

7th ICO-WHO
SYMPOSIUM
ON TOBACCO CONTROL

Using Implementation Science to Transfer Smoking Cessation Guidelines into Practice

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Outline of the Talk

- **Challenges in Knowledge Translation and the Evidence-Practice Gap**
- **What is Implementation Science (IS)?**
- **How Can IS Improve Smoking Cessation Services?**
 - Application of IS to enhance smoking cessation efforts.
 - Examples of real-world impact.
- **Which have been identified as Key Strategies in Primary Care and Hospitals?**
 - Health system-level interventions.
 - Strategies for integrating smoking cessation into routine practice.
- **Conclusion and Time for Q & A**
 - Summary of key points.
 - Open the floor for questions and discussion.

Challenges in Knowledge Translation

Importance of Evidence-Based Smoking Cessation Guidelines

Efficacy and Effectiveness Studies:

- Assess smoking cessation interventions in controlled or real-world environments to evaluate innovative or new approaches.

Reviews and Meta-Analyses:

- Compile evidence on effective interventions to boost smoking cessation rates:
- Behavioral therapy combined + Pharmacological support + Follow-up to prevent relapse (strong evidence) = by using 5As model.

Guidelines:

- Provide a framework for consistency, quality, and evidence-based practices to ensure optimal outcomes



The World Health Organization (WHO) recommends that “cessation support and treatment is provided in all health care settings and by all health care providers” as one other MPOWER policies: OFFER

World Health Organisation (WHO). WHO Report on the Global Tobacco epidemic 2019: offer help to quit tobacco use. Geneva; 2019.

Challenges in Knowledge Translation

Reality: Smoking Cessation Receipt

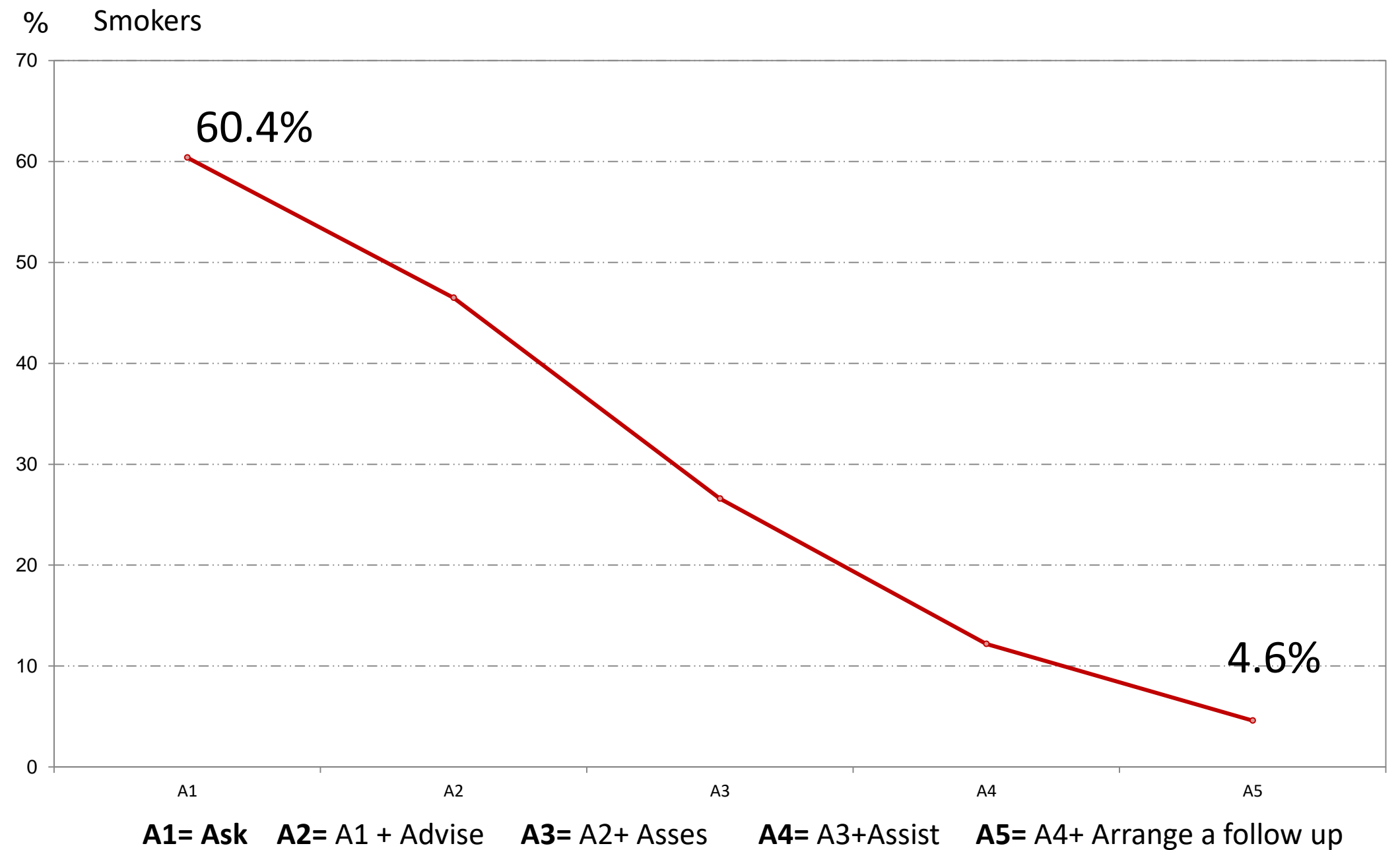
Primary care (Bartsch et.al 2016)

A systematic review primary care physicians in 17 countries Average rates of the 5As model:

- 65% for Ask
- 63% for Advise
- 36% for Assess
- 44% for Assist and
- 22% for Arrange

Bartsch AL, H.rter M, Niedrich J, Brütt AL, Buchholz A. A Systematic Literature Review of Self-Reported Smoking Cessation Counseling by Primary Care Physicians. PLoS One. 2016;11(12):e0168482.

Hospital care (Martínez et.al 2020)



Martínez C, Feliu A, Castellano Y, Fu M, Fernández E; ETHIF. Factors associated with receipt of the 5As model of brief intervention for smoking cessation among hospitalized patients. Addiction. 2020 Nov;115(11).

Challenges in Knowledge Translation

Main Identified Barriers to Implementing Smoking Cessation



Training

Time

Protocols

Exclusion of the
portfolio service

Martínez C, Castellano Y, Andrés A, Fu M, Antón L, Ballbè M,, Riccobene A, Gavilan E, Feliu A, Baena A, Margalef M, Fernández E. Factors associated with implementation of the 5A's smoking cessation model. *Tob Induc Dis.* 2017 Nov 2;15:41.

Geerligs L, Rankin NM, Shepherd HL, Butow P. Hospital-based interventions: a systematic review of staff-reported barriers and facilitators to implementation processes. *Implement Sci.* 2018;13:36.

Martínez C, Feliu A, Castellano Y, Fu M, Fernández E; ETHIF Research Group. Factors associated with receipt of the 5As model of brief intervention for smoking cessation among hospitalized patients. *Addiction.* 2020 Nov;115(11)

Knowledge – Gap – Solution

GAP: It takes **17 years** for **14% of original research** to translate to patient benefit.

SOLUTION: Implementation Science, which **studies methods** to promote the **adoption, use** (implementation), and **sustainability** of evidence-based practices/programs (contained in guidelines) in routine practice (in healthcare and public health).



Eccles, M. P., & Mittman, B. S. (2006). Welcome to Implementation Science. *Implementation Science*, 1(1), 1.

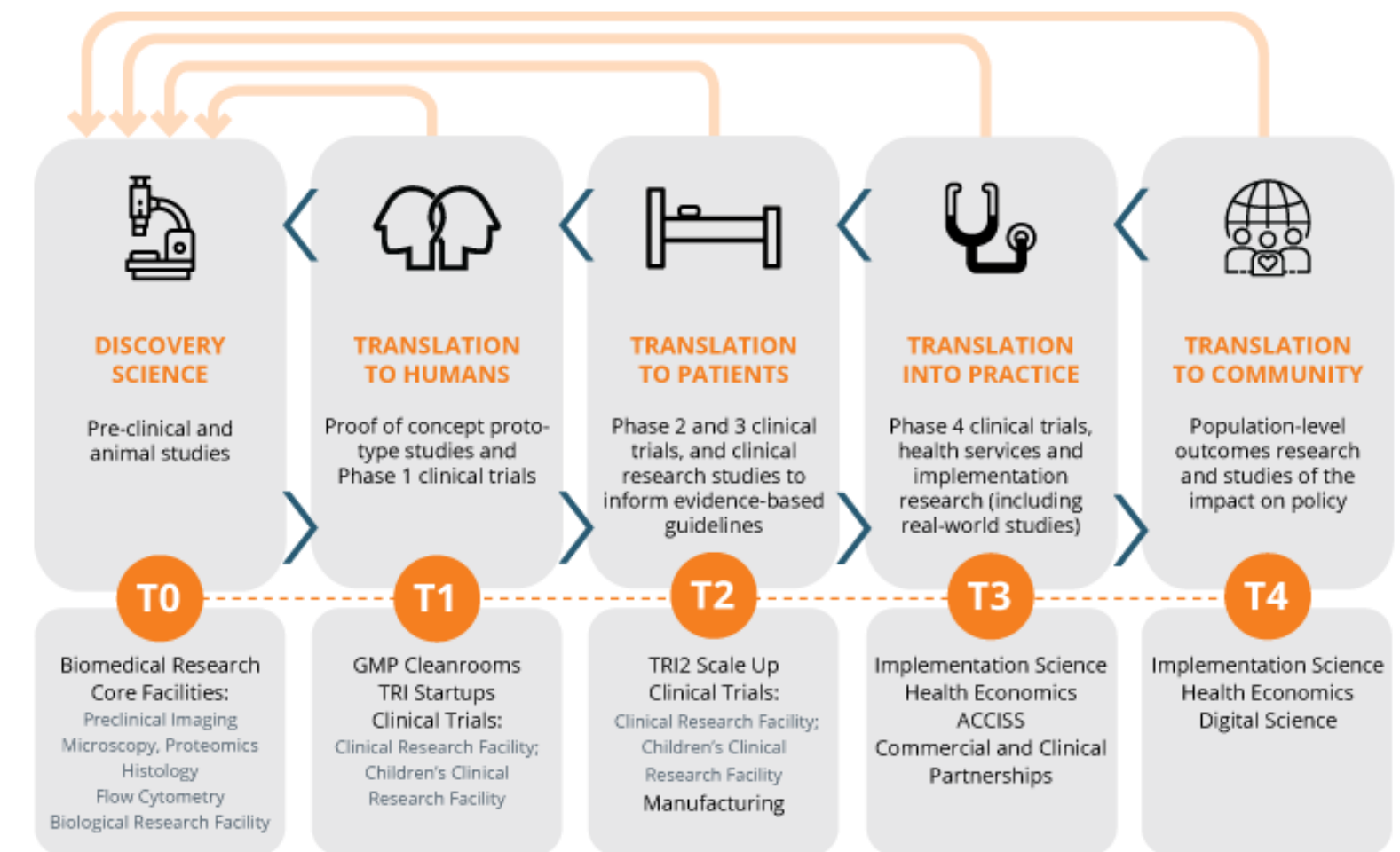
Ugalde A, White V, Rankin NM, Paul C, Segan C, Aranda S, Wong Shee A, Hutchinson AM, Livingston PM. How can hospitals change practice to better implement smoking cessation interventions? A systematic review. *CA Cancer J Clin*. 2022 May;72(3):266-286.

What is Implementation Science (IS)?

FOUNDATIONS

- To close the **gap** between what **we know** and **what we do**.
- It continues the work of biomedical research by **bringing** research into practice (pipeline of research).
- It originates from several **interdisciplinary fields** (public health, health service research, behavioral science, etc) **combining knowledge** and **methodologies** to improve the uptake of practices in real-world settings.

Pipeline of research (translational model)



The field started in the 80s - 90s but was formalized with the establishment of journals like Implementation Science.

Eccles, M. P., & Mittman, B. S. (2006). Welcome to Implementation Science. *Implementation Science*, 1(1), 1.

Green LW. Making research relevant: if it is an evidence-based practice, where's the practice-based evidence? *Fam Pract*. 2008;25(suppl 1):i20-i24.

Brown CH, Curran G, Palinkas LA, et al. An overview of research and evaluation designs for dissemination and implementation. *Annu Rev Public Health*. 2017;38:1–22.

What is Implementation Science (IS)?

Distinction between Concepts in IS

It is important to distinguish between:

The intervention (the thing)

WHO guideline – 5AS + therapy + follow up)



Implementation Strategies

Or force that make the thing work

Implementation strategies (training, reminders, or policies),

Determinants

Individual and Contextual

Implementation outcomes

Feasibility, Appropriateness, Acceptability, Adoption, Fidelity, Reach, Sustainability, an



Health outcomes

Reduction of smoking rates, health improvements, satisfaction, reduction of readmissions, etc

What is Implementation Science (IS)?

The use of IS concepts

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Implementation Strategies

Expert Recommendations for Implementing Change (ERIC)



73 distinct “implementation strategy “ categories categorized in **9** domains

- 1. Evaluative & Iterative Strategies:** Assess readiness, monitor progress, and adapt over time. Ex: Audit feedback and monitoring tools.
- 2. Provide Interactive Assistance:** Offer ongoing support through facilitation and technical help. Ex: Local and centralized assistance.
- 3. Adapt and Tailor to Context:** Modify strategies for local needs while maintaining core integrity. Ex: Tailor interventions.
- 4. Develop Stakeholder Interrelationships:** Collaborative and leadership teams. Ex: Prepare champions, organize meetings.
- 5. Train and Educate Stakeholders:** Provide targeted, dynamic, and interactive training. Ex: Educational materials, train-the-trainer.
- 6. Support Clinicians:** Streamline clinician workflows with reminders and resources. Ex: Revise roles, create new clinical teams.
- 7. Engage Consumers:** Encourage patient involvement and adherence through communication. Ex: Campaigns, patient preparation.
- 8. Utilize Financial Strategies:** Leverage funding and financial incentives to drive adoption. Ex: Fee adjustments, new funding access.
- 9. Change Infrastructure:** Update systems and facilities to align with innovations. Ex: Mandate change, alter record systems.

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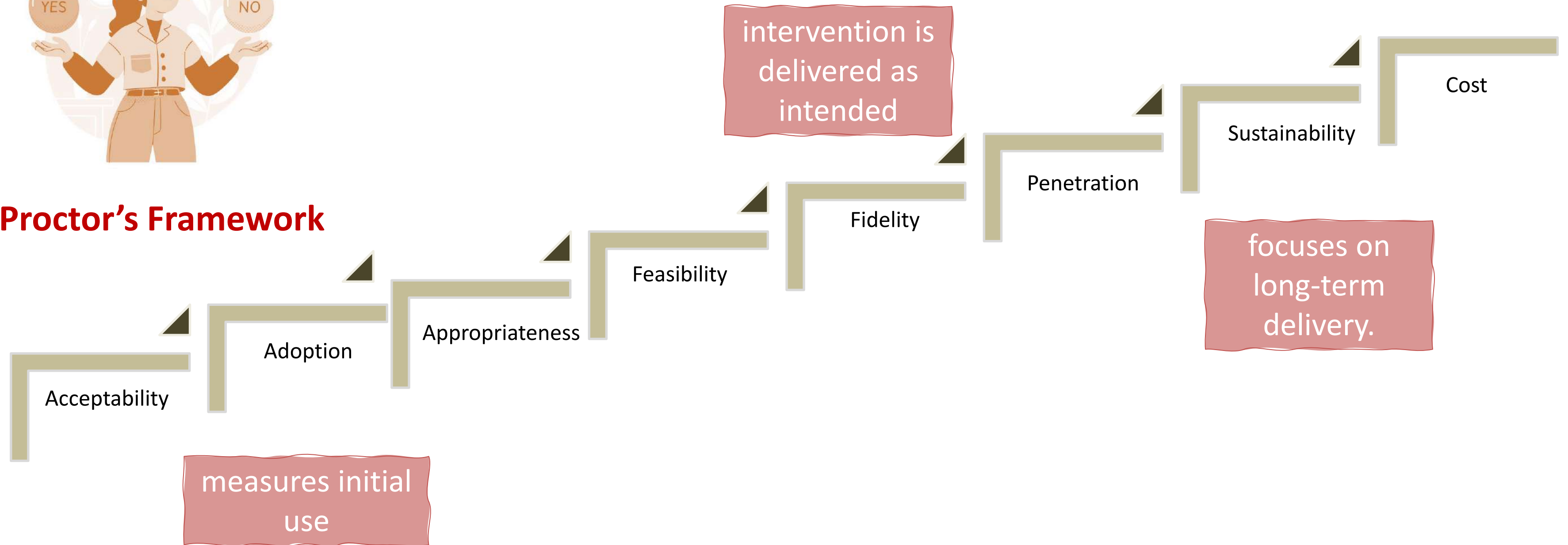
Reduction of smoking rates, health improvements, satisfaction, reduction of readmissions, etc

What is Implementation Science (IS)?

Measuring Implementation Outcomes



Proctor's Framework



Proctor E, Silmere H, Raghavan R, et al. Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health*. 2011;38:65-76.

What is Implementation Science (IS)?

Models, Theories, and Frameworks

Nilsen's categorization of Models, Theories, and Frameworks in IS

- **Process models:** To guide the implementation process.
- **Determinant frameworks:** To identify factors influencing implementation.
- **Classic theories:** To explain behaviors and phenomena.
- **Implementation theories:** To provide implementation-specific explanations.
- **Evaluation frameworks:** To assess implementation outcomes and impact

RE-AIM

Diffusion of innovations

CFIR

Normalisation
Process Theory

IM-ADAPT

Nilsen, P. (2015). Making sense of implementation theories, models, and frameworks. *Implementation Science*, 10 (1), 53..

Brown CH, Curran G, Palinkas LA, et al. An overview of research and evaluation designs for dissemination and implementation. *Annu Rev Public Health*. 2017;38:1–22.

How can IS be useful in improving smoking cessation?

Implementation Science offers a **structured approach** (using its specific concepts and models, theories, and frameworks) to **bridge the evidence-practice gap**

- Identifying barriers and facilitators.
- Analyzing contextual (individual/organizational) factors that hinder adoption.
- Adapting existing programs to our reality.
- Designing and tailoring strategies.
- Measuring Implementation Outcomes (adoption, fidelity, reach, etc.).



Green LW. Making research relevant: if it is an evidence-based practice, where's the practice-based evidence? *Fam Pract.* 2008;25(suppl 1):i20-i24.

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Identifying barriers and facilitators:

Analyzing individual and organizational contextual factors

Consolidated Framework for Implementation Research (CFIR)

A comprehensive model that categorizes factors into five domains

- Intervention Characteristics: Features influencing implementation success (e.g., complexity, adaptability).
- Outer Setting: External influences like policies and patient needs.
- Inner Setting: Organizational culture and readiness.
- Characteristics of Individuals: Skills and beliefs of those implementing the intervention.
- Overall Process of Planning and Executing: Engaging, executing, and evaluating.

The Theoretical Domains Framework (TDF):

A framework focusing on behavior change determinants within 14 domains:

- Knowledge, skills, social/professional role, environmental context, and reinforcement are included.
- Useful for designing interventions that address behavioral barriers in healthcare providers or patients.



Both help systematically assess the **determinants** of successful implementation and inform the development of **tailored strategies** for overcoming barriers and leveraging facilitators.

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services : a CIFR or advancing implementation science. *Implementation Science*, 4(1), 50.

Michie, S., Johnston, M., Abraham, C., Lawton, R., Parker, D., & Walker, A. (2005). Making psychological theory useful for implementing evidence based practice: a consensus approach *Quality and Safety in Health Care*, 14(1), 26-33.

van Westen-Lagerweij NA, Willemsen MC, Croes EA, Chavannes NH, Meijer E. Implementation of ask-advise-connect for smoking cessation in Dutch general practice during the COVID-19 pandemic: a mixed-methods evaluation using the CFIR framework. *Subst Abuse Treat Prev Policy*. 2023 May 9;18(1):2

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Application of the Consolidated Framework for Implementation Research to assess factors that may influence implementation of tobacco use treatment guidelines in the Viet Nam public health care delivery system

[Nancy VanDevanter](#) , [Pritika Kumar](#), [Nam Nguyen](#), [Linh Nguyen](#), [Trang Nguyen](#), [Frances Stillman](#), [Bryan Weiner](#) & [Donna Shelley](#)

Implementation Science **12**, Article number: 27 (2017) | [Cite this article](#)

Implementation of ask-advise-connect for smoking cessation in Dutch general practice during the COVID-19 pandemic: a mixed-methods evaluation using the CFIR framework

[Naomi A. van Westen-Lagerweij](#) , [Marc C. Willemsen](#), [Esther A. Croes](#), [Niels H. Chavannes](#) & [Eline Meijer](#)

Substance Abuse Treatment, Prevention, and Policy **18**, Article number: 26 (2023) | [Cite this article](#)

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Designing and adapting tailored strategies:

Adaptation Models:

- Help to provide systematic guidelines to adapt interventions without compromising their core elements.
- Ensure changes are intentional, transparent, and well-documented

Some Adaptation Models:

- Framework for Reporting Adaptations and Modifications to Evidence-Based Interventions (FRAME)
- Dynamic Adaptation Process (DAP)
- Implementation Mapping and Adaptation (IM-ADAPT)

Stirman, S. W., Baumann, A. A., & Miller, C. J. (2019). The FRAME: An expanded framework for reporting adaptations and modifications to evidence-based interventions. *Implementation Science*, 14(1).

Wingood, G. M., & DiClemente, R. J. (2008). The ADAPT-ITT model: A novel method of adapting evidence-based HIV interventions. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 47(Suppl 1), S40–S46.

Highfield, L., Hartman, M. A., Mullen, P. D., Rodriguez, S. A., Fernandez, M. E., & Bartholomew, L. K. (2015). Intervention Mapping to Adapt Evidence-Based Interventions for Use in Practice: Increasing Mammography Among African American Women. *BioMed Research International*, 2015, 1601

What is IM-ADAPT?

Implementation Mapping and Adaptation

- A framework to **adapt interventions** maintaining **core components**.
- Balances **fidelity** (effectiveness) with **contextual flexibility** (local settings).

How It Works:

- Understand the Context
- Identify Core and Adaptable Components
- Engage Stakeholders
- Develop an Adaptation Plan
- Test and Refine
- Sustain and Scale

Example: Core components of Smokefree Homes (Emory Intervention)



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Strategies for successful implementation of smoking cessation services

Primary care

Key Implementation Strategies:

- **Financial strategies** such as incentive payments for physicians to record patients' smoking status and offer cessation assistance a pay-for-performance scheme in the US and UK
- Changing **infrastructure** and **recording systems**
- **Training** professionals and **materials to prompt** interventions.
- **Engaging consumers** (smoke-free legislation and materials to engage materials)

Increase the **adoption** of smoking status recording and cessation advice provision (2As of the 5As)

Tildy BE, McNeill A, Perman-Howe PR, Brose LS. Implementation strategies to increase smoking cessation treatment provision in primary care: a systematic review of observational studies. BMC Prim Care. 2023 Jan 25;24(1):3

Hospital care

Key Implementation Strategies:

- Strategies predominantly **focused on staff training**.
- Seven **implementation strategy groups**:
 - Brief externally led training (limited adoption-sustainability) to
 - Internally led system changes (>feasibility & penetration)
 - + stakeholder engagement (champions, frontline staff)
 - + monitoring and reinforcement (auditing and data)
 - + planning and organization (reviewing internal practices)
 - + electronic streamline workflows
 - + training (delegating new roles/tasks and ensuring certifications)



System-level approach (assessment, treatment, and referral)

Ugalde A, White V, Rankin NM, Paul C, Segan C, Aranda S, Wong Shee A, Hutchinson AM, Livingston PM. How can hospitals change practice to better implement smoking cessation interventions? A systematic review. CA Cancer J Clin. 2022 May;72(3):266-286

Implementation Strategies to increase smoking cessation provision



Implementation Outcomes

- Increased **adoption** of smoking cessation practices.
- Enhanced **acceptability** among staff and patients.
- Unsteady resources and workload challenges threaten **feasibility**
- Long-term** support structures improve **sustainability and penetration:**
“system level approach”

Tildy BE, McNeill A, Perman-Howe PR, Brose LS. Implementation strategies to increase smoking cessation treatment provision in primary care: a systematic review of observational studies. BMC Prim Care. 2023 Jan 25;24(1):3

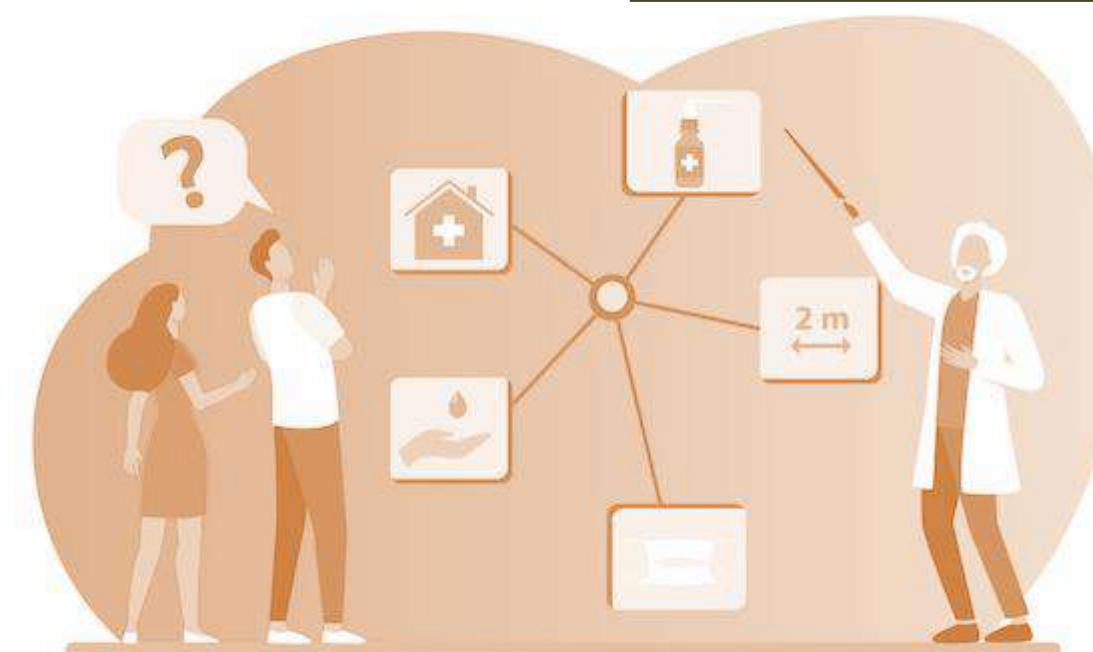
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Health System-Level Interventions

Involves using a **framework** that integrates tobacco cessation into **routine healthcare delivery** by ensuring **systematic identification of tobacco users**.

Based on integrating **Evidence-based interventions (Guidelines) + Strategies + Policies in the Organization** :

- **Identify Smokers:** Use tools like electronic prompts to screen patients.
- **Integrate Care:** Make cessation counseling part of standard workflows.
- **Support Providers:** Train clinicians and use reminders or incentives.
- **Accessible Services:** Offer options like quitlines, counseling, and pharmacotherapy.
- **Monitor Outcomes:** Evaluate reach, fidelity, and sustainability.
- **Policy Changes:** Embed cessation into institutional policies and provide resources (e.g., medications).



Impact: Improves implementation outcomes, effectiveness, and long-term patient outcomes in smoking cessation

Health System-Level Interventions Models



Reid, R. D., Mullen, K. A., Slovinc D'Angelo, M. E., Aitken, D. A., Papadakis, S., & Haley, P. M. (2010). *Smoking cessation: Lessons learned in primary care. Canadian Family Physician, 56(4).*

Reid, R. D., Pipe, A. L., Quinlan, B., & Oda, J. (2007). *Interactive voice response telephony to promote smoking cessation in patients hospitalized for cardiac disease: A pilot study. Patient Education and Counseling, 66(3), 319-326.*



GNTH website: <https://www.tobaccofreehealthcare.org>

Martínez, C., Fu, M., Martínez-Sánchez, J. M., Ballbè, M., Puig, M., García, M., Carabasa, E., Saltó, E., & Fernández, E. (2009). *Tobacco control policies in hospitals before and after the implementation of a national smoking ban in Catalonia, Spain. BMC Public Health, 9, 160*

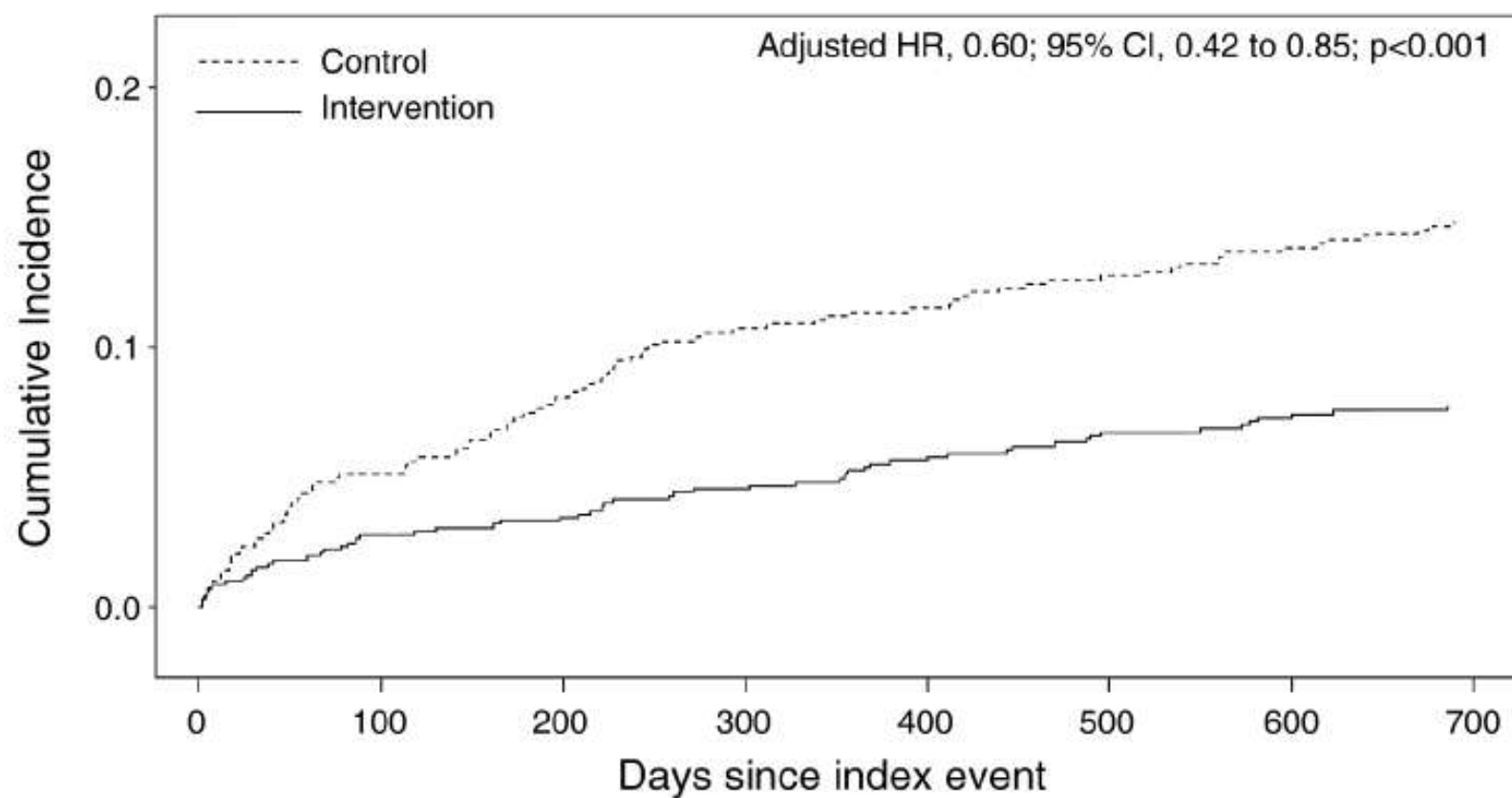
Ottawa Model

Organizational systematic approach

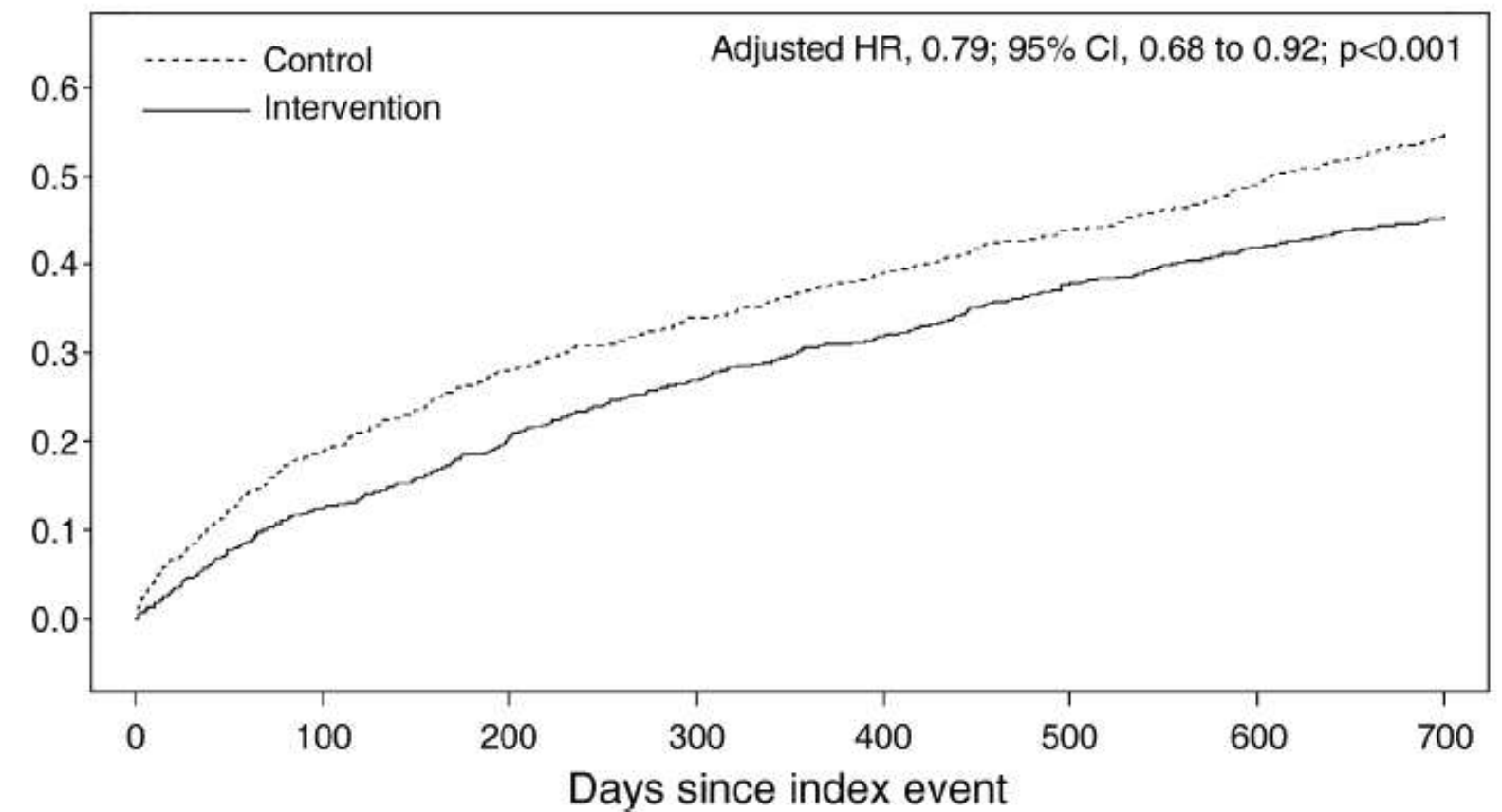


Cummulative Indidence

Mortality for all causes



Hospitalization rates



Mullen KA, Manuel DG, Hawken SJ, Pipe AL, Coyle D, Hobler LA, Younger J, Wells GA, Reid RD. Effectiveness of a hospital-initiated smoking cessation programme: 2-year health and healthcare outcomes. Tob Control. 2017 May;26(3):293-29

Multiple Levels of Influence

Local Community

Community Level Resources
 Medical care offerings
 Population SES
 Lay support networks
 Private cancer organizations
 Local Hospital & Smoking cessation Services
 Market structure
 Level of competition
 Third-party payers/insurance
 Pay for performance initiatives
 HMO / managed care penetration
 Percent non-profit
 Specialty mix
 Local Professional Norms
 MD practice organizations
 Use of guidelines
 Practice patterns

Organization / Practice Setting

Leadership
 Organizational structure, policies and incentives
 Delivery system design
 Clinical decision support
 Clinical information systems
 Patient education & navigation

Family / Social Supports

Family dynamics
 Friends, network support

National Health Policy

Care reimbursement
 Efforts to reform healthcare
 National tobacco control policies
 Accreditations
 Professional standards

State/Regional Health Policy

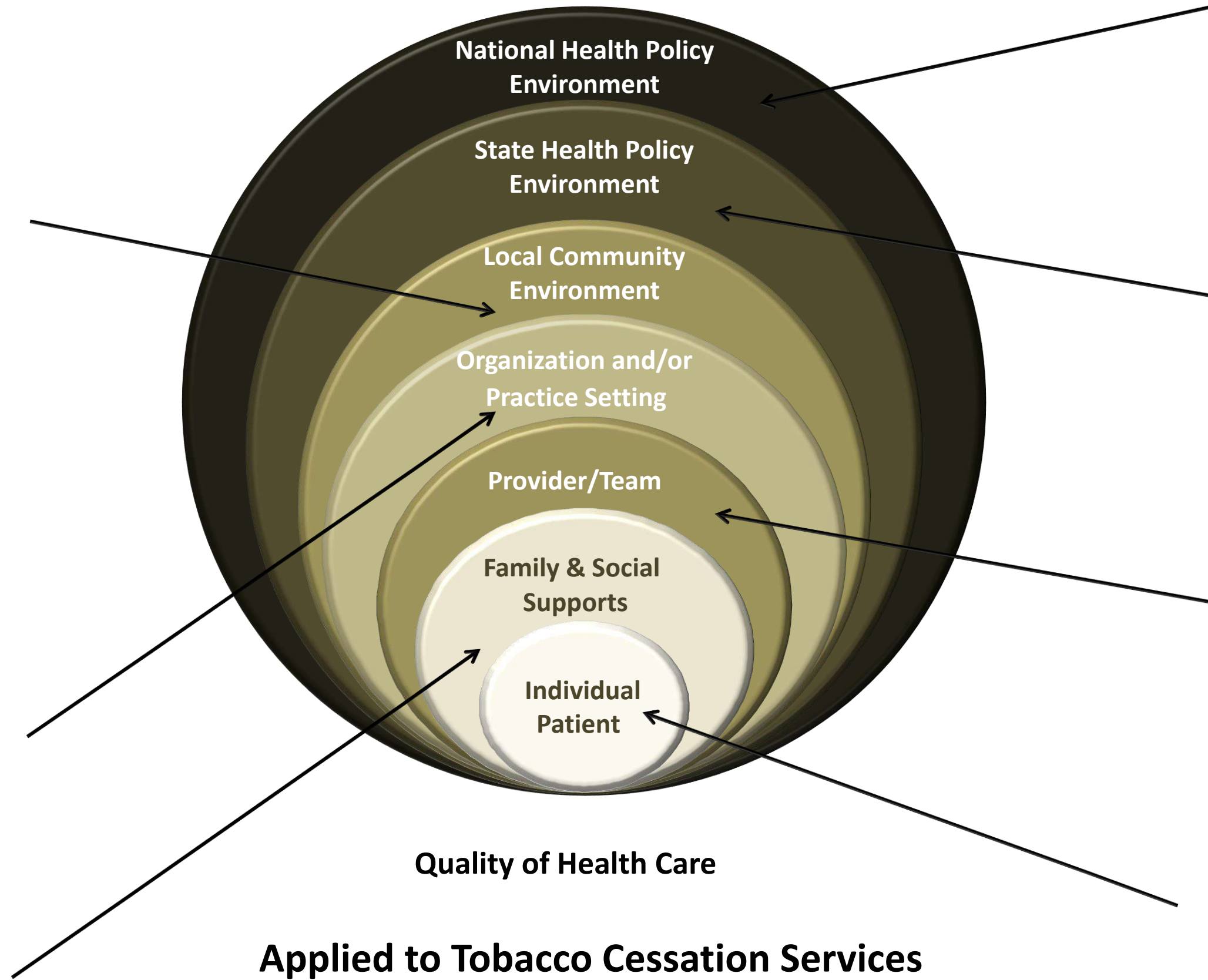
Medical reimbursement
 Hospital performance data policies (dissemination, visibility, etc.)
 State smoking cessation plans/programs
 Regulations/limitations on reimbursement of clinical trials
 Activities of state-wide advocacy groups

Provider / Team

Knowledge, communication skills
 Perceived barriers, norms, test efficacy
 Cultural competency
 Staffing mix & turnover
 Role definition
 Teamwork

Individual Patient

Biological factors
 Socio-demographics
 Insurance coverage
 Risk status
 Co-morbidities
 Knowledge, attitudes, beliefs
 Decision-making preferences
 Psychological reaction/coping

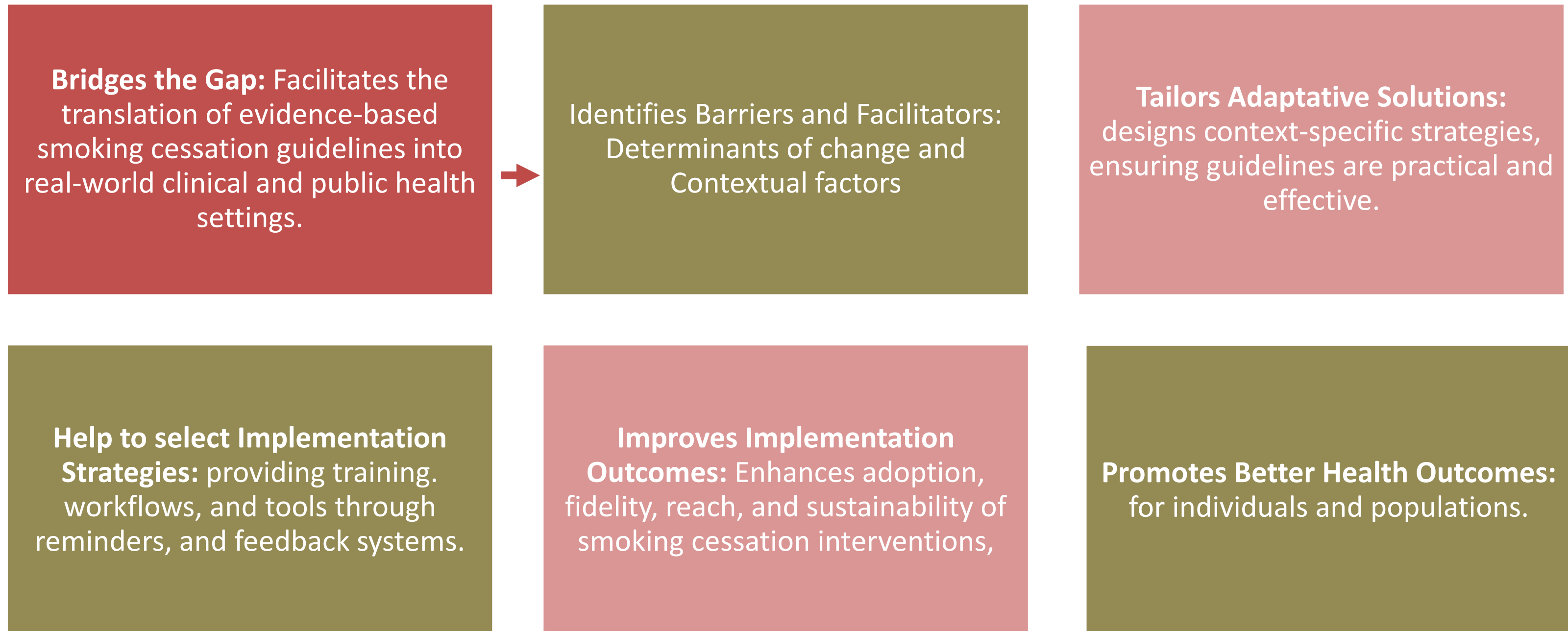


Quality of Health Care

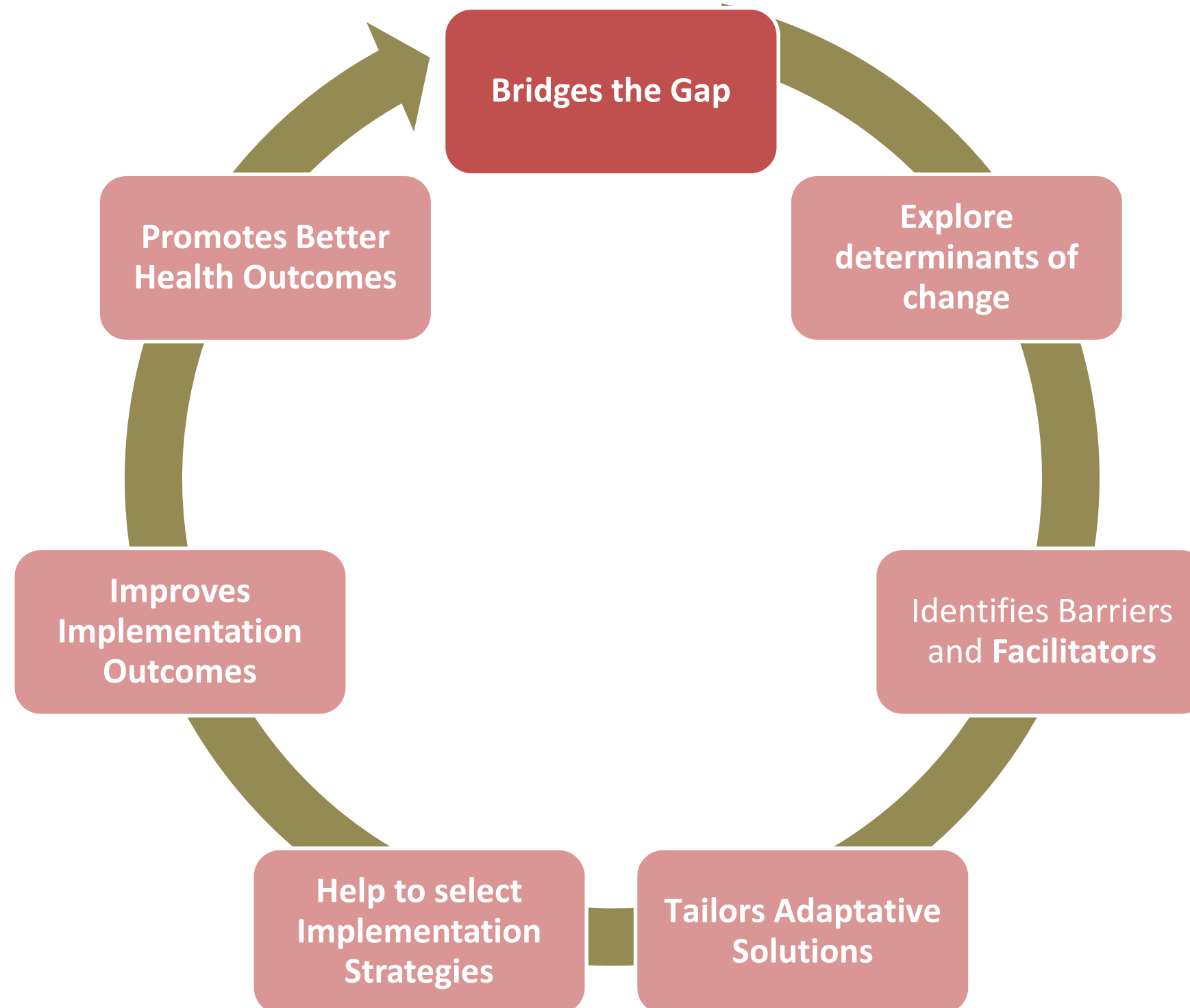
Applied to Tobacco Cessation Services

(Bronfenbrenner, 1979; Taplin, et al., 2012)

Conclusion: Implementation Science Supports Smoking Cessation Services



Conclusion: Implementation Science Supports Smoking Cessation Services



Frameworks
Theories
Models
Concepts



7th ICO-WHO
SYMPOSIUM
ON TOBACCO CONTROL

Thank you for your attention

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[@CrisMarMar](https://twitter.com/CrisMarMar)



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