Moving beyond traditional measures of research impact

Douglas Luke, Julie Heidbreder & Mia LaBrier
ACTRI, UCSD, December 14, 2023
Disclosure

• I have no actual or potential financial conflicts of interest in relation to this presentation
Goals

• Importance of impact evaluation
• Translational Science Benefits Model
  ▪ History & overview
  ▪ Tools & resources
  ▪ Partners
  ▪ Community engagement
  ▪ Integrating TSBM into CTSA evaluation and activities
• Discussion
The Importance and Challenge of Impact Evaluation
History

from counting widgets
- Publications (# accepted, impact factor)
- Grants (# submitted, $$ amounts)

to identifying what communities, policy makers and funders care about
- Saving lives
- Improving health
- Saving money

to assessing impact
- Identifying the ways that science benefits society beyond science itself
- Talking about the tangible benefits
What is impact?

**Impact** is...
the effect research has on the wider world

- Influencing policy
- Changing public opinion or informing debate
- Improving systems, designs, or processes
- Scientific advances, across and within disciplines

**Impact** is not...
the activities taken to increase these effects

- Publishing academic papers or newspaper articles
- Presenting at conferences
- Discussing your research in the media
- Writing a blog or social media post

https://www.ucd.ie/research/portal/outcomesandimpacts/impactplancapturecommunicate/
Why is impact important?

- Avoids “research for the sake of research”
- Enhances public accountability for research funding
- Can and should inform allocation of future research funding
- Increases the likelihood that future research will improve health
Measuring impact is hard

- Time lags
- Contribution and attribution
- Quantifying impact
- Cost
- Training
- Lack of data infrastructure

The Translational Science Benefits Model
The Translational Science Benefits Model

• A new approach for demonstrating the impact of science in the broader community

• Focused on research outcomes that are relevant for:
  ▪ The public
  ▪ Policymakers
  ▪ Organizational leadership
From research to impact

https://cphss.wustl.edu/tsbm-video/
Translational pipeline – from science to benefits

Benefits in each domain

**Clinical**
- Procedures & Guidelines
  - Diagnostic procedures
  - Investigative procedures
  - Guidelines
  - Therapeutic procedures
- Tools & Products
  - Biological factors & products
  - Biomedical technology
  - Drugs
  - Equipment & supplies
  - Software technologies

**Community**
- Health Activities & Products
  - Community health services
  - Consumer software
  - Health education resources
- Health Care Characteristics
  - Health care accessibility
  - Health care delivery
  - Health care quality
- Health Promotion
  - Disease prevention & reduction
  - Life expectancy & quality of life
  - Public health practices

**Economic**
- Commercial Products
  - License agreements
  - Non-profit or commercial entities
  - Patents
- Financial Savings & Benefits
  - Cost effectiveness
  - Cost savings
  - Societal & financial cost of illness

**Policy**
- Advisory Activities
  - Committee participation
  - Expert testimony
  - Scientific research reports
- Policies & Legislation
  - Legislation
  - Policies
  - Standards
Examples of impact:

The research team developed wearable device technology that provides feedback to patients and families on patient physiological stress. *Demonstrated*
The EMPOWER 2.0 team is testing different training and support strategies to ensure VA women’s telehealth rollouts are successful. *Potential*
Examples of impact:

**Economic**

A project to increase uptake of long-acting reversible contraception and decrease unintended pregnancy in the St. Louis area saved the state of Missouri an estimated $5 million in Medicaid costs.

**Societal & Financial Cost of Illness**

*Demonstrated.*
The lead researcher on a dissemination project to create messages to reduce stigma around addiction served as a member of the Joe Biden campaign/transition team behavioral health committee and led the development of a draft executive order detailing actions the federal government could take to reduce addiction stigma.

*Potential*
How to use TSBM

• Monitor and evaluate research impact
  ▪ Individual scientist
  ▪ Research program (over time)
  ▪ Impact profiles for research groups (centers, institutes)
    ▪ Guide funding and strategic planning
• Training and workforce development
• Culture change and agenda setting
• Communicate research impact to policy and practice audiences
Translating for Impact Toolkit

Plan, track, and demonstrate impact
New tools for assessing impact

Translating for Impact Toolkit

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<th>Track</th>
<th>Demonstrate</th>
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<td>Product Navigator</td>
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<td>Benefits 2×2</td>
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<td>Case Study Builder</td>
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<td>Partner Mapper</td>
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<td>Impact Profile</td>
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<tr>
<td>Team Manager</td>
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<td>Dissemination Planner</td>
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translationalsciencebenefits.wustl.edu/toolkit/
Get started with the Roadmap to Impact
Impact Case Studies
Expanding SARS-CoV-2 Testing with a Saliva-Based Test

By [Author] | September 15, 2022

Researchers at Washington University School of Medicine in St. Louis developed a saliva-based test for COVID-19. Collecting samples from saliva, not blood or nose swabs, has led to faster and better accuracy in diagnosis, according to the researchers. Photo: Credit: Matt Millicent

Translational Science Benefits

Summary

Developing a COVID-19 diagnostic test that was rapid, accurate, and affordable was critically important in controlling the spread of COVID-19. Many COVID-19 diagnostic tests require materials such as saliva and personal protective equipment that were in short supply at the start of the pandemic. Some saliva is to be collected by a trained professional, which exposed workers to the virus.

Early in the pandemic, a interdisciplinary team at Washington University in St. Louis and Fludigian Corporation (now Standard Bioreotics Inc.) came together to develop and deploy the AdvantaCa SARS-CoV-2 RT-PCR Array, a saliva-based test for COVID-19. The development was the result of a collaborative initiative between the Department of Genetics, the McDonnell Genome Institute, and Fludigian that resulted in a highly sensitive and specific saliva sample processing protocol with a particular RT-PCR array. In the test, the user can collect the sample themselves by spitting into a collection tube. Saliva tests are more available and less invasive than other COVID-19 diagnostic tests, and the sample is easy to collect. Self-collected saliva tests have also been shown to perform as well as or better than health care worker-collected nasopharyngeal swabs and self-collected anterior nasal swabs.

Benefits

Demonstrated benefits are those that have been observed and are verifiable. Potential benefits are those logically expected with moderate to high confidence.

Developed a saliva test to detect SARS-CoV-2, the virus that causes COVID-19. 

Distributed saliva tests to students, teachers, and staff at multiple school districts, as well as at various universities.

Increased diagnostic COVID-19 testing for students, teachers, and staff at the Special School District in St. Louis city.

The saliva test enables rapid, easy testing on a large scale, which could reduce disease spread and prevent new cases.

Rapid, widespread testing of large populations allows people to return to work, school, and their daily activities safely, which could improve quality of life.

Reduced testing costs by decreasing reliance on more expensive testing methods and scarce testing supplies.


Research Team

Executive Director Dr. Jeffrey Wilhelm, MD, PhD
Department of Genetics, Washington University School of Medicine

Lauren Shaver, Ph.D. (Daughters, Chris)(Young) Obertas, chunks, Cathy Horst, Horizon Co., Inc., and CEME
Deanne Horst, of the Center for Personal Wellness, Inc., and CEME.

The Stigma Lab: Developing Communication Strategies to Reduce Addiction Stigma

The Impact

The Stigma Lab’s research has resulted in clinical, community, and policy benefits. Stigma Lab developed effective addiction-stigma reduction messages that have been used by the Johns Hopkins Health System and National Institute on Drug Abuse to communicate with healthcare providers, the public, and policymakers about addiction stigma. Support from these groups also increased the likelihood that policies and practices will be adopted and implemented as intended. Stigma Lab research has also been used by the state of West Virginia, the Joe Biden Presidential Campaign, and the United Nations to plan future addiction stigma reduction policies and practices. Reducing stigma can enhance engagement in services by people with addiction and ultimately increase recovery.

The Challenge

Drug use is highly stigmatized. Evidence-based interventions to combat addiction are severely under-implemented, in large part due to stereotypes and negative attributes applied to people experiencing addiction. Effective communication strategies are needed to reduce addiction stigma and increase support for expanding evidence-based interventions among the public, some treatment providers, and policymakers.

The Approach

The Stigma Lab has used a large national sample of health professionals to test the effects of different addiction stigma messaging strategies on:
- Addiction stigma
- Perceived effectiveness of evidence-based interventions
- Support for policies to scale-up those interventions

Key TSBM Impacts

- Informed guidelines for doctors on reducing stigma created by the National Institute on Drug Abuse
- Developed effective addiction-stigma reduction messages for Johns Hopkins Health System that will also be shared with other health systems
- Helped West Virginia develop the state’s strategic plan around addiction stigma reduction
- Contributed to a report on stigma reduction policies and practices developed by the United Nations Technical Consultation Panel on Stigma Reduction and Drug Use
- Informed terminology used in city legislation to legalize facilities in which people can safely use pre-obtained drugs under medical supervision

The team:
- Beth McGinity, PhD & Alene Kennedy-Hendricks, PhD, Johns Hopkins Bloomberg School of Public Health
- Colleen Barry, PhD, John E. Brooks School of Public Policy at Cornell University
- Johns Hopkins Hospital; National Association of Attorneys General; National Business Group on Health

Find out more:
- Visit full case study
- Visit Stigma Lab website

Contact:
- Emma Beth McGinity, PhD, bmcginity@jhu.edu
- Johns Hopkins Bloomberg School of Public Health
- Department of Health Policy and Management
How Collaborators are using the TSBM
How other CTSAs are using the TSBM

• Pilot program evaluation
• Hub-level evaluation planning
• Prospective surveys across portfolio of funded projects
• Retrospective impact analysis
• Impact case studies
Duke University CTSI

The Duke University Clinical & Translational Science Institute is using the TSBM to:

- **Evaluate** the impact of pilot projects funded by the CTSI by incorporating the TSBM into Accelerator funding applications
- **Create** an online platform to track important milestones and translational real-world benefits of CTSI programs and projects
- **Disseminate** impact case studies of their work using the TSBM model
MVP Pilot Applications: TSBM Metrics

- 13 applications received
- Choose 5 total indicators for proposed impact
Implementation Research Institute

The Implementation Research Institute, a mentored training network for implementation scientists, is using the TSBM to:

- **Train** junior investigators to identify the broader health impacts of their work, map pathways of impact for their research, and communicate about how implementation science can improve health services and change communities

- **Disseminate** impact case studies and impact profiles to showcase the impact of IRI fellows’ and alums’ work and the impact of the IRI itself as a mentored network
TSBM is having an impact

**EVALUATION**
CTSAs around the country using as evaluation framework

**STRATEGIC PLANNING**
Growing and strengthening public health at WashU

**DISSEMINATION**
Federal funding agencies communicating the importance of impact

**TRAINING**
Training young scientists to design for impact
# TSBM use across the CTSA consortium

<table>
<thead>
<tr>
<th>Method</th>
<th>Usage (%)</th>
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<tbody>
<tr>
<td>TSBM</td>
<td>68%</td>
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<tr>
<td>Other/general</td>
<td>23%</td>
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<tr>
<td>Logic models</td>
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<tr>
<td>Balanced scorecard</td>
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<tr>
<td>Becker Model</td>
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<tr>
<td>Utilization-focused</td>
<td>5%</td>
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<tr>
<td>Contribution analysis</td>
<td>3%</td>
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<tr>
<td>Payback framework</td>
<td>3%</td>
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<tr>
<td>CDC framework</td>
<td>3%</td>
</tr>
<tr>
<td>Developmental evaluation</td>
<td>3%</td>
</tr>
<tr>
<td>ROI</td>
<td>3%</td>
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*Impact Evaluation Methods*

2021 CTSA Evaluators Survey Report (n=59/61 hubs, 96.7% response rate)
The TSBM and Community Engagement
Demonstrating the impact of community-engaged research with the TSBM

Providing Integrated Support to Prevent and Treat Parental Substance Use
By Implementation Research Institute (IRI) and TSBM
March 1, 2022
Implementing FAIR, an intensive treatment program for parents of children in the child welfare system

Preventing Youth Suicide and Injury by Implementing a Secure Firearm Storage Program in Pediatric Primary Care
By Implementation Research Institute (IRI) and TSBM
March 1, 2022
Counseling parents on secure firearm storage during pediatric visits

Improving the Physical Health of Adults with Serious Mental Illness (SMI)
By Implementation Research Institute (IRI) and TSBM
March 1, 2022
Implementing interventions to improve the physical health of racial and ethnic minority adults struggling with mental illness

Reducing Diabetes Risk Factors
By Oregon Clinical & Translational Research Institute (Oregon CTSI)
March 30, 2020
Reducing risk factors for Type 2 diabetes through a collective impact approach.
Involving the community in TSBM development

• A community-engaged approach to incorporating health equity into the TSBM
• Increase opportunities for community members to define impact in their own terms
Integrating equity into the TSBM

• Partnership with UW CTSA
• Review of impact literature for equity measures
• ICTS Community Engagement Studio
• Expansion of equity guidance for existing benefits and addition of new equity benefits
Equity dimensions of existing benefits

**Clinical**
- Diagnostic procedures
  - Routinely screening for social determinants
  - Creating tools to reduce diagnostic inequities, such as those that address physical, hearing, visual, developmental, or psychiatric disabilities; low literacy; or limited English language proficiency

**Community**
- Health care accessibility
  - Reducing delays in obtaining care
  - Removal of barriers to access for marginalized populations
  - Reducing bias in evaluation criteria for receiving care

**Economic**
- Societal & financial cost of illness
  - Reducing healthcare spending due to disparity

**Policy**
- Legislation
  - Public policies with explicit provisions for marginalized populations
New benefits in each domain

**Clinical**
- Procedures & Guidelines
  - Diagnostic procedures
  - Investigative procedures
  - Guidelines
  - Therapeutic procedures
- Tools & Products
  - Biological factors & products
  - Biomedical technology
  - Drugs
  - Equipment & supplies
  - Software technologies

**Community**
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- Health Care Characteristics
  - Health care accessibility
  - Health care delivery
  - Health care quality
- Health Promotion
  - Disease prevention & reduction
  - Life expectancy & quality of life
  - Public health practices

**Economic**
- Commercial Products
  - License agreements
  - Non-profit or commercial entities
  - Patents
- Financial Savings & Benefits
  - Cost effectiveness
  - Cost savings
  - Societal & financial cost of illness
  - Affordability of care

**Policy**
- Advisory Activities
  - Committee participation
  - Expert testimony
  - Scientific research reports
- Policies & Legislation
  - Legislation
  - Policies
  - Standards
  - Equitable enforcement

Workforce development & training
Social determinants of health
Community capacity
Training and Acculturation
Seeding the ground for impact evaluation: The role of training

- Starting to see TSBM feature in training of early career scholars
  - WashU
    - KL2, TL1
    - Implementation Research Institute
  - Emphasizing ‘designing for impact’ ideas
    - Never too early to plan for impact
    - app.d4dsplanner.com
Bringing impact back into our culture

• (Think back to priming question.)

• Where is the value of impact well-aligned in our institutions?
  ▪ (And where is it mis-aligned?)

"I'm afraid the building next door might be undermining your foundations."
Impact roadblocks

- Wrong incentives
- Private and proprietary
- Narrow audience
- Slow pace
- Archaic academic structures
- Political interference

https://www.brookings.edu/blog/education-plus-development
Integrating impact evaluation into CTSAs
Demonstrating impact of the Gun Violence Initiative with TSBM

https://publichealth.wustl.edu/programs/gvi
IRI uses TSBM for portfolio evaluation
IRI uses TSBM for portfolio evaluation

https://translationalsciencebenefits.wustl.edu/partners/
Oregon uses TSBM for portfolio evaluation
How to integrate TSBM into (a) CTSA

• Evaluation
• Strategic planning
• Community engagement
• Training
• Recruitment, retention, promotion
• Agenda setting, acculturation
Renewal ruminations...

• Make sure that use of TSBM is aligned with overall ACTRI goals, aims, and vision
  ▪ (ACTRI: “…moving knowledge and discovery...to its application in clinical and community settings. Vision ... is to translate discoveries into improved health.”)

• Use of TSBM should be housed somewhere specific (typically evaluation group)

• It has helped us to distinguish between impact evaluation (as a broad activity) and the use of the TSBM as a specific example of how to do impact evaluation

• Benefits/impacts are mostly changes of things
  ▪ Implies qualitative metrics are as important as quantitative metrics (e.g., new businesses, new guidelines, new policies)

• Designing and planning for impacts can help impacts come about

• Impact evaluation is probably a waste of time unless leadership and champions push the value of research impact
Translational Science Benefits Model

Learn more at translationalsciencebenefits.wustl.edu