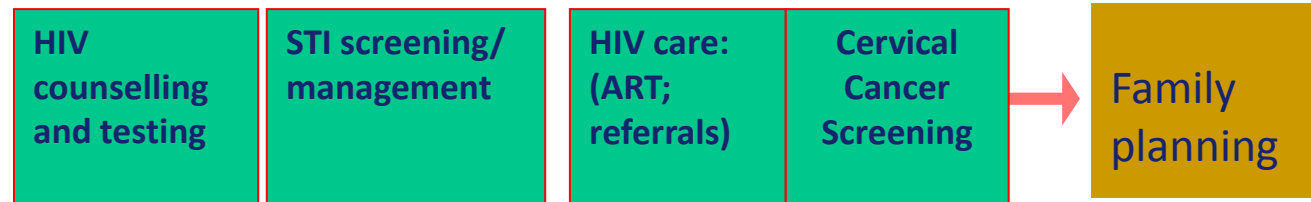
Integra Initiative

- Quasi experimental intervention evaluation in 42 facilities in Kenya and Swaziland
- Facilities assigned to intervention and comparison arms and matched on a range of criteria
- Challenges of research that is embedded in ‘real’ programmes ie **programme science approach** that affect integration impact analysis
- Integra developed an ‘**Index model**’:
Continuum of Integrated Care Index (CICI)

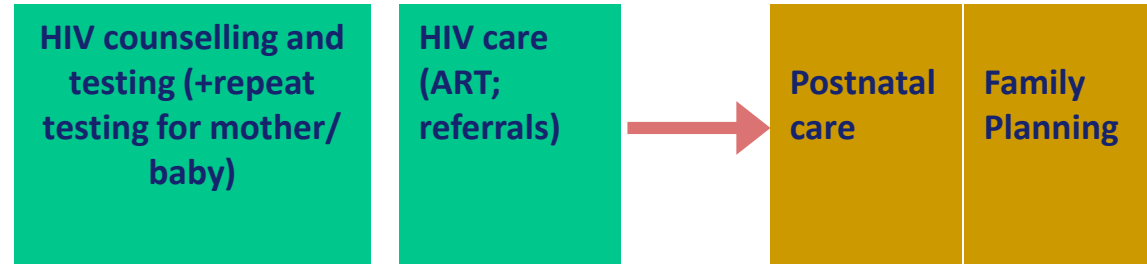
Non-randomised, quasi-experimental intervention evaluation in 42 clinics in Kenya and Swaziland

Aim: to determine **impact** of integration on: health and services outcomes; cost-effectiveness

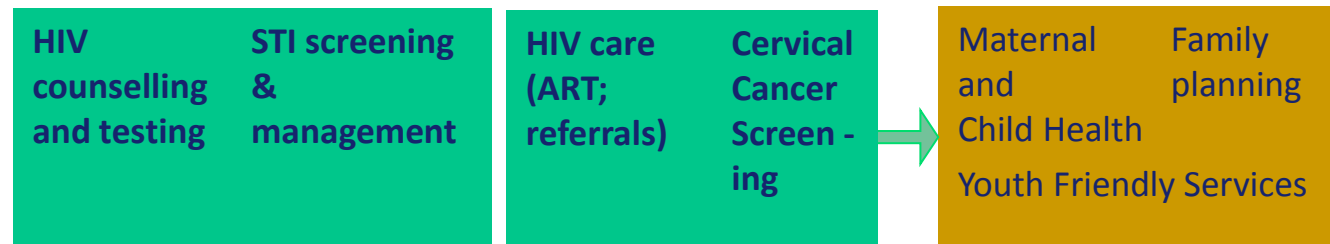
Model 1:
Integrating HIV Services into FP (Kenya)



Model 2:
Integrating HIV services into postnatal care & FP (Kenya & Swaziland)



Model 3
Integrated HIV & SRH services (IPPF clinics, Kenya & Swaziland)



Community Survey
Baseline 2009

Data Collection Activities

Community Survey
Endline 2012

Costing Baseline
2009-2010

Costing Endline
2011-2012

Health Facility Assessment
time-series 2009-2012

Client Flow time-
series 2009-2012

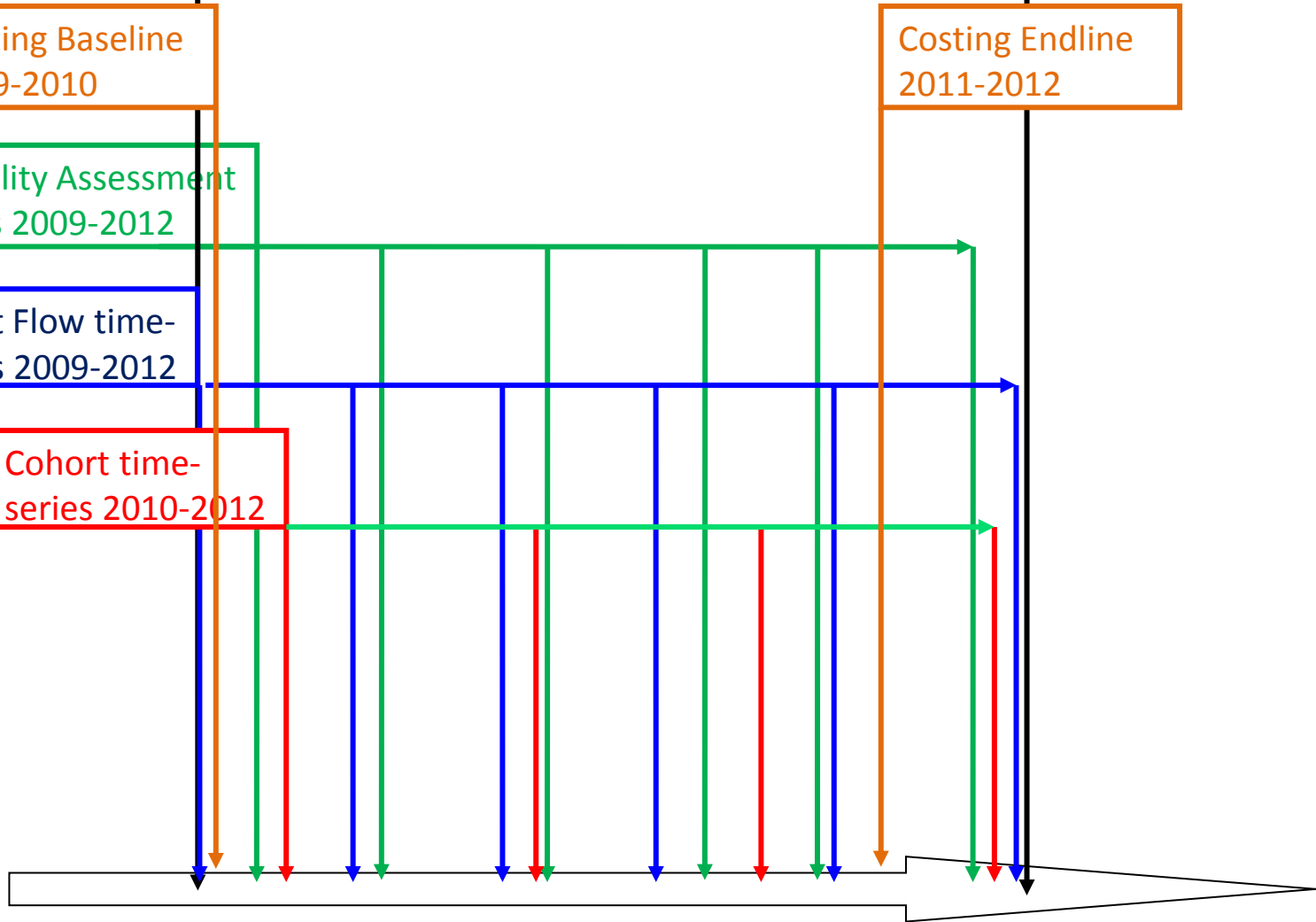
Cohort time-
series 2010-2012

2009

2010

2011

2012



Nothing is what it seems!

- ‘Real’ setting: comparison facilities contaminated:
 - by additional Govt/donor activities on integration
 - by staff actions at individual facilities
- Implementation of intervention varied across facilities
 - motivation, stock-outs, staff turnover etc.
- Degree of integration achieved & sustained at individual clinics varied and changed over time
- Women in cohort did not necessarily stay at recruitment facility

A Solution?

- Measure and account for actual degree of integration at each facility over time.
- Range of clinic-specific data available at different time-points = opportunity to construct a multi-dimensional 'Index' to measure a continuum of achieved integration



Multi dimensional ‘index’ to measure continuum of achieved integration

1. Defined (4) dimensions of the Index (literature based)
2. Defined (8) indicators needed to capture the dimensions
3. Used clinic data on each attribute to generate attribute scores for each clinic (n=42)
4. Expert input on attributes and clinic rankings
5. Latent variable modelling to determine weighting of attributes/ association with integration
6. Latent variable modelling analysis used to give each clinic an ‘integration’ score (on a continuum), derived from the 8 individual attribute scores

Attribute scores are used in outcomes evaluations to:

- MONITOR changes in integration,
- CONTROL for initial levels of integration,
or to
- ASSOCIATE level of integration with outcomes

Building the Index of Integration (1)

Dimension	Attribute	Indicator	Data Source
Physical Integration	*Service availability within MCH/FP unit	<p>% of HIV & other non-core services available in the MCH/FP unit at each facility, from following list:</p> <ol style="list-style-type: none"> 1) HIV treatment (ART) 2) Cervical cancer screening 3) CD4 count services 4) HIV testing services 5) STI treatment 	Periodic Activity Review
	*Physical resources	<p>% of 9 SRH-HIV services that are provided in each consultation room in a day</p> <p>The 9 Services are : FP, ANC, PNC, HIV treatment (ART), Cervical cancer screening, CD4 count services, HIV testing services, STI treatment, PMTCT</p>	Costing data (clinic registers)
	*ART location and referral	<p>Location of ART and functionality of referral system to ART for SRH clients:</p> <p>Mean score among those receiving SRH/HIV services: 0= Received no ART ("HIV care") & not referred for ART 1= Referred for ART but not received during that visit 2= Received ART during visit, either as 1 service only, or as additional service but with different provider 3= Received ART in addition to an SRH service (FP/ANC/PNC/STI) with the same provider.</p>	Client Flow tool

Building the Index of Integration (2)

Dimension	Attribute	Indicator	Data Source
Temporal integration	*Range of services available daily	<p>% of days in the week (out of 5) on which components of SRH/HIV are “available”</p> <p>Components = FP, HIV testing services, STI services, HIV treatment services (ART), PNC</p>	Periodic Activity Review
	*Range of services accessed daily	<p>% of days in the week (out of 5) on which components of SRH/HIV are accessed</p> <p>Components = FP, HIV testing services, STI services, HIV treatment services (ART), PNC</p>	Client flow tool
Provider integration	*Human resources	<p>% of 9 SRH-HIV services that are provided per clinical staff member in a day</p> <p>The 9 Services are : FP, ANC, PNC, HIV treatment (ART), Cervical cancer screening, CD4 count services, HIV testing services, STI treatment, PMTCT</p>	Costing data registers

Building the Index of Integration (3)

Dimension	Attribute	Indicator	Data Source
Functional integration	*Range of services accessed daily	% of days in the week (out of 5) on which components of SRH/HIV are accessed Components = FP, HIV testing services, STI services, HIV treatment services (ART), PNC	Client flow tool
	Range of services provided in one consultation	Among clients receiving any HIV/SRH/PNC service: % who receive an index service + another SRH/HIV service in one of their provider contacts	Client flow tool
	Range of services provided in 1 visit	% who receive an index service + another SRH/HIV service during their visit to the facility	Client flow tool

* Index service = FP, PNC, HIV (C&T), STI

Location/ model	Facility	Service availability in MCH/FP unit	Range of services available daily	Range of services accessed daily	Human resources: staff integration	Physical resources: room integration	Range of services provided in 1 consultation	Range of services provided in 1 visit
FP Kenya	Nyeri PGH	67%	100%	60%	39%	7%	20.4%	20.4%
	Ngorano HC	56%	100%	0%	57%	19%	4.0%	6.4%
	Warazo HC	67%	100%	20%	52%	33%	10.0%	10.0%
	Thika DH	67%	100%	80%	47%	16%	1.7%	1.9%
	Ruiru HC	67%	100%	0%	56%	22%	5.5%	5.9%
	Kirwara SDH	67%	100%	0%	31%	22%	0.0%	1.2%
	Muragua DH	67%	100%	20%	41%	16%	15.1%	15.6%
	Kigumo HC	67%	100%	20%	37%	22%	2.2%	2.6%
	Kangari Disp.	67%	100%	0%	72%	26%	8.2%	8.2%
	Nyahururu DH	67%	100%	0%	42%	17%	10.5%	10.5%
	Engineer HC	67%	100%	0%	19%	37%	2.9%	2.9%
Njabini HC	67%	100%	0%	54%	28%	0.0%	0.0%	
PNC Kenya	Kitui	56%	100%	0%	41%	13%	0.3%	1.0%
	Kauwi	67%	100%	0%	47%	20%	0.0%	0.0%
	Mutito	78%	100%	0%	74%	33%	0.0%	0.0%
	Yatta	78%	20%	0%	73%	26%	9.0%	15.7%
	Miambani	44%	100%	0%	60%	17%	0.0%	2.0%
	Mbitini	44%	20%	0%	66%	26%	0.0%	0.0%
	Makueni	56%	100%	0%	33%	21%	4.5%	7.9%
	Kilala	44%	20%	0%	57%	17%	0.0%	0.0%
	Mavindini	56%	100%	0%	78%	33%	19.5%	19.5%
	Kathonzweni	56%	100%	0%	52%	26%	0.0%	0.0%
	Nunguni	67%	100%	0%	44%	25%	59.6%	60.0%
Kyambekye	67%	100%	0%	89%	28%	18.7%	18.7%	



What is associated with integration?

Indicator	Experts	Data	Experts + Data
Service availability in MCH-FP Unit	0.308	0.131	0.056
Range of services available daily	0.903	0.791	0.913
Range of services accessed daily	0.669	0.867	0.671
Range of services provided in 1 consultation	-0.022	0.248	-0.009
Range of services provided in 1 visit	-0.215	0.191	-0.212
Services provided per staff/ per day	-0.687	-0.595	-0.852
Services provided per room/ per day	-0.888	-0.685	-0.686
ART location and referral	-0.333	0.823	-0.024

Standardised factor loadings for data and expert rankings

Clinic	Score			Ranking		
	Experts	Data	Data + Experts	Experts	Data	Data + Experts
Nyeri PGH	3.31	-0.848	-0.699	1	2	1
Ruiru HC	4.21	0.11	0.149	3	15	16
Thika	7.6	0.151	0.085	7	16	14
Ngorano HC	7.69	0.762	0.458	8	21	20
Muragua DH	9.21	-0.462	-0.459	12	6	4
Warazo HC	9.58	0.992	0.912	14	26	27
Nyahururu DH	11.27	-0.394	-0.444	17	7	5
Kirwara SDH	11.62	-0.496	-0.428	18	4	7
Kigumo HC	13.08	0.403	0.026	20	19	13
Kangari Disp.	14.39	1.121	0.895	23	28	26
Engineer HC	17.69	0.003	-0.141	25	13	11
Njabini HC	19.2	0.922	0.564	26	25	23

Next steps: Application of CICI

- What is happening with integration? (Evaluation tool):
 - To describe how clinics are changing over time in terms of their extent of service integration.
 - To describe changes across types of facility and changes in specific attributes at facilities, over time.
 - To compare differences between intervention and comparison clinics.
- What determines integration? (Predictive tool):
 - Identify characteristics most closely associated with integration in different contexts.
- What impact does integration have? (Academic method)
 - to enable attribution, of particular health or service outcomes, to a degree of service integration: current use to determine ‘dose-response’.
 - To help determine cut-off points beyond which ‘integrated’ services no longer cost-efficient or good quality.

Thank you to others on the team!

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Learn more at: www.integrainitiative.org