Implementation Science: A Few Thoughts and Priorities

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The “Implementation Gap”

Interventions proven effective in clinical and controlled research settings

Successful delivery on the ground to have public health impact and affect the epidemic
Dissemination and Implementation Research

- **Dissemination** is “the targeted distribution of information and intervention materials to a specific public health or clinical practice audience.”

- **Implementation** is “the use of strategies to adopt and integrate evidence-based health interventions and change practice patterns in specific settings.”

Adapted from Lomas (1993)
EVIDENCE-BASED PRACTICE

How do we improve the capacity of providers to use research to best deliver care to consumers/patients?

INTEGRATION

INFORMED PUBLIC HEALTH/CLINICAL DECISION-MAKING

EVIDENCE-BASED/RESEARCH-TESTED/EFFECTIVE PRACTICES

How do we improve the uptake of practices demonstrated to improve consumer/patient outcomes?

INTEGRATION
How do we improve the capacity of providers to use research to best deliver care to consumers/patients?

How do we improve the uptake of practices demonstrated to improve consumer/patient outcomes?
What is OR?

- Research that "...provides decision makers with information to improve the performance of their programs."
- "...helps to identify solutions to problems that limit effectiveness, or efficiency of programs"
- Sometimes called "the science of better."

Guide to OR in Programs supported by the Global Fund (http://www.who.int/hiv/pub/operational/or_guide_gf.pdf)
Defining Implementation Science and Operations Research

- OR identifies “barriers related to performance of specific projects” while IS creates “generalizable knowledge that can be applied across settings and contexts.”
  -- Temina Madon et al, Science Policy Forum

- OR uses advanced analytical methods to optimize a set of operations. IS focuses on “improving health services in the context of practical constraints,” and applies OR findings on system optimization to “a local program.”
  -- Lisa Hirschhorn et al, The Journal of Infectious Diseases

- “Any research producing practically-usable knowledge...which can improve program implementation...regardless of the type of research...falls within the boundaries of operations research.”
  -- Framework for Operations and Implementation Research in Health and Disease Control Programs
What is Implementation Science in HIV/AIDS and health delivery?

- Utilizes a variety of analytic tools to identify opportunities to improve the delivery of evidence-based interventions and improve outcomes
- Encompasses a wide range of health-related research activities:
  - different approaches to delivering a health intervention
  - strategies to encourage uptake of available services
  - improved processes to guide implementation
  - adaptation of interventions to new populations /settings
  - cost-effectiveness modeling
  - improved methodology to implement interventions at scale
Analytical tools & multidisciplinary research

- **Advanced analytical tools**: classic OR uses mathematical modeling, statistics and other tools
  - Glaser Pediatric AIDS Foundation used linear programming methods as part of its OR to optimize infant feeding practices in Mozambique

- **Multidisciplinary**: includes qualitative and quantitative methods and may draw on expertise in epidemiology, anthropology, sociology, statistics, political science, policy analysis, health economics, ethics and other disciplines
Distinguishing IS from other research

- **Clinical research** tests the efficacy of health interventions in controlled settings
- **Monitoring and evaluation** (M&E) measures the services that are provided
- **Impact evaluation** assesses the changes that can be attributed to a particular program
- **Implementation Science** helps identify the best and most efficient solutions to implementation and operational problems. It encompasses M&E, impact evaluation, and classic OR
- *Our focus* is on the *research* aspects of IS
IS a critical tool in Scale Up

- Scale up of HIV/AIDS services makes IS even more important
  - Diagnosing barriers to wider delivery
  - Identifying strategies to improve reach and quality
  - Understanding how to deliver interventions in combination
  - Sharing this knowledge and applying it in the field

- Classic OR techniques from engineering and other fields can inform scale up
  - demand forecasting
  - supply chain design
  - laboratory infrastructure design
  - *Example*: logistics of ensuring multiple different ARV drugs in changing combinations are available in uninterrupted supply

(Xei Xiong et al, *BMC Health Services Research* 2008)
Vision of the future

- **Need for** *global implementation science*
  - Not isolated studies that make modest improvements in specific programs, but a fully integrated, widely utilized component of global health service scale up that leads to increased efficiencies and progressively better outcomes
  
  -- Jim Kim

- **Challenges ahead:**
  - Coordinating research and identifying roles
  - Setting priorities
  - Educating a new generation of researchers
  - Sustained and strategic approach to applying lessons learned in the field
Identified Research-to-program Gaps

- Care and treatment interventions
- Prevention interventions
- Economic and impact evaluation
Care and Treatment Interventions

- The care cascade: recruitment/retention
- Health clinic systems/operations
- Sustaining organizational change
- Changing provider behavior
- Preserving ART regimens
- Surveys and surveillance
Preventive Interventions

- Risk compensation
- Combination prevention
- Circumcision uptake/barriers
- Harm reduction – alcohol use?
- Couples and VCT
Economic and Impact Evaluation

- Incentives
- Integrating health systems
- Task shifting
- Optimal models of care
- Program evaluation as part of the design of the intervention
SCIENTIFIC PRIORITY AREAS
PMTCT

- Earlier identification
- Timely prophylaxis
- Medication adherence
- Prevention of postnatal transmission
- Optimize infant feeding counseling
- Integrate family planning in postnatal care?
Engagement and Retention in Care

- Testing models for care coverage
- Comparing models of service provision and adherence support
- Key issues for poor clinical outcomes
- Identifying strategies related to familial and cultural issues that affect retention of pediatric and adolescent clients
Proven Interventions to Scale

- Prevention for adolescents
- Reduce concurrent sexual partnerships
- Male circumcision
- Uptake of co-trimoxazole and isoniazid
- Cervical cancer and anemia screening
Optimal Treatment Approaches
to Co-Infection

- HIV/TB services integration
- Early identification/detection
- Cross-training of health care providers
- Impact data on integrated clinical and community models of care
Human Resources and Health Care systems

- Safety, efficiency, and effectiveness of alternative staffing approaches
- Task shifting, task sharing, involvement of informal health care providers.
- Models of communication technology to strengthen data flow and analysis
- Alternative training models
TODAY