

Oral Cancer Prevention: From Global Evidence to Clinical Action

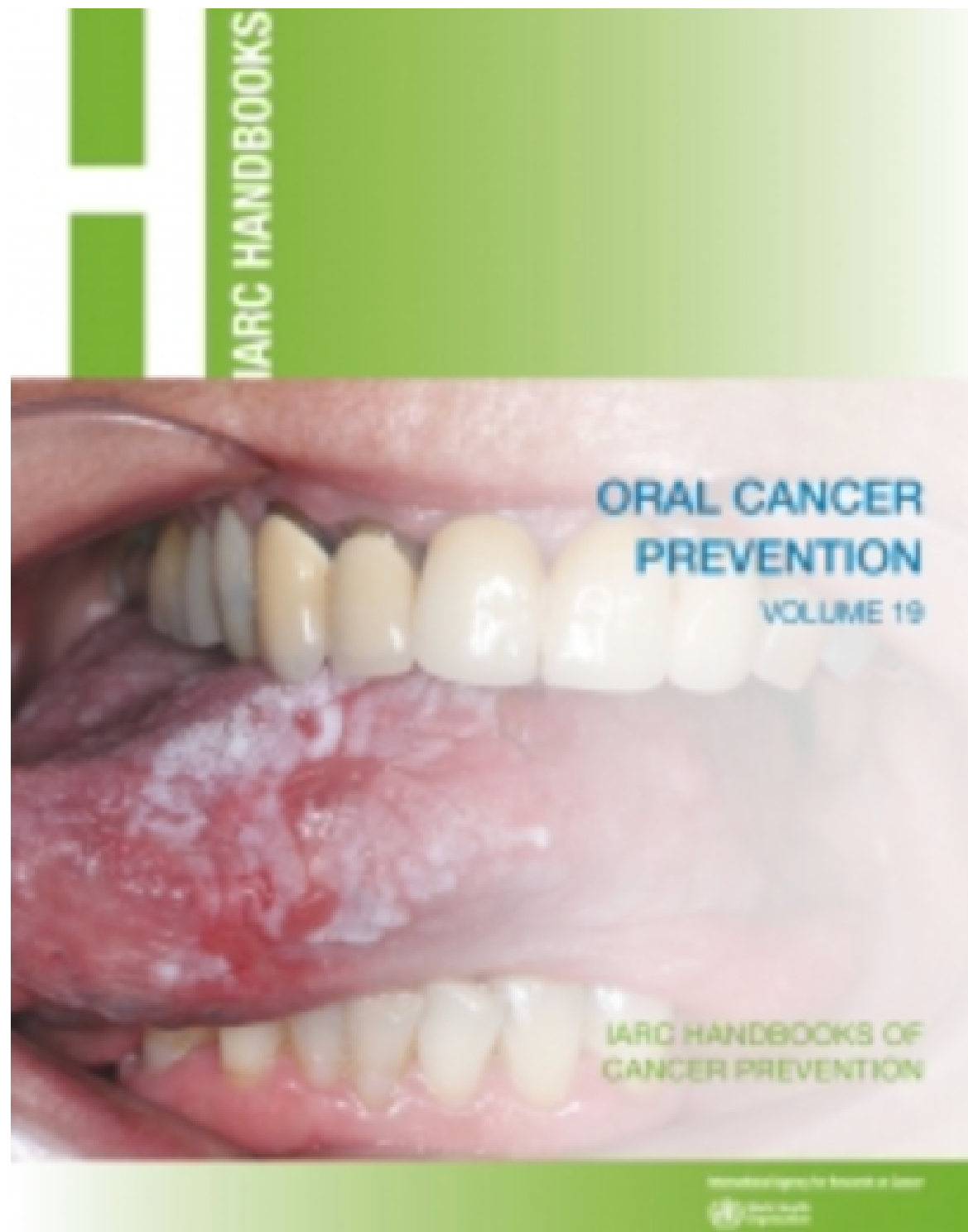
Integrating IARC Volume 19
Standards with 2026 Innovations

IACCS 8th Jun 26, Taiwan

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The NEW ENGLAND
JOURNAL of MEDICINE

SPECIAL REPORT

IARC Perspective on Oral C

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In 2020, cancer of the lip and oral cavity was estimated mortality worldwide and was a common cause of cancer and Southeast Asia and the Western Pacific¹ ([Figure 1](#)) environmental, and behavioral factors contribute to th

Primary prevention - Impact of quitting exposure to risk factor on risk of oral cancer



Tobacco smoking

Sufficient

The elevated risk due to tobacco smoking decreases with increasing time since quitting smoking. Studies suggest that the risk of leukoplakia also decreases after quitting smoking.



Smokeless tobacco

Inadequate

The Working Group noted the paucity of studies, particularly the absence of studies from countries with highest use of smokeless tobacco, and of studies of smokeless tobacco products other than moist snuff.



Areca nut (including betel quid) with or without tobacco

Sufficient

In addition to the risk of oral cancer, the elevated risk of oral potentially malignant disorders (OPMDs) due to use of areca nut products (including betel quid) with or without tobacco also decreases after quitting.



Alcohol consumption

Sufficient

The elevated risk due to alcohol consumption decreases with increasing time since quitting alcohol consumption. The reduction in risk becomes more apparent after 10 years of quitting and is greater in former heavy drinkers (≥ 3 drinks per day).

Primary prevention

Impact of intervention on quitting consumption
of products that contain smokeless tobacco or areca nut



Behavioural
intervention - adults



Behavioural
intervention - youth



Pharmacological
intervention



Combined
intervention

Sufficient

Limited

Limited

Limited

The evaluation applies to quitting use of smokeless tobacco.

Secondary prevention - Effectiveness of oral cancer screening



Clinical oral
examination

Group B

Screening of high-risk individuals by clinical oral examination may reduce mortality from cancer of the oral cavity. High-risk individuals are defined as users of tobacco, areca nut, alcohol, or a combination thereof, in any form.

► *Head Neck Oncol.* 2011 Jul 28;3:33. doi: [10.1186/1758-3284-3-33](https://doi.org/10.1186/1758-3284-3-33)

Exciting new advances in oral cancer diagnosis: avenues to early detection

[Ravi Mehrotra](#)^{1,✉}, [Dwijendra K Gupta](#)^{2,3}



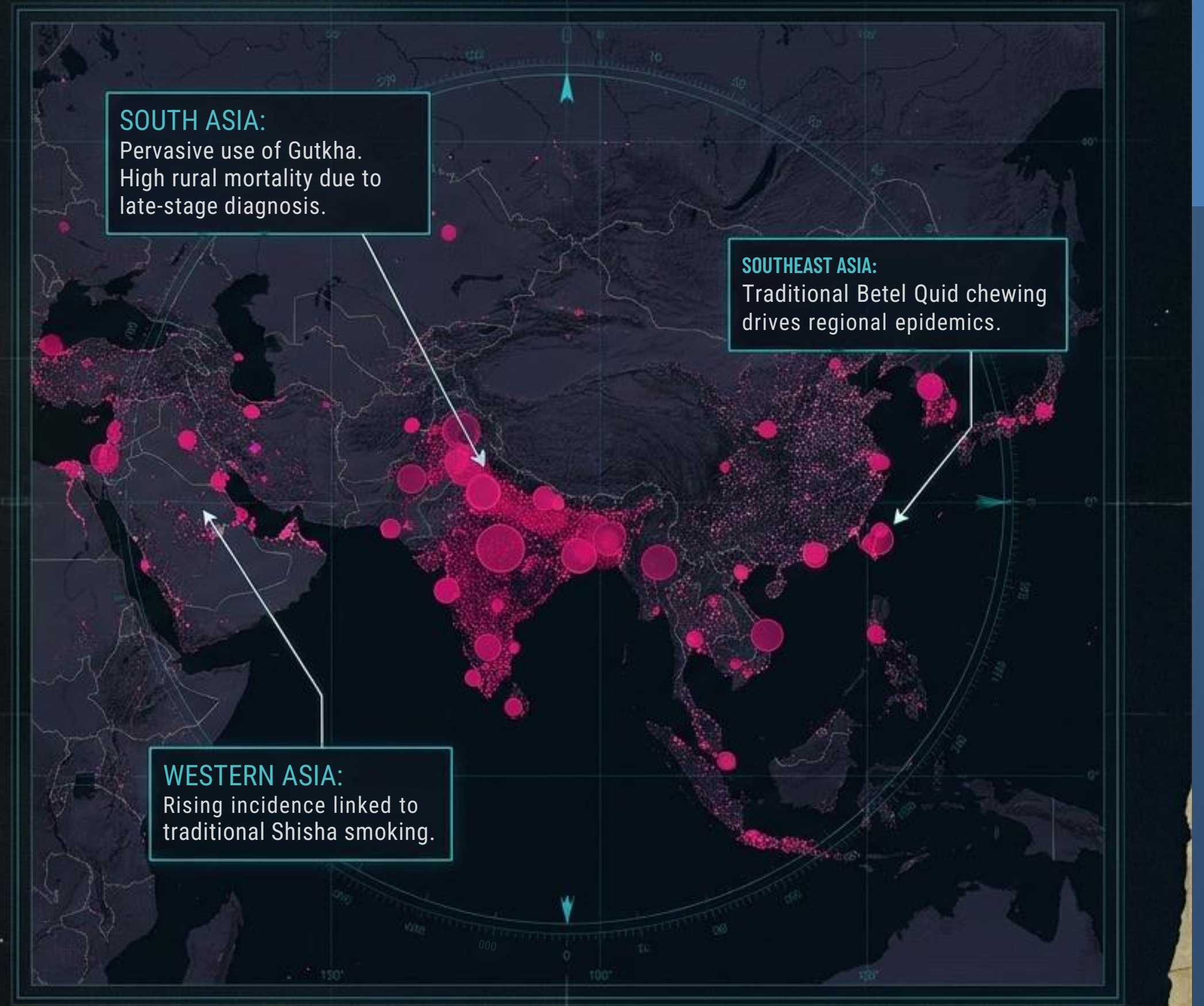
CARTOGRAPHIC NOIR: ORAL CANCER IN ASIA

65%

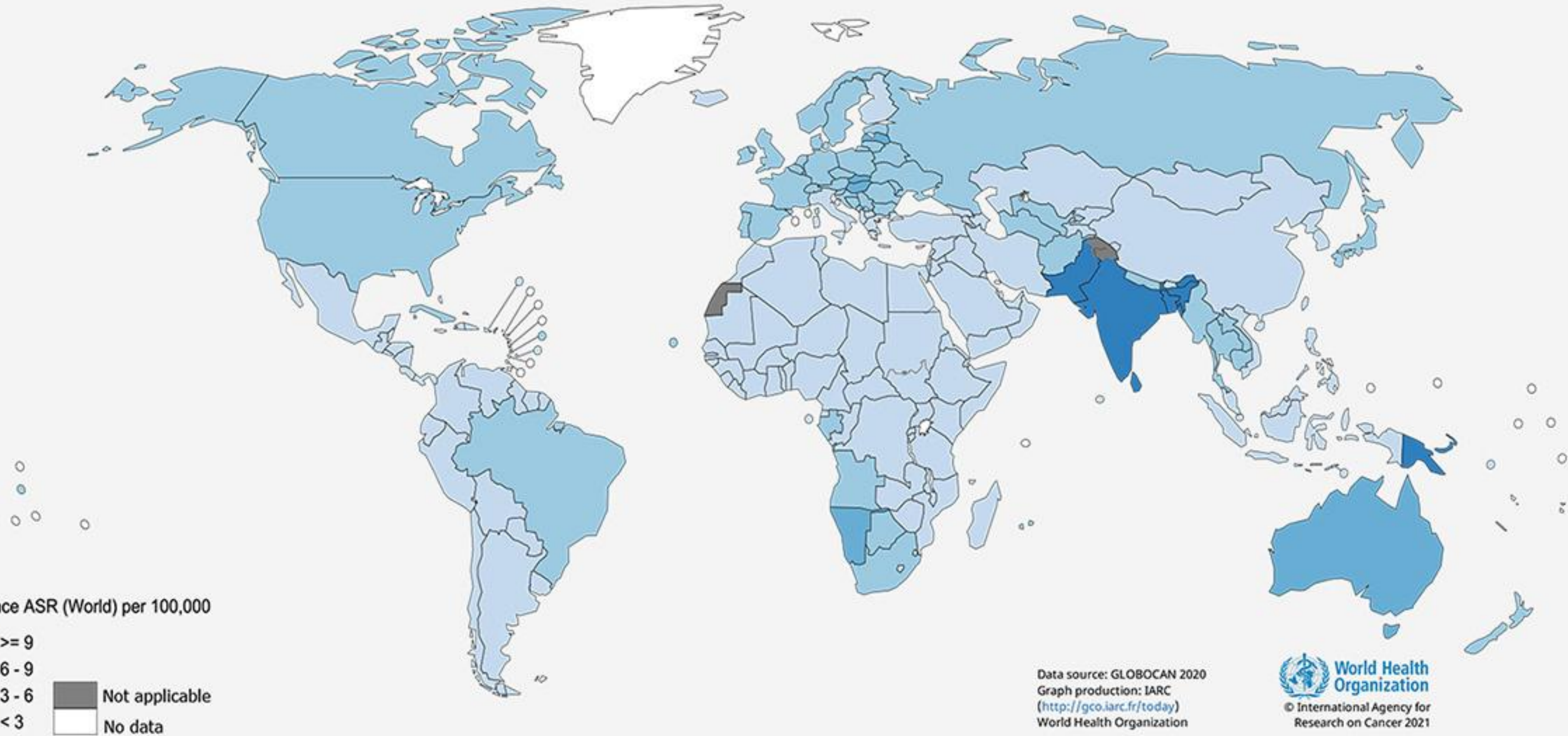
of global oral cancer incidence and mortality occurs in Asia.

THE PARADIGM SHIFT

We must move beyond westernised cancer models. The path to survivorship requires culturally-specific risk-reduction tools in local languages.



Estimated age-standardized incidence rates (World) in 2020, lip, oral cavity, both sexes, all ages



GAPS

DOI: 10.1002/ijc.70391

RESEARCH ARTICLE

Cancer Therapy and Prevention



Interventions for oral cancer prevention: An evidence and gap map

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Abstract

Oral cancer is the 16th most common cancer globally, but oral cancer prevention is limited. We developed five evidence and gap maps using 188 studies identified in the International Agency for Research on Cancer *Handbooks of Cancer Prevention* Volume 19 on Oral Cancer Prevention, across five categories of interventions: (1) exposure to preventive dietary agents, (2) quitting exposure to oral cancer risk factors, (3) interventions for smokeless tobacco (SLT) and areca nut cessation, (4) SLT and areca nut control policies, and (5) secondary prevention. The largest number of studies addressed the effect of quitting exposure to a risk factor ($n = 57$) and control policy interventions ($n = 51$); 34 studies focused on interventions for SLT and areca nut

Delay in Diagnosis

Paucity of studies evaluating risk reversal upon cessation of use of SLT or areca nut

Negligible evidence on interventions for cessation of use of areca nut

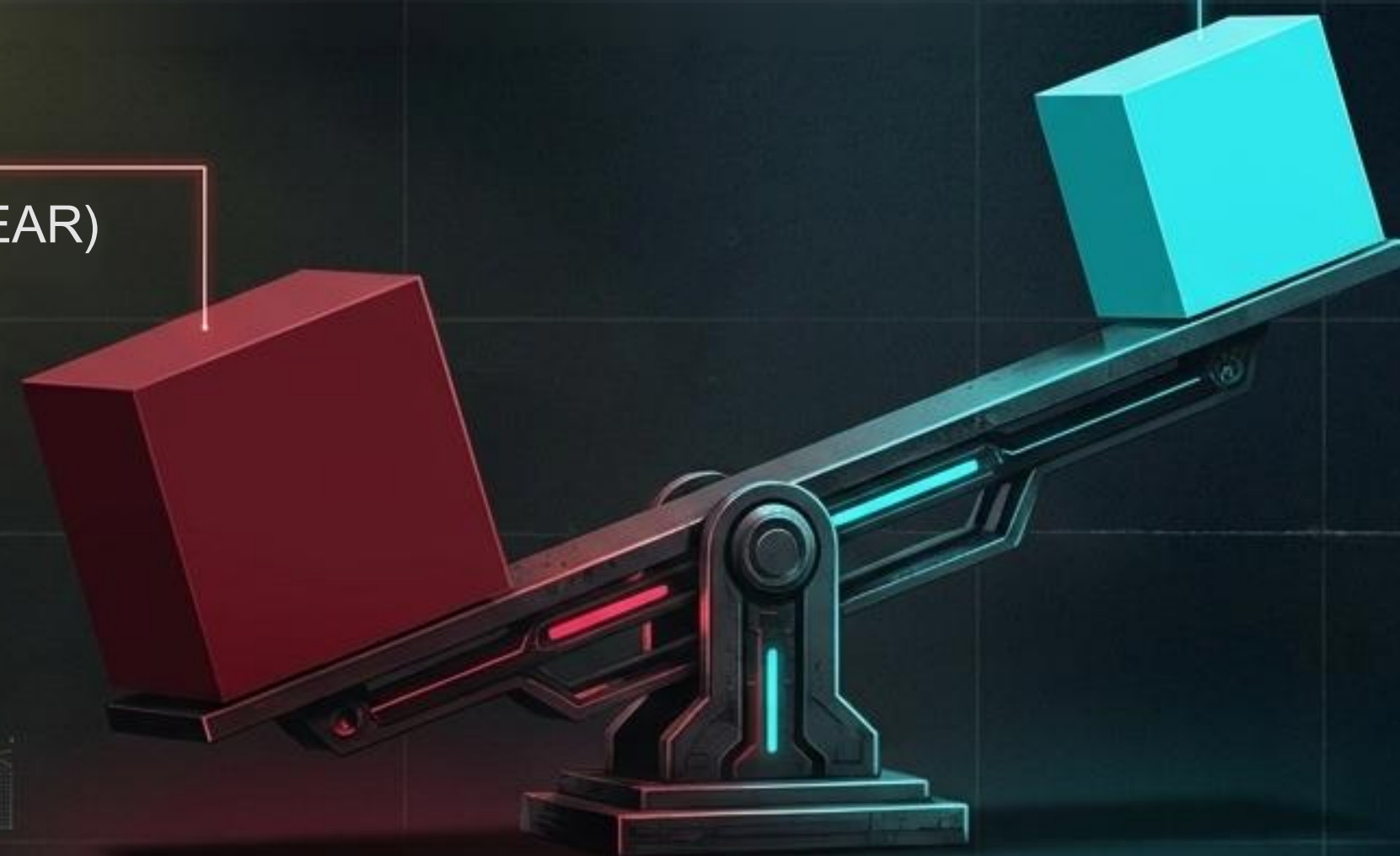
Minimal literature on areca nut control policies

few studies on screening of high-risk individuals

The Mismatch Between Disease Burden and Clinical Research

Burden Reality:
South-East Asia Region (SEAR)
44.1% of overall mapped studies,
despite holding the vast majority of
the world's Smokeless Tobacco
(SLT) and Areca Nut disease
burden.

Research Concentration:
Region of the Americas (AMR)
Holds 76.5% of all studies
focused specifically on
interventions for SLT and areca
nut cessation.



The Bottom Line: The tools to stop the disease are being tested in the West (e.g., US pharmacological trials), while the heaviest burden relies on habits uniquely native to the East.

The Geographic & Demographic Disconnect

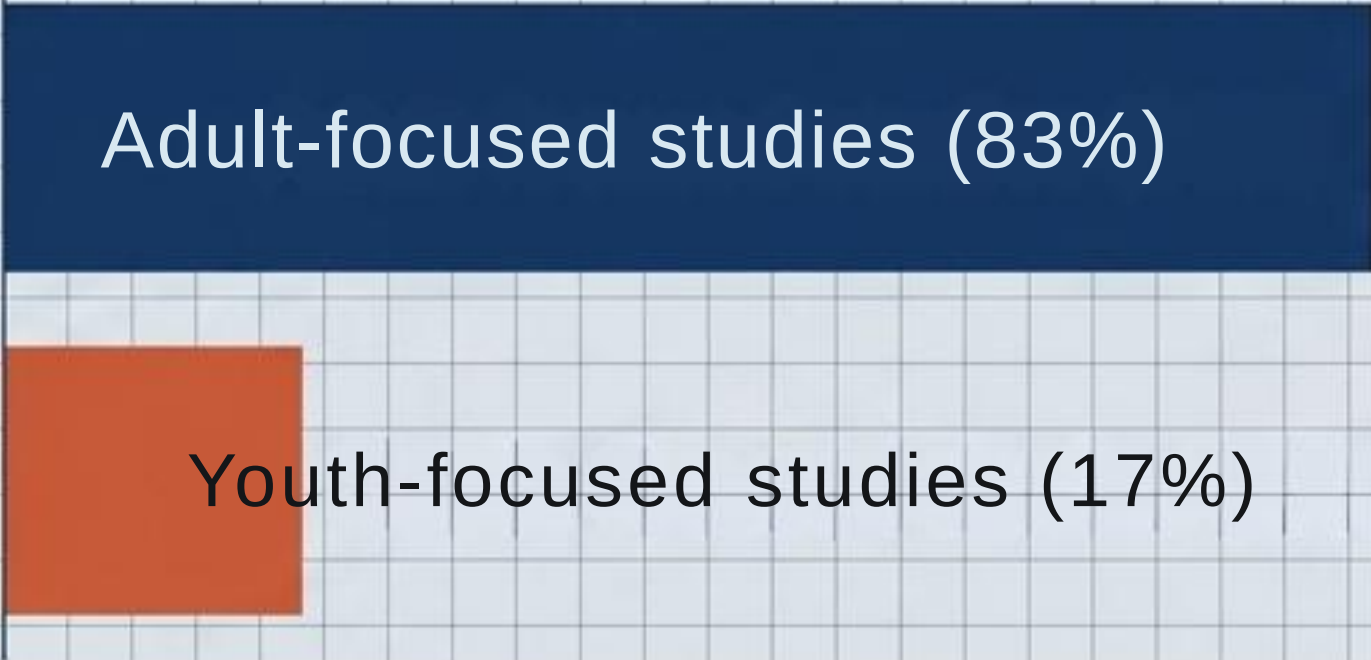
Where the research is conducted vs. Where the disease is killing people.

The Geographic Disconnect



26 out of 34 studies (76.5%) on SLT/Areca cessation interventions are from the Americas
Only 6 studies exist from SEAR, where the vast majority of the global burden resides.

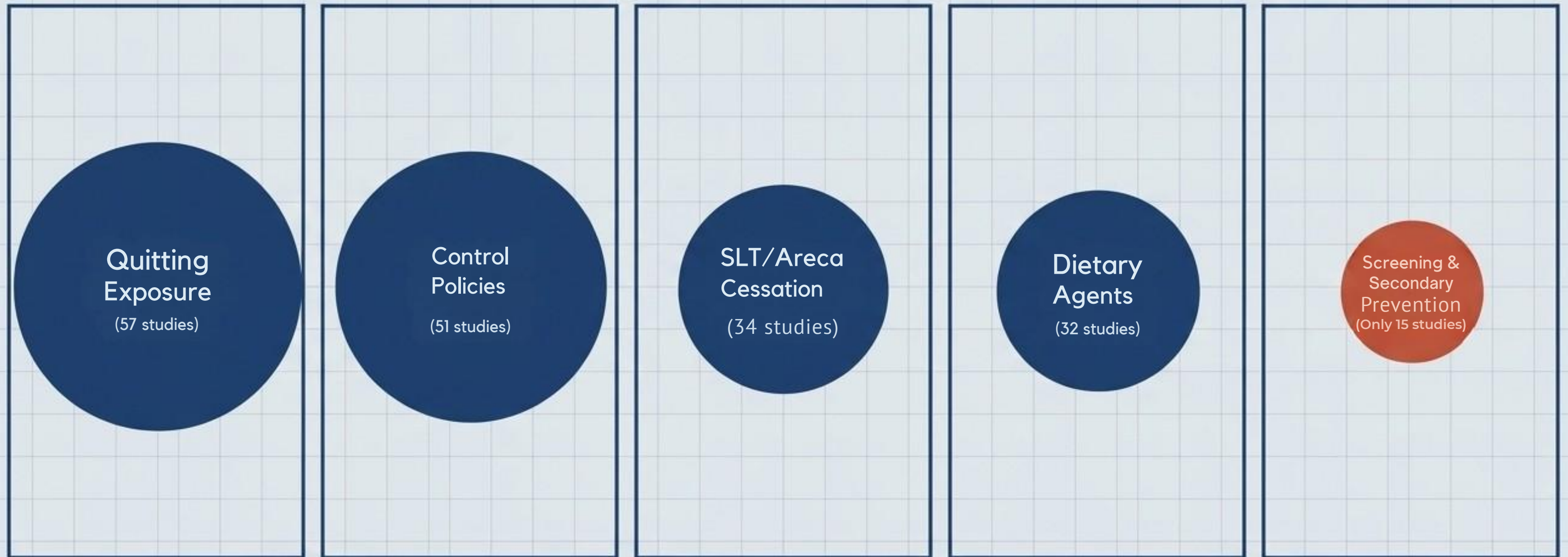
The Demographic Disconnect



The highest risk of initiation is among youth, yet only 32 of 188 studies target adolescents and young adults (10-24 years).

The Evidence Base is Inverted: Insights from IARC Handbooks Vol. 19

Evidence Dashboard



CRITICAL GAP: The interventions most vital for early detection and mortality reduction (Screening) possess the thinnest evidence base.

EGM 1: Nutrition and Survivorship in the Asian Context



The Evidence (32 Studies)

Meta-analyses show plant-based diets and traditional Asian superfoods significantly lower the risk of oral potentially malignant disorders (OPMDs) like leukoplakia and oral submucous fibrosis.



The Gap

The dietary transition to westernised, ultra-processed foods actively increases the risk of recurrence in oral cancer survivors.

Bridge Solution: Create Asian-specific dietary guides emphasising local, affordable superfoods to maintain the protective dietary dividend.

Dietary Patterns & Oral Cancer Risk

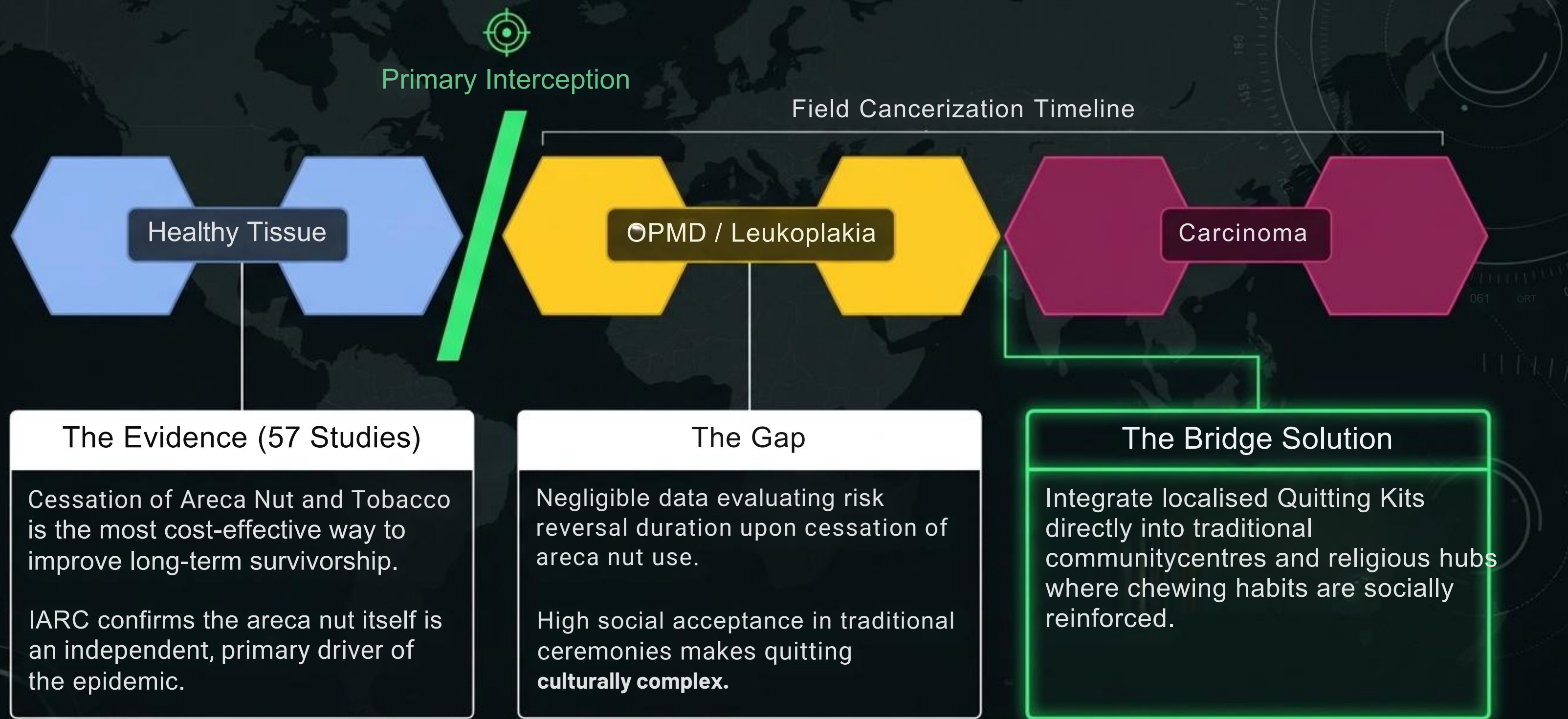
Evidence from the 2009 Indonesia Case-Control Study

THE CASE FOR POPULATION-SPECIFIC EVIDENCE

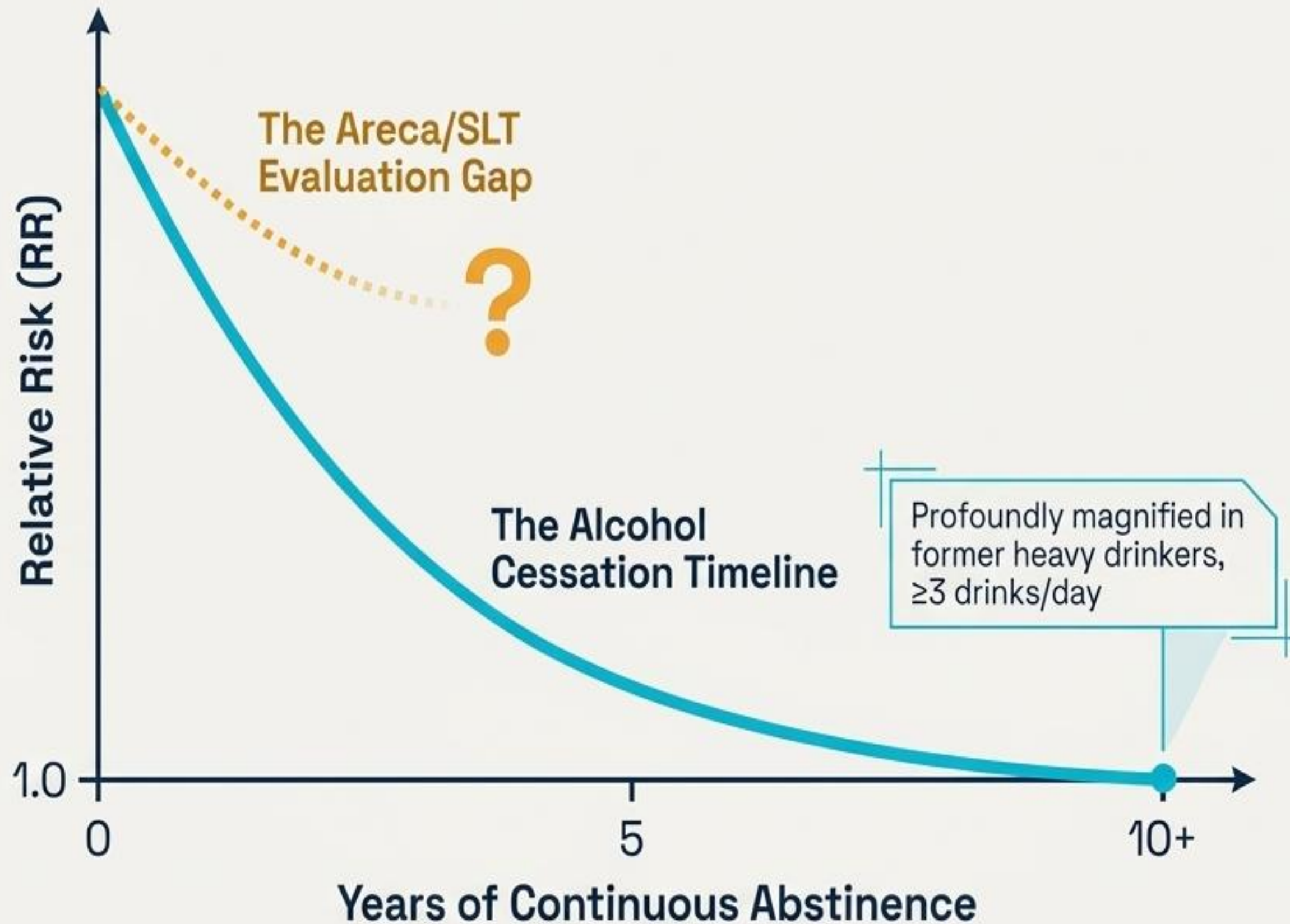
-  **Local Dietary Drivers** The 2009 study identified that high consumption of fried foods, hot-spicy items, and specific fermented foods significantly increased risk
-  **Necessity of Regional Profiling** Evidence suggests that "Prudent" diets (fruits/vegetables) are globally protective, but the specific carcinogenic triggers vary wildly
-  **Culturally-Relevant Interventions** Nations should adopt this approach to create health campaigns that resonate with local habits, moving beyond "one-size-fits-all" nutrition advice.



EGM 2: The Quitting Dividend and the Areca Nut Threat

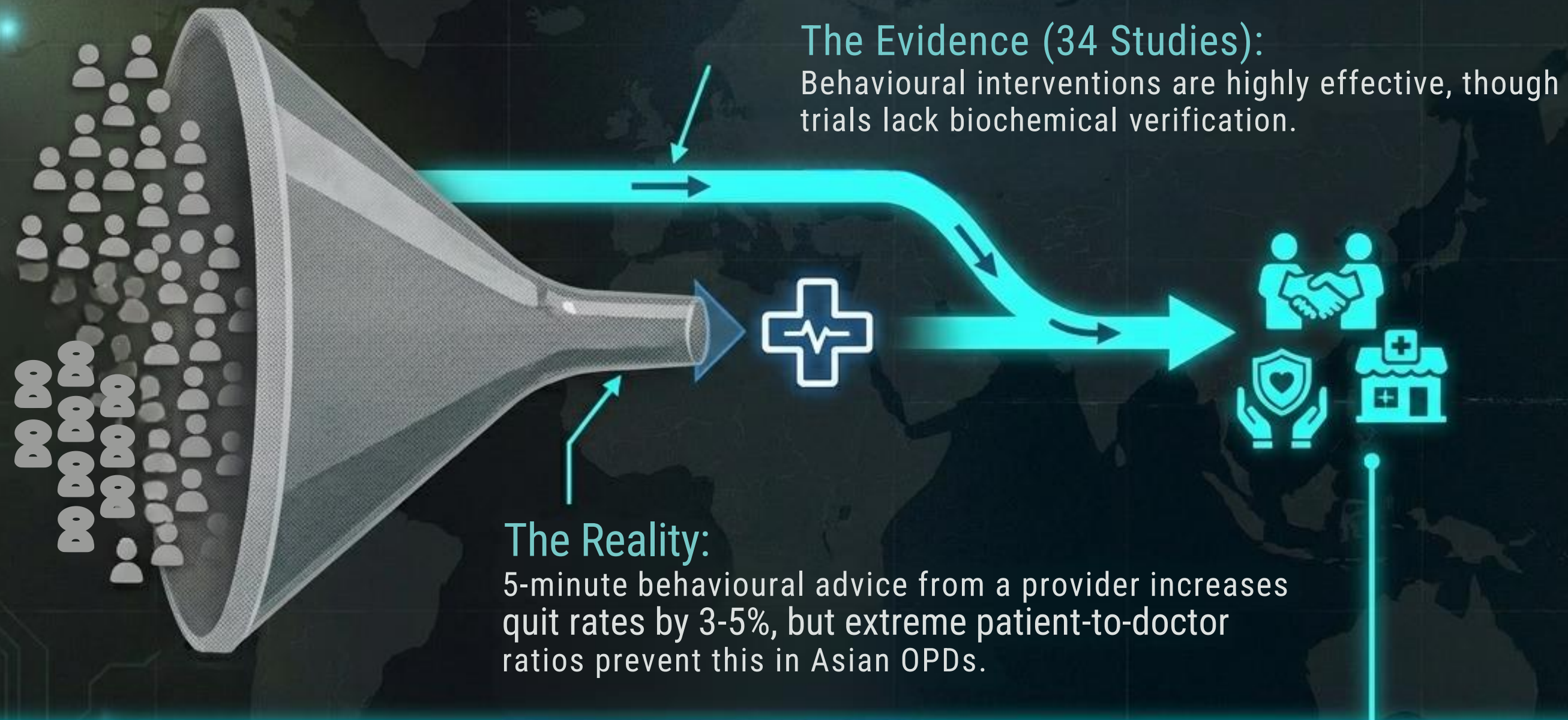


Quantifying Missing Epidemiological Milestones



While IARC rules evidence for oral cancer risk reduction after quitting pure areca nut as SUFFICIENT, no published trials map the precise timeline curve showing how many years of abstinence are required to match the baseline risk of a non-exposed individual ($RR \rightarrow 1.0$).

EGM 3: Bypassing the Outpatient Bottleneck



The Bridge Solution

Task-Shifting: Delegate Brief Advice and triage to trained community health workers (e.g., ASHA workers in India or local pharmacists) to bypass the clinical bottleneck entirely.

EGM 4: The Policy Gap-Taxation vs. Tradition

Western Smoked Tobacco



Policy Reality

- Heavily taxed and monitored.
- Standardised plain packaging laws.
- Stringent point-of-sale regulations.

The Evidence (51 Studies):
Strong literature on SLT control, but negligible
literature on areca nut control policies.

Asian Smokeless Tobacco



Policy Reality

- Loose tobacco and raw areca nuts remain dirt cheap.
- Highly accessible to the poorest populations.
- Frequently lack packaging and warning regulations.

The Bridge Solution: Lobby aggressively for Sin Taxes
on raw areca nuts across ASEAN and SAARC regions,
earmarking revenue for regional screening.

The "Inadequate" Evidence for Smokeless Tobacco Cessation



The Existing Data

Research predominantly evaluates Western moist snuff and chewing tobacco. Studies evaluate products heavily regulated for manufacturing consistency.



The Ground Reality

We operate interventions on extrapolated data. These are not the same products, nor are they used the same way.

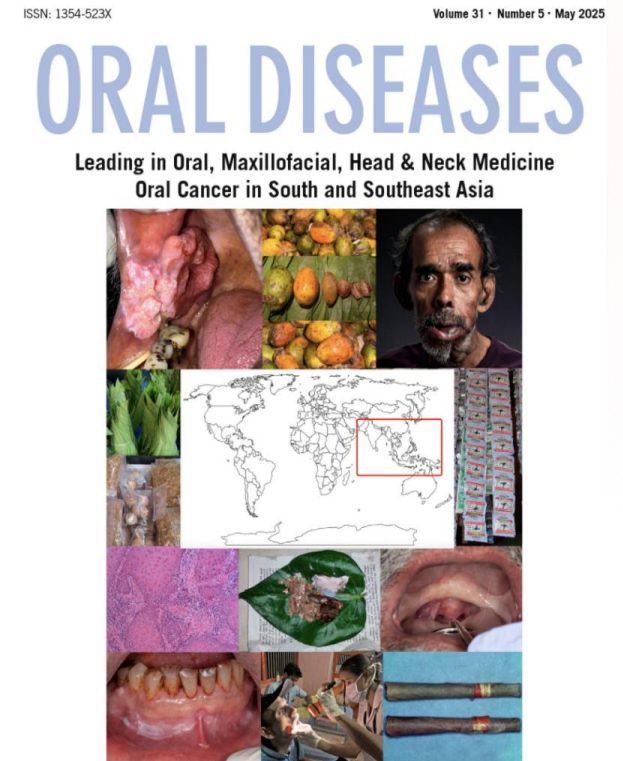
THE PRODUCT DISCONNECT

This rating exists not because quitting fails, but because global trials are dominated by Western moist snuff. This leaves a total paucity of data on the distinct chemical delivery systems of South and Southeast Asian populations.

INDIA'S GUTKA BAN & IMPLEMENTATION

Policy Execution Strategy, Consumer Shifts, and Public Health Impact metrics

- ➦ **Regulatory Execution Mechanism** Implemented in 2011 under the FSSAI Act, classifying tobacco and nicotine as prohibited ingredients in any food product.
- ✓ **Widespread Denormalization & Support** Rapid surveys showed overwhelming success in social denormalization: 92% of the public supported the ban, 99% agreed it protected youth, and pre-packaged gutka completely disappeared from open retail displays.
- ⚠ **The "Twin-Sachet" Loophole** To circumvent the ban, manufacturers unbundled the product—selling flavored pan masala and chewing tobacco in separate pouches. Over 80% of pre-ban users switched to mixing these dual ingredients manually.



CONCISE REVIEW

Smokeless Tobacco Is a Major Risk Factor for Oral Cancer in South and Southeast Asia

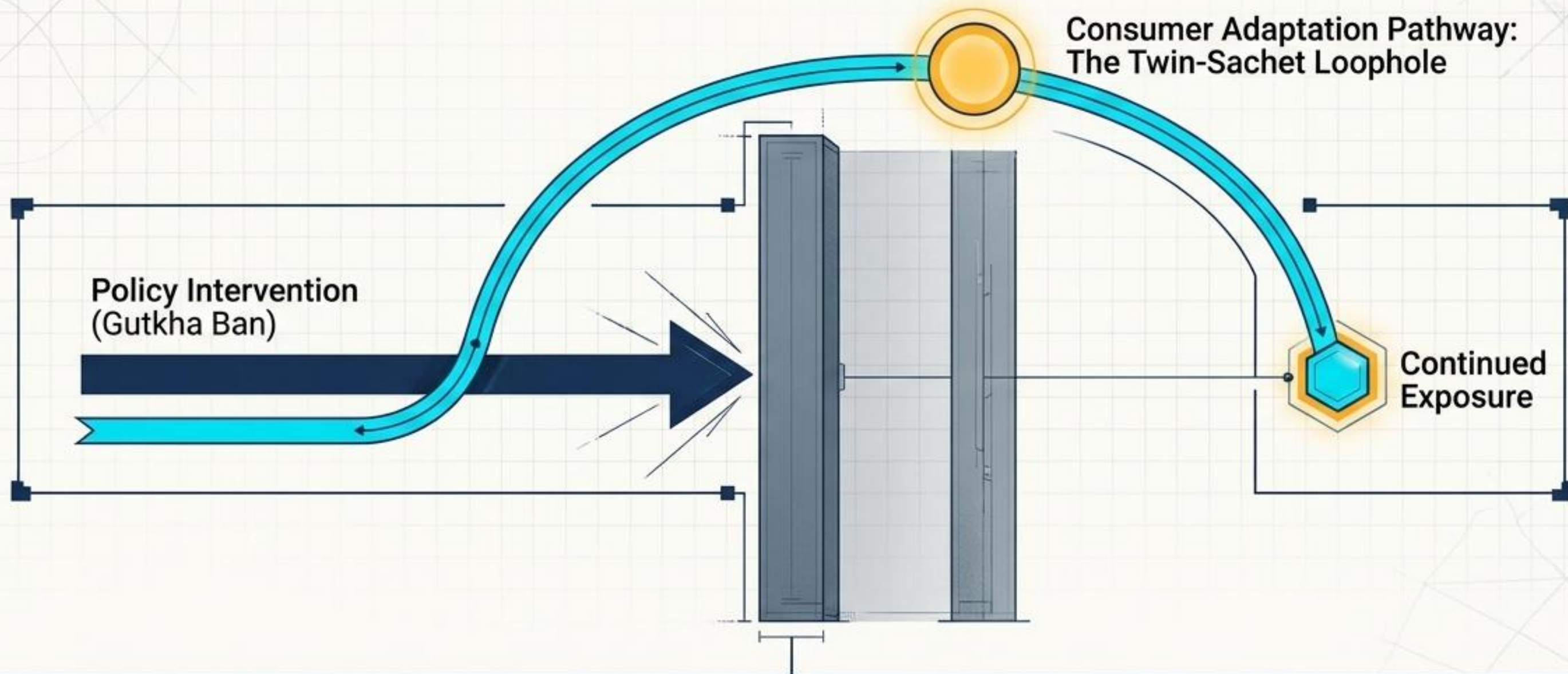
[Ravi Mehrotra](#) ✉ [Beatrice Lauby-Secretan](#) ✉

First published: 10 February 2025 | <https://doi.org/10.1111/odi.15241> |



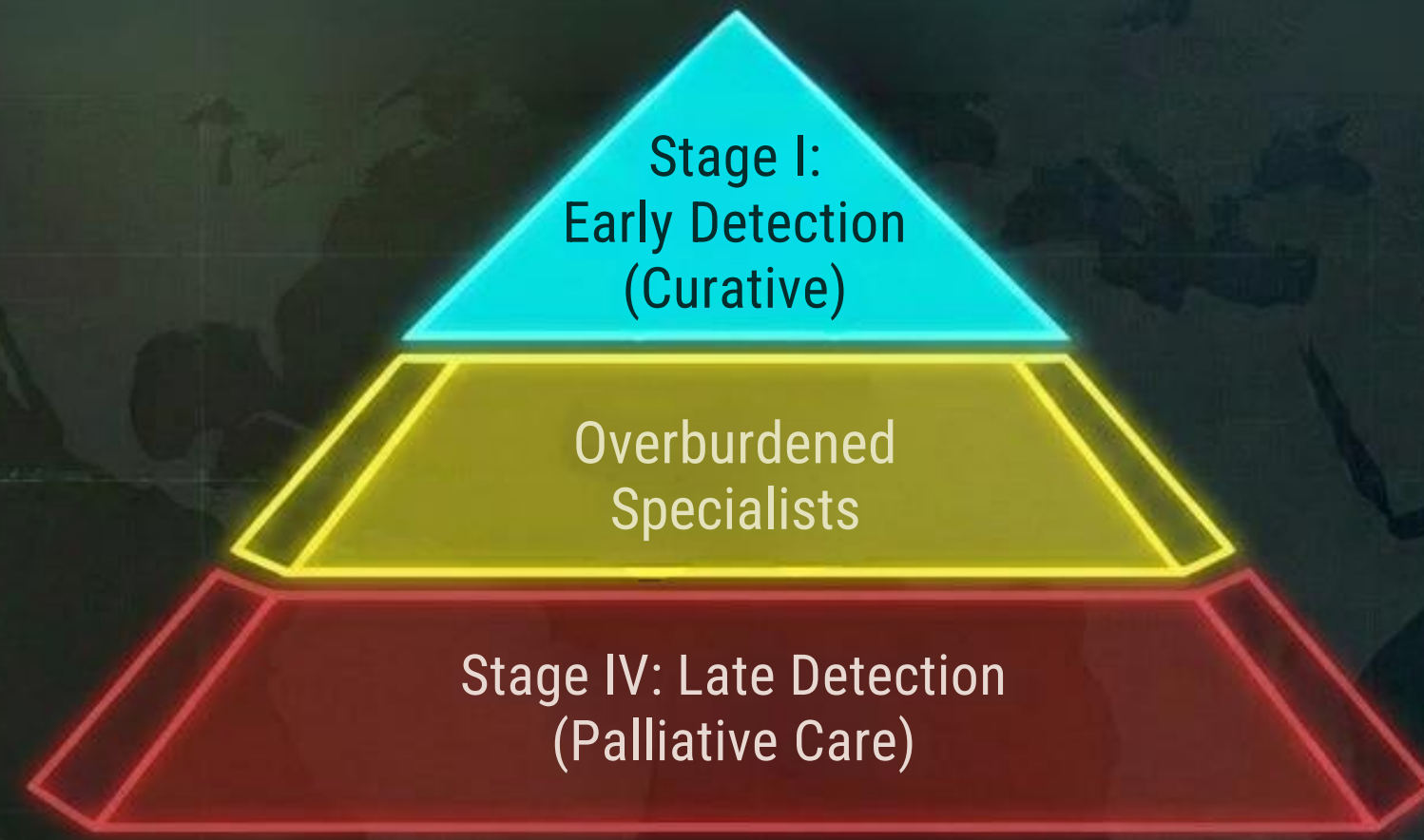
Policy Without Behavioural Tracking Fails

The Policy-Efficacy Gap



Documenting the existence of a policy is scientifically meaningless if researchers fail to track consumer behavioural adaptation. India's unbundled twin-sachet adaptation perfectly illustrates the **Policy-Efficacy Gap** in action.

EGM 5: Scaling the Taiwan Model of Secondary Prevention



The Evidence (15 Studies)
Universal screening for high-risk groups saves thousands of lives by shifting detection from Stage IV to Stage I.

The Gap

Taiwan uses a 2-year screening cycle conducted by dental specialists. Can nations like Indonesia or Vietnam replicate this with severely limited dental workforces?

The Bridge Solution

Task-shifting visual inspection. Train non-dental professionals-such as community pharmacists-to recognise suspicious white patches during routine medication refills.

Taiwan's National Oral Cancer Screening Program: A Global Success Story

Program Launch: 1999

- Nationwide oral cancer screening for high-risk groups
- Focused on betel quid chewers and tobacco users
- Visual oral examination integrated into public health services
- Improved referral and early diagnosis pathways



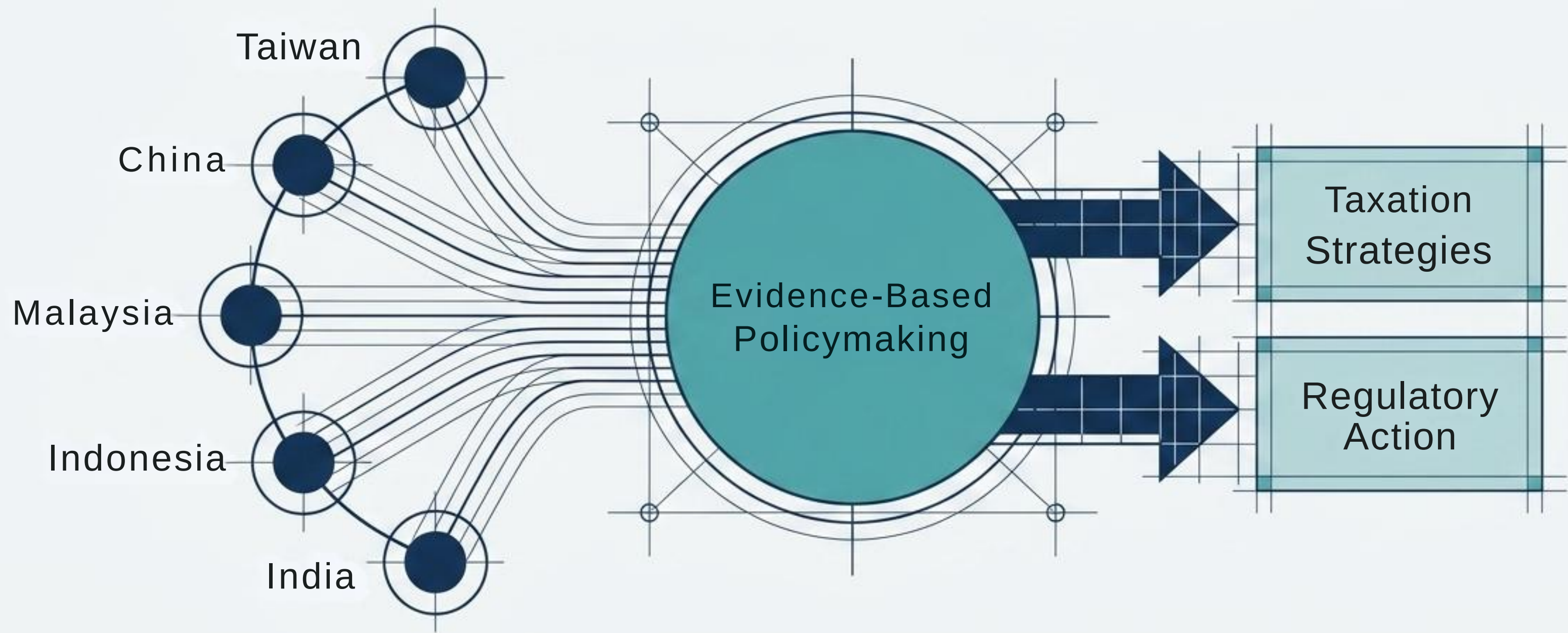
 **2.4-fold increase in early-stage diagnosis**

From 6.6 to 14.5 per 100,000 males

Source: Gao W et al. BMJ Evidence-Based Medicine. 2026;31(2):125–131. Outcomes of the first national oral cancer screening programme in Taiwan.

The Asian Betel-Quid Consortium provides a multinational engine for policy and regulation.

Collaborative regional research generates the necessary evidence to quantify betel quid dependence and oral potentially malignant disorders (OPMDs).



The Digital Battlefield: Protecting the Next Generation

The Evidence & The Gap

Out of 188 mapped studies, only 17% included adolescents (10-19 years) or youth (15-24 years). There is almost zero research on preventing the initiation of chewing among Asian youth.

The Threat

A massive surge in flavoured smokeless tobacco products is actively attracting a new demographic via social media algorithms.



The Bridge Solution

Launch regional, AI-driven, and influencer-led anti-chewing campaigns on dominant platforms like TikTok and WeChat to rapidly de-normalise the habit before it takes root.

Young-Onset Oral Cancer Risk & Trends

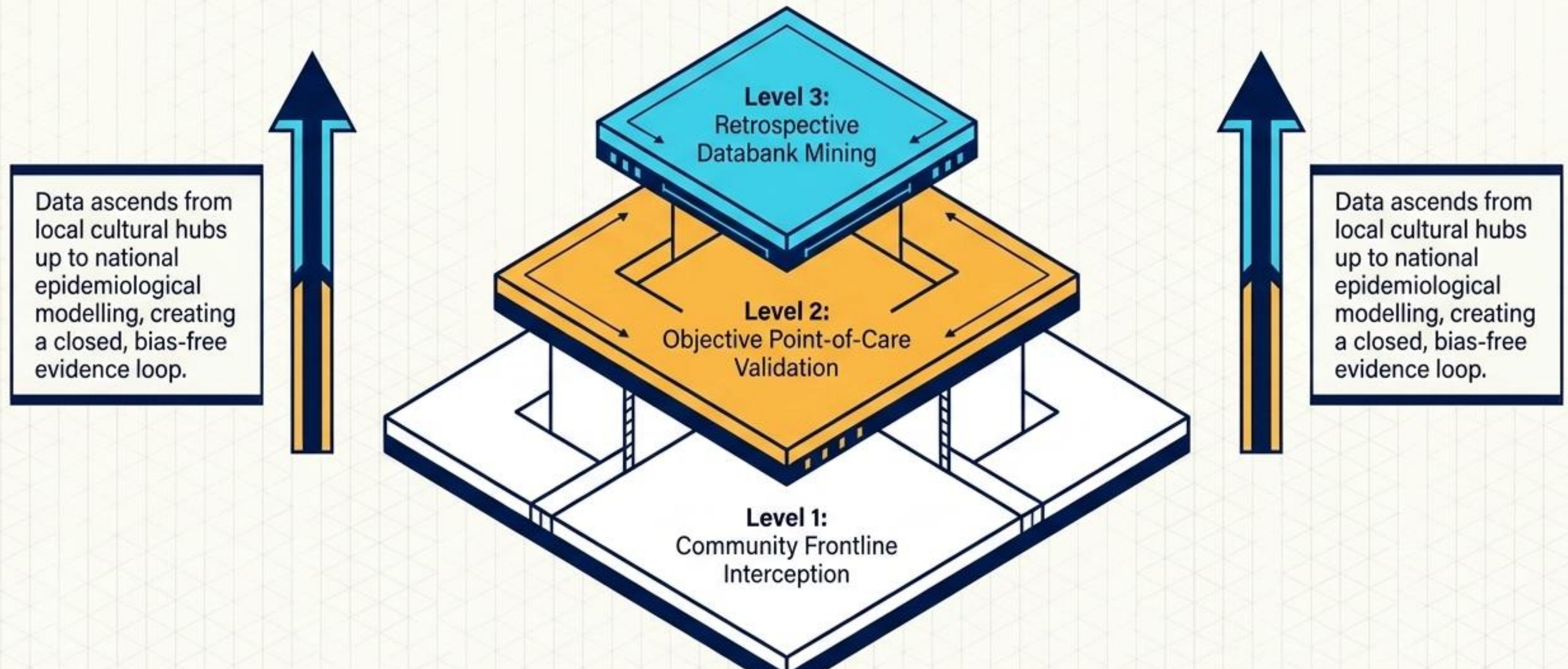
Evidence and Global Mandates from a 10-Year Northern Thailand Cohort (2001–2010)

- ⚠ **Universal Late-Stage Diagnosis** The study revealed that the vast majority of both young (<40 years) and older patients presented at Stage IV.
- ↔ **Shifting Behavioral Paradigms** Traditional risk factors are evolving; betel quid chewing fell from 50.2% in the previous decade to 17.5% overall and was entirely absent (0%) in the youth cohort.
- 📈 **Divergent Survival Disparities** Despite late-stage detection, younger patients exhibited a significantly higher 5-year survival rate (56.2%) compared to older cohorts (27.4%),.
- 🌐 **Global Application of Youth Screenings** Countries must integrate local cohort data into diagnostic protocols.



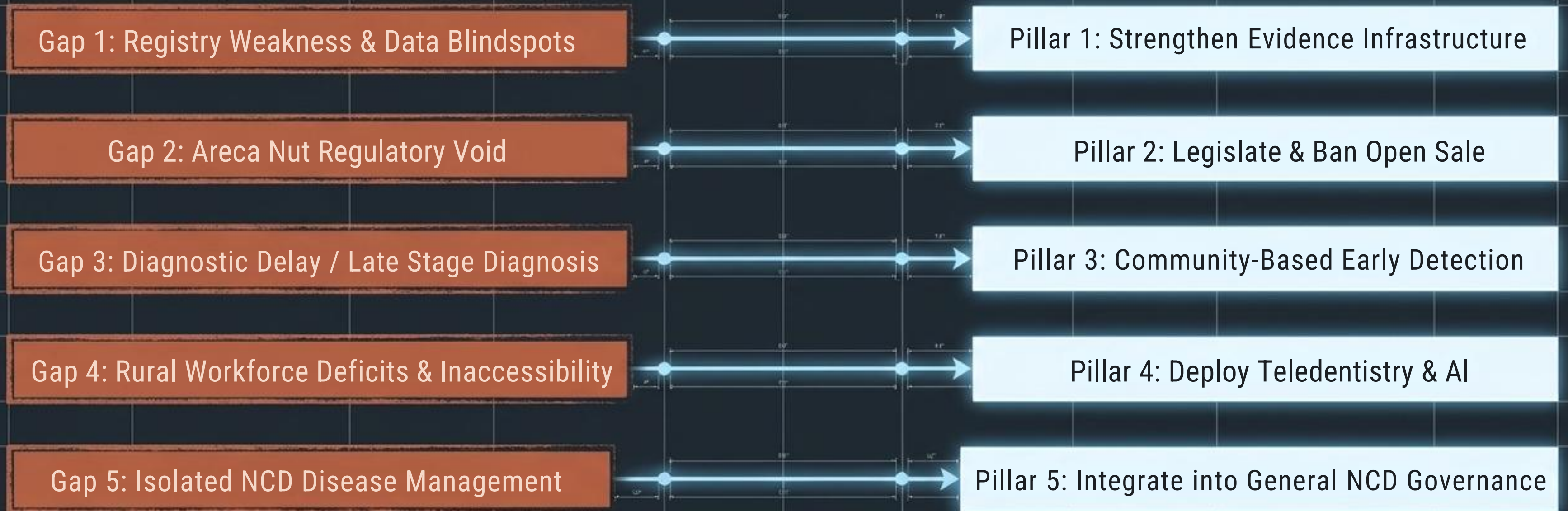
The Master Execution Workflow

Transforming existing Asian infrastructure into the global clinical gold standard.



From Structural Failure to Regional Mandate

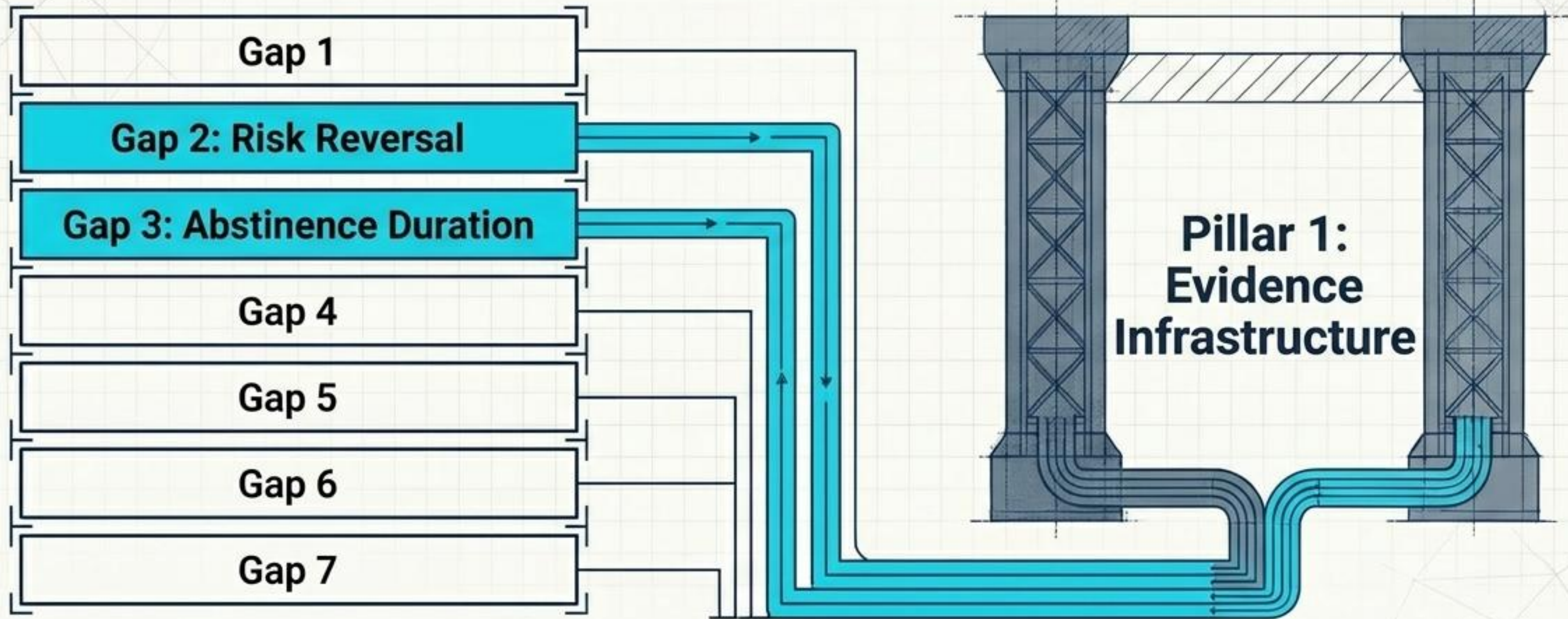
Aligning the 5 Pillars of Action directly against the 5 Critical Gaps.



The proposed regional agenda is not a random wish list—it is a direct, structural countermeasure to the specific failures of the current system.

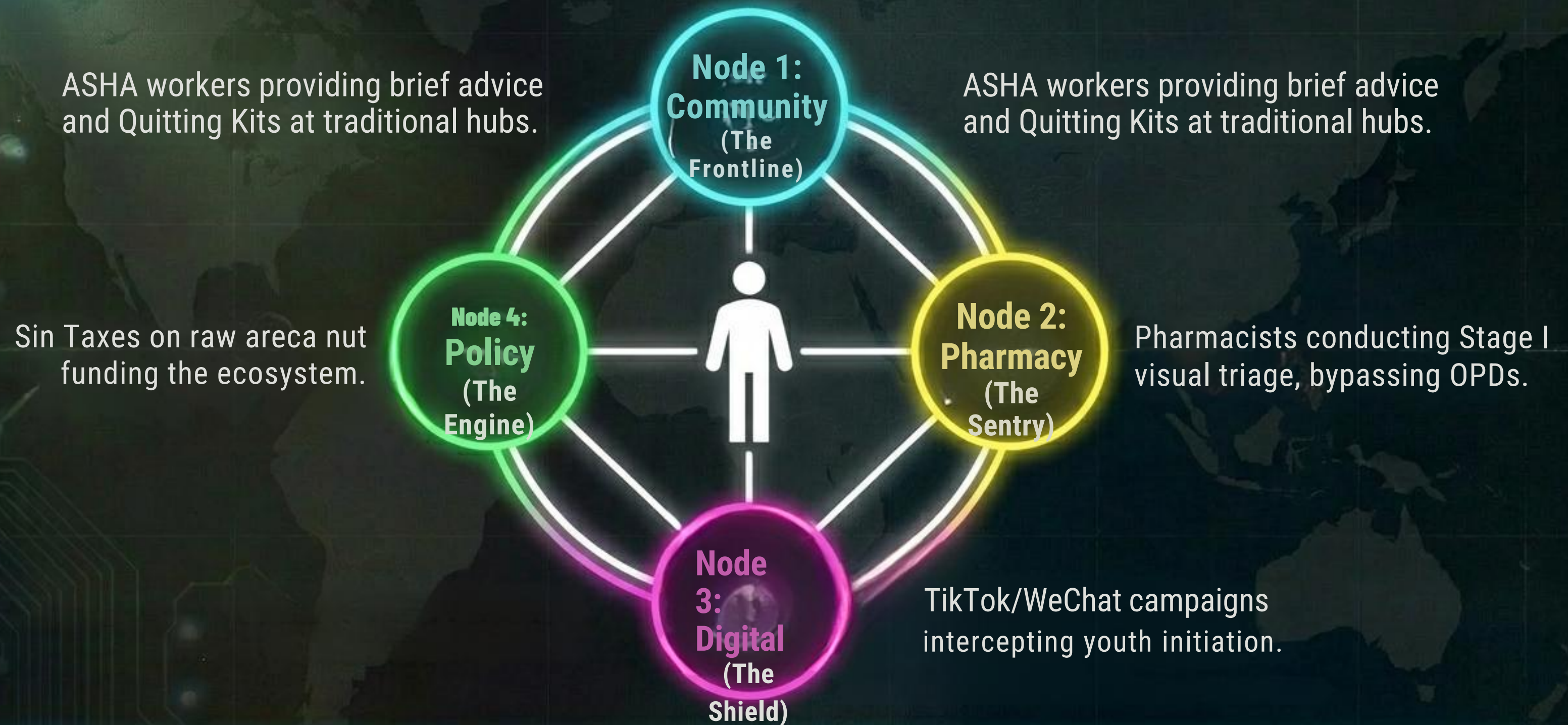
Resolving the Evaluation Void

Aligning the Structural Matrix



To reverse the IARC paradox, Asian clinical infrastructure must be reformatted. Gaps in Risk Reversal and Abstinence Duration are not isolated problems; they must be solved systematically through a unified **Evidence Infrastructure**.

The Pan-Asian Survivorship Ecosystem



Core Takeaway: Prevention is the first step of survivorship. A cancer never diagnosed is the best survival outcome.

A United Asian Front

The Mandate: To bridge the global oral cancer gap, we must abandon research in silos and commit to radical regional collaboration.

1. Unified Tracking

Establish a cross-border Pan-Asian registry for OPMDs to strictly track intervention success and risk reversal data.

2. Twinning Partnerships

Use IACCS to immediately form twinning partnerships, pairing high-resource Asian cancer centres with low-resource regional hospitals for rapid knowledge transfer.

**The evidence is mapped.
The gaps are exposed.
The bridges must now be built.**

The Ultimate Goal: Interception at Stage O

[Primary Prevention (Quitting)] + [Secondary Prevention (COE & AI)] = Saved
Lives

Stage IV is a failure of the system.
Stage O is the standard we must
demand



Questions

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