



# USING TB AS AN ENTRY-POINT TO IMPROVED AMBULATORY AND COMMUNITY-BASED HEALTH CARE DELIVERY



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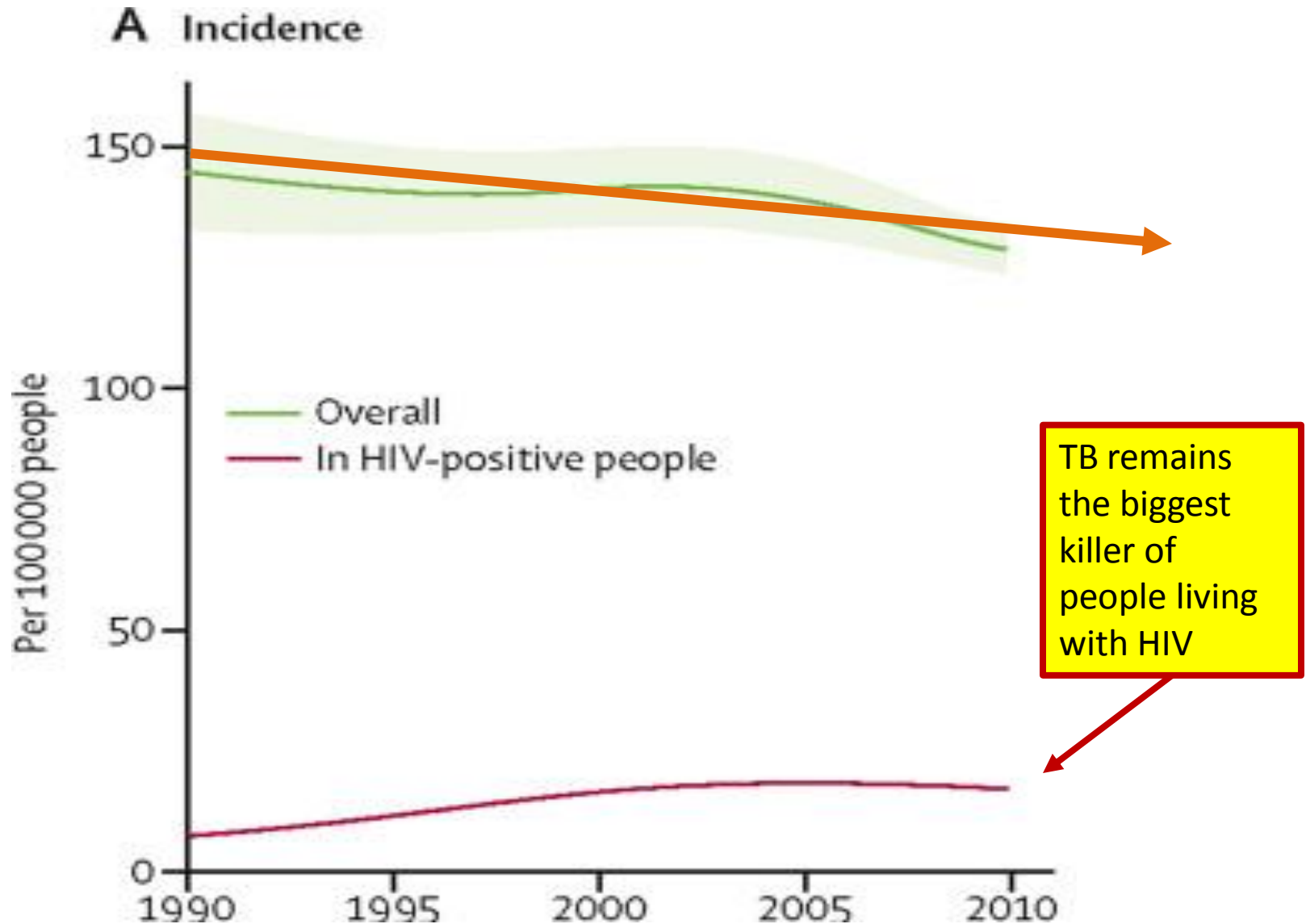
HARVARD MEDICAL SCHOOL  
BRIGHAM AND WOMEN'S HOSPITAL  
PARTNERS IN HEALTH  
ADVANCE ACCESS & DELIVERY

OUTPATIENT CARE DELIVERY IN  
THE RUSSIAN FEDERATION  
MOSCOW, RUSSIA  
JUNE 28, 2017



# Current Global TB Situation

# Global Tuberculosis Incidence Declining Only 1.5% Per Year





# What is achievable?



Bethel, Alaska

# Alaska

## 1950s and 1960s

Source:

<http://wikitravel.org/upload/shared//thumb/7/7>

[b/BethelAlaskabanner.jpg/1800px-](#)

[BethelAlaskabanner.jpg](#)







Hospital service areas and villages in the ambulatory chemotherapy program, Alaska

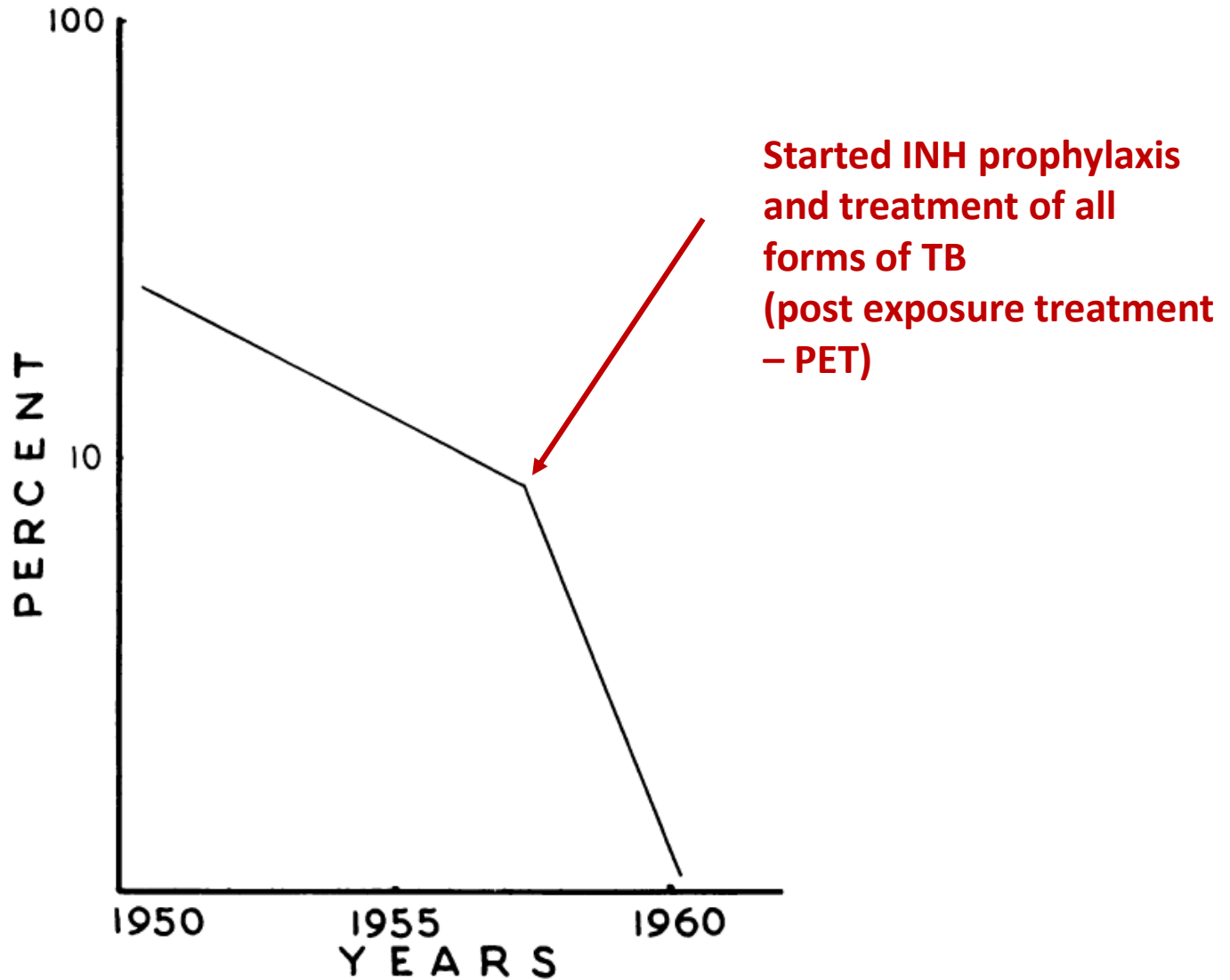
- Alaska had some of the highest rates of TB in the United states with a **prevalence of ~2,000/100,000** population
- **1 in 4 infants** in some areas became infected in the first year of life
- 1953-1956 annual **mortality from TB was 282/100,000** population
- In 1950s, started an ambulatory treatment program to treat active cases



- In 1957 they began a **randomized control trial** to evaluate the use of isoniazid prophylaxis
  - After community-wide TB screening and treatment, people without TB disease were randomized to receive isoniazid or placebo
- **Rates of TB in the intervention group were less than half of the control group** (who did not receive prophylaxis)
  - a **68% risk reduction attributable to INH prophylaxis**
- Those who received isoniazid prophylaxis had a **reduced risk of TB over the next 19 years**



**Figure 3. Average rate of decline in tuberculosis infection rates among Eskimo children 0–3 years of age in two periods: 1949–57 and 1957–60**







Source: <http://travelnoire.com/wp-content/uploads/2014/12/o-NEW-YORK-CITY-WRITER-facebook.jpg>

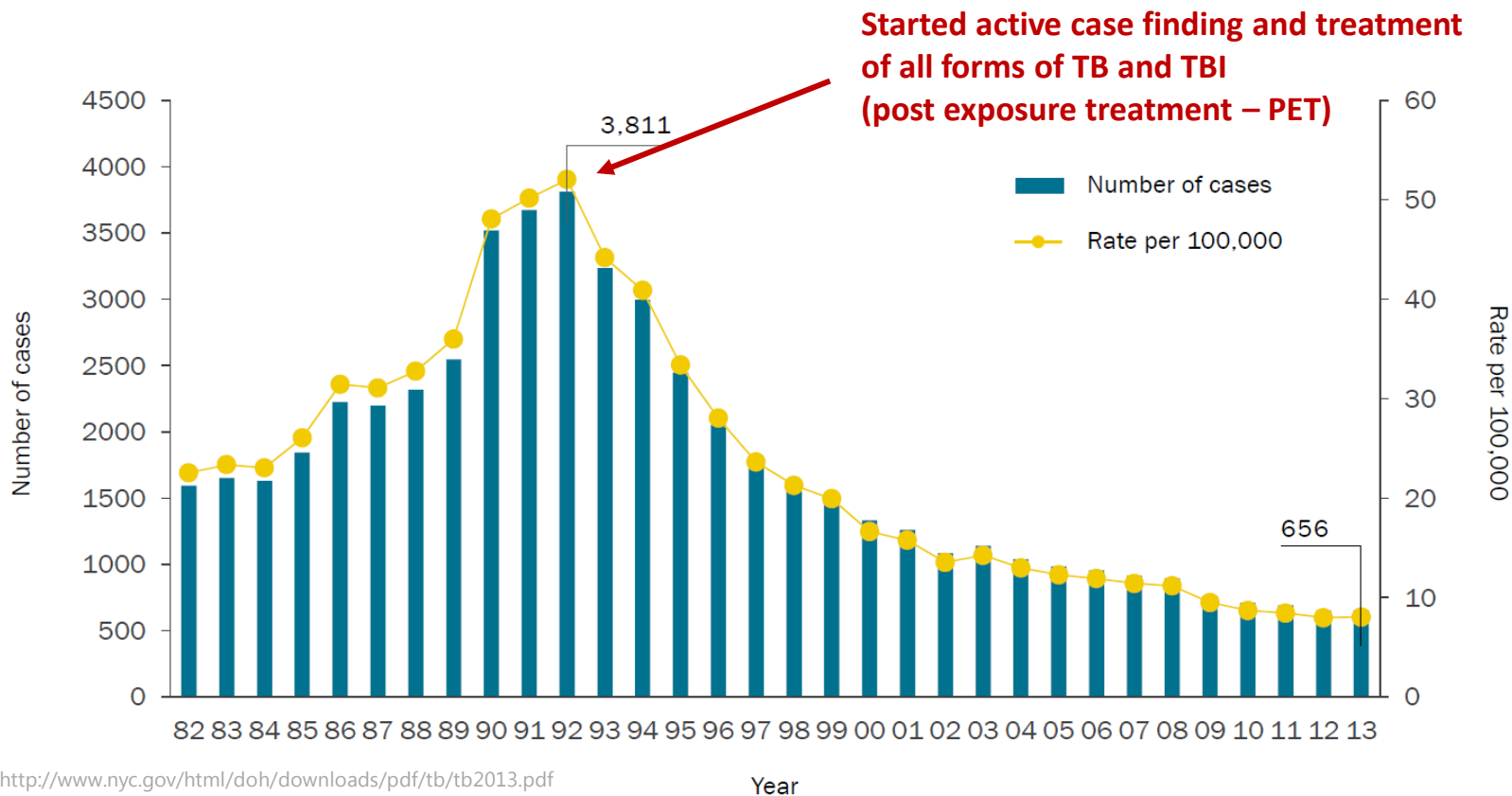
# New York City

## 1988



# New York City

**FIGURE 1:** Tuberculosis cases and rates,<sup>1</sup> New York City, 1982-2013



Source: <http://www.nyc.gov/html/doh/downloads/pdf/tb/tb2013.pdf>



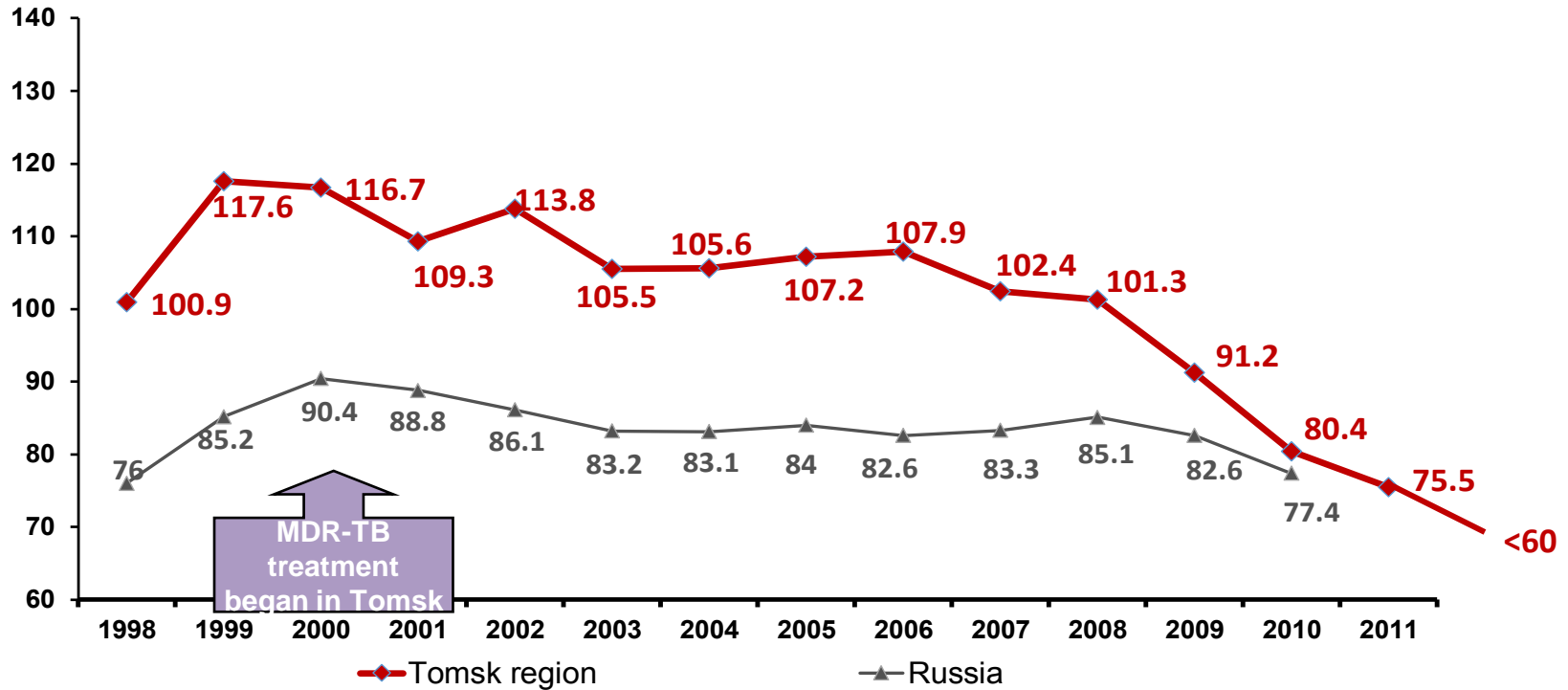
# Russia 2000s





# Russia-Tomsk

Tuberculosis notification rate in Tomsk Oblast, Siberia, and Russian Federation (per 100,000 population)



**What do all  
these  
programs  
have in  
common?**



**They are  
comprehensive**

**ALL AT THE  
SAME TIME**

**DELIVERED TO  
PATIENTS WHERE  
THEY LIVE**



**SEARCH**

SEARCH ACTIVELY · TEST PROPERLY

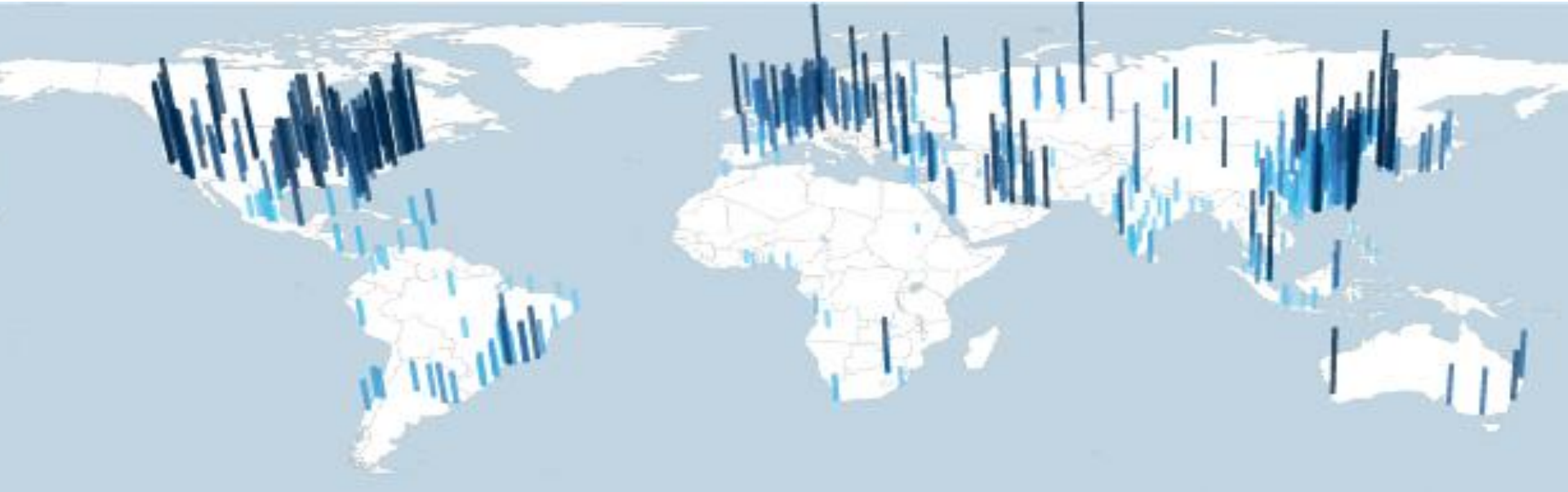
**TREAT**

TREAT EFFECTIVELY · SUPPORT THROUGH TREATMENT

**PREVENT**

PREVENT EXPOSURE · TREAT EXPOSURE

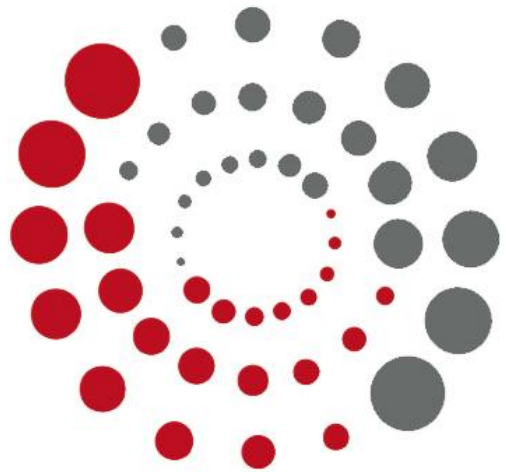
## Units of change:



**Cities:**  
**Incubators for  
learning and  
health care  
delivery innovation**

- **Contain 60% of the world's population**
- **Have their own resource base**
- **Link the public and private sectors**
- **80% of global GDP generated in cities**
- **World's 750 biggest cities account for ~57% of global GDP**





**ZERO TB**  
Initiative

CITIES **ZEROTB** PROJECT

### **Use a COMPREHENSIVE PROGRAM OF CARE**

- Search actively using active case finding and available technologies
- Treat all forms of TB disease
- Prevent progression to TB for people infected with tuberculosis
- Provide care along a spectrum

### **Target HOUSEHOLDS and the PLACES WHERE PEOPLE SEEK HEALTH CARE as the point of intervention**

- Children are highly vulnerable to preventable disease and death
- Households are where disease can easily be found and prevented, and where long-term treatment must be delivered

### **Target MUNICIPALITIES as the unit of political intervention and sustaining agent**

- Administrative unit closest to grass roots (individuals suffering from disease)
- Able to link both public and private sectors
- Have their own resources

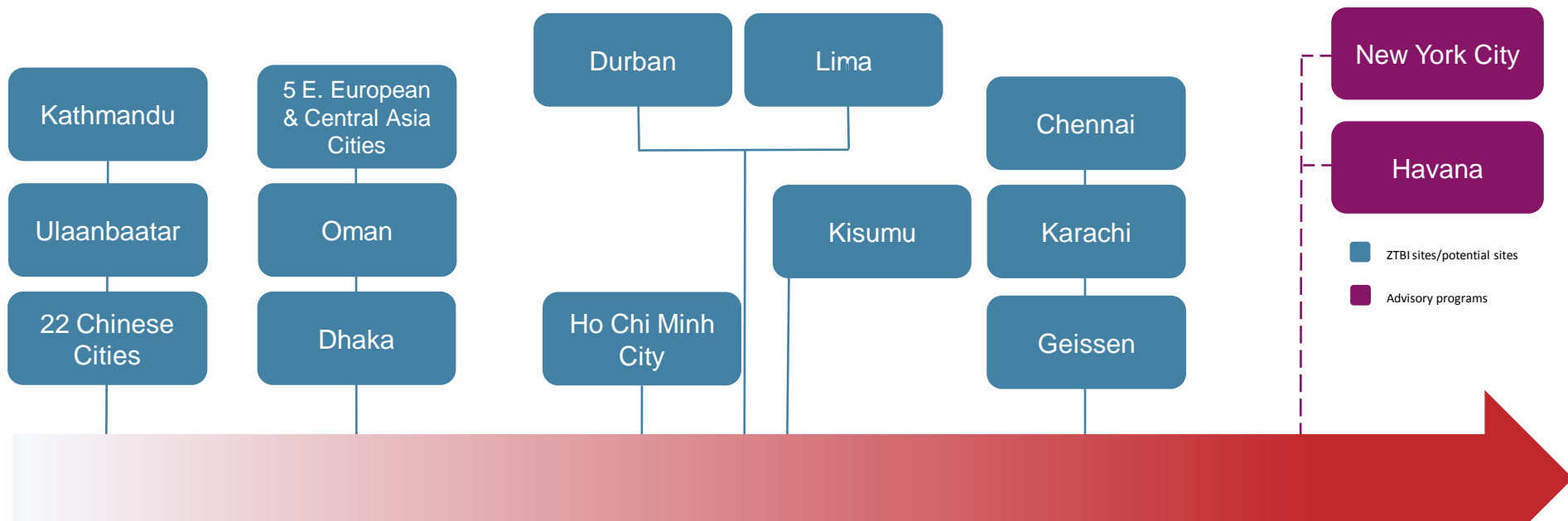


Platform for  
high quality  
community-  
based care  
delivery for TB  
and DR-TB

### **Community-based health delivery platform**

- Links the clinic with patients in the communities where they live
- Essential to stopping the spread of tuberculosis in families and communities

# Zero TB Initiative Alignment Matrix (Early Assessment)



## Considering ZTBI alignment

Representatives of local coalitions in contact with ZTBI founding partners.

## Publicly aligned

Gap analysis & planning of comprehensive approach. Clarifying stakeholder roles and responsibilities.

## Moving toward STP

Comprehensive program in a subsection of total area, or city-wide program that is approaching comprehensive, operations research underway.

## Full STP approach

Full program underway in entire city/region, population health impact research underway.



CENTER FOR GLOBAL HEALTH DELIVERY—DUBAI  
HARVARD MEDICAL SCHOOL



# CHALLENGE FOR MEDICINE AT THE DAWN OF THE 21<sup>ST</sup> CENTURY:

How do we effectively deliver the fruits of medical science to populations that will benefit from it?

- *Scientific – systems – moral*







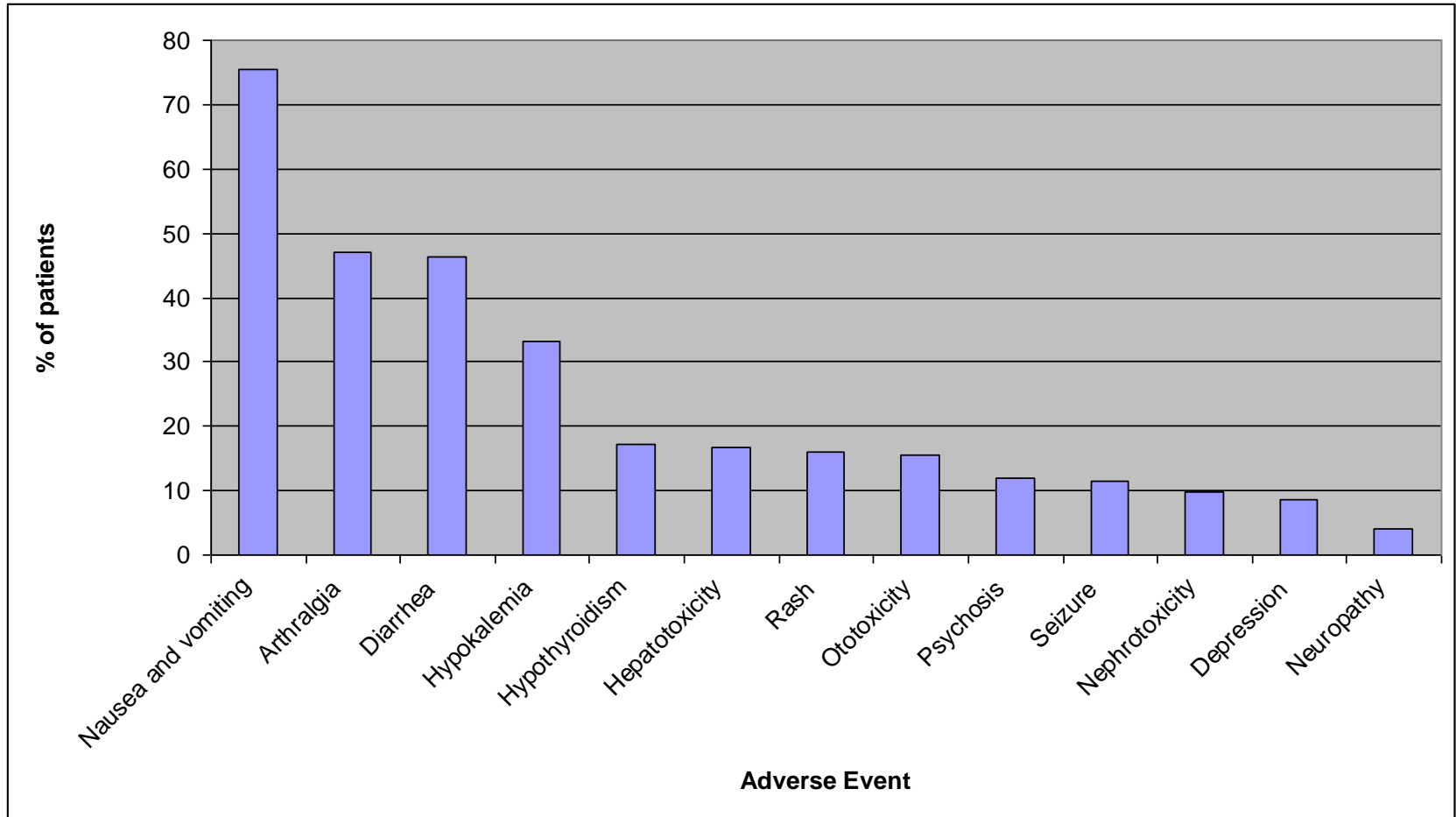
## CARE FOR PATIENTS WITH MULTIDRUG-RESISTANT TUBERCULOSIS

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A COMPLEX HEALTH INTERVENTION

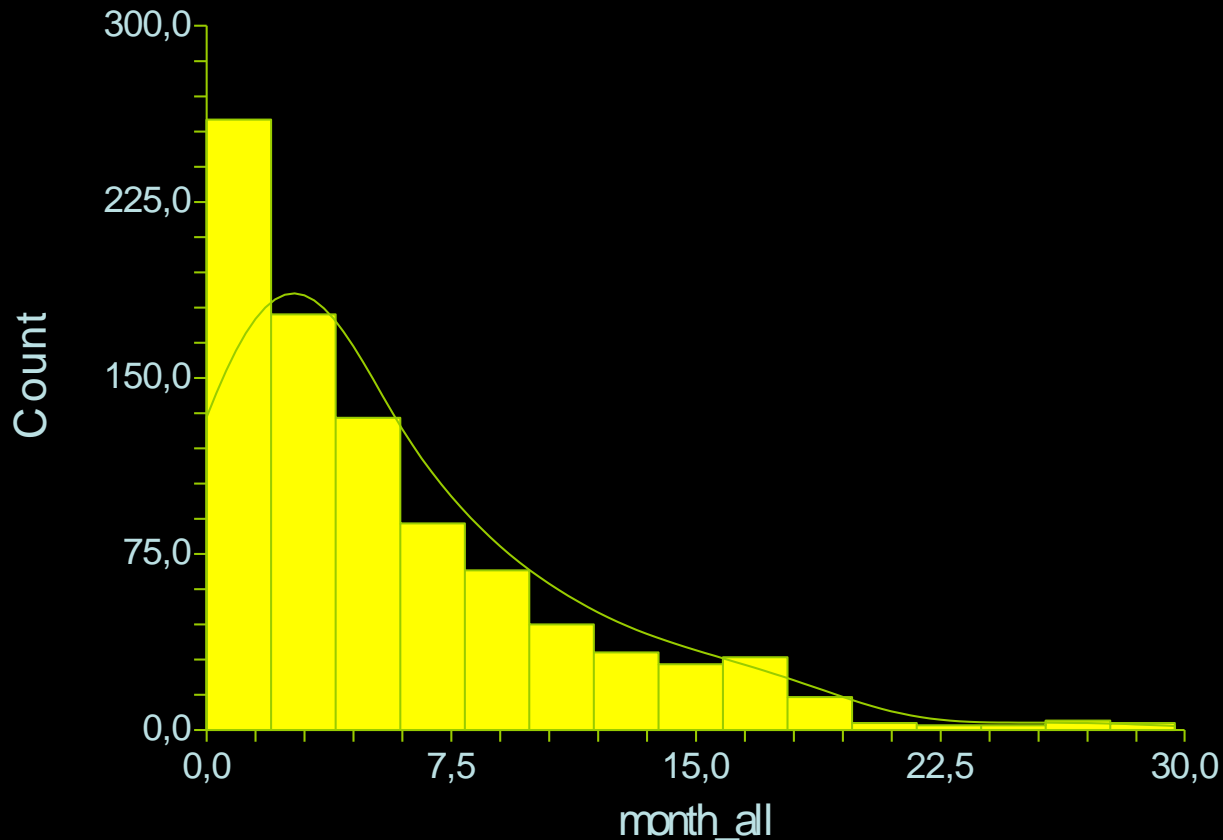


# Summary of adverse events, N=244



# Distribution of Adverse Events by Month

Histogram of month\_all



Approximately 65% of adverse events occurred in the first 6 months





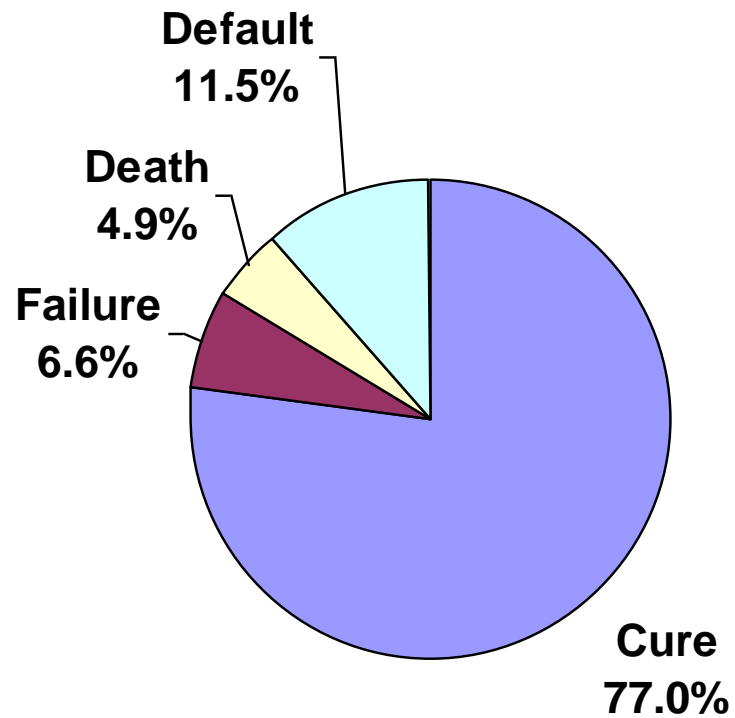
# SOLUTIONS

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- Improvement of facilities
- Transportation assistance for patients and health workers
- Choice of treatment site
- Food assistance for patients
- Aggressive management of adverse events
- Treatment at home for patients who are unable to ambulate or who live too far
- The use of enablers and incentives
- Social assistance for patients



TREATMENT OUTCOMES OF FIRST COHORT (N=244)  
TOMSK, RUSSIA



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**Partners In Health's PACT Project  
Boston, USA**









# Barriers faced by people receiving care for HIV

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- Substance use
- Mental Health
- Domestic Violence
- Chronic Illness challenges
- Poverty
- Homelessness and unstable housing
- Health disparities: access, utilization, and delivery of health care
- Isolation/ Stigma



# Prevention and Access to Care and Treatment (PACT) Project

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- Started in 1999 by Partners In Health
- Community health promoters improve access to and utilization of care for marginalized HIV patients
- Health promoters/peer prevention leaders work in partnership with health care providers and social service personnel to improve quality of care
  - SPECIALISTS IN MAKING SURE HEALTH DELIVERY HAPPENS



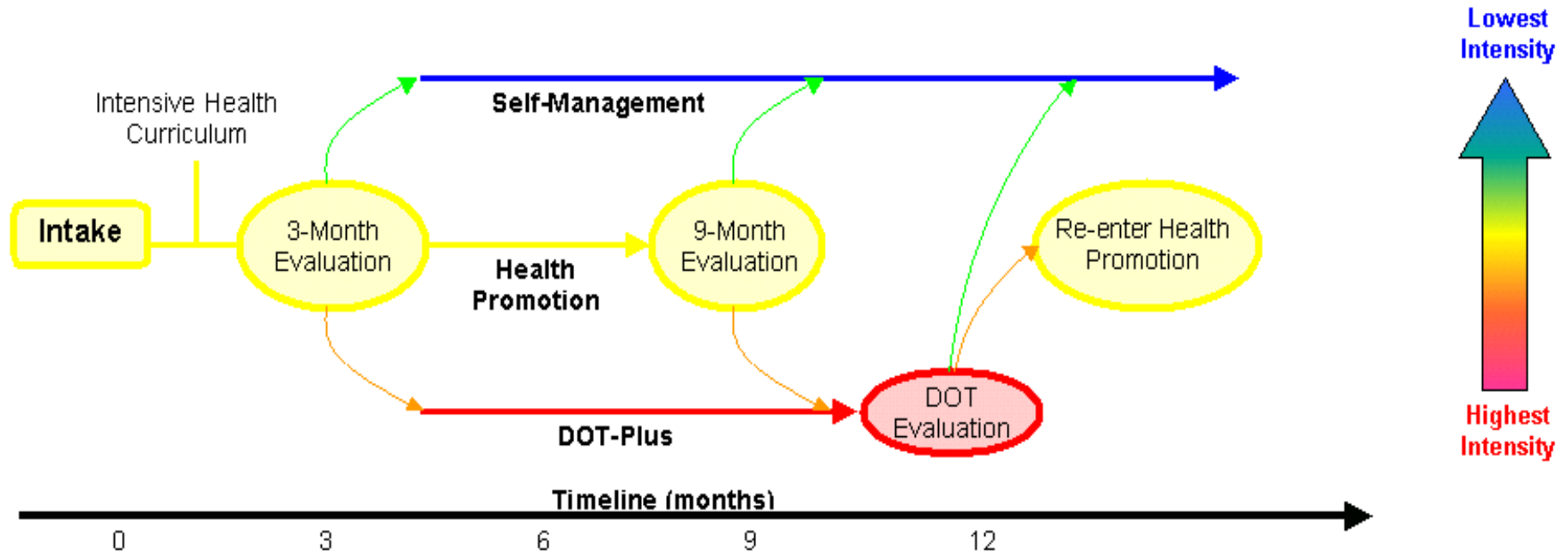


# Health Promotion Initiative

- **Low intensity:** Monitored self-administration with monthly health promotion
- **Moderate intensity:** Weekly health Promotion
- **High intensity:** DOT-Plus initiative



# Movement through PACT



DOT specialists visit patients in their homes 7 days a week, 365 days a year where needed



# Health Promoter Recruitment and Training

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- Health promoters are recruited from the affected community
- Some are past PACT participants
- They receive extensive curricular-based and field-based training at the onset
- 4-5 hours of weekly training and supervision



# How does PACT coordinate with clinical services?

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- Accompaniment to appointments
- Ongoing communication regarding patient progress and needs
- Multi-provider meetings
- Point of contact for patients







*PACT Health Promoter*

Medical Providers

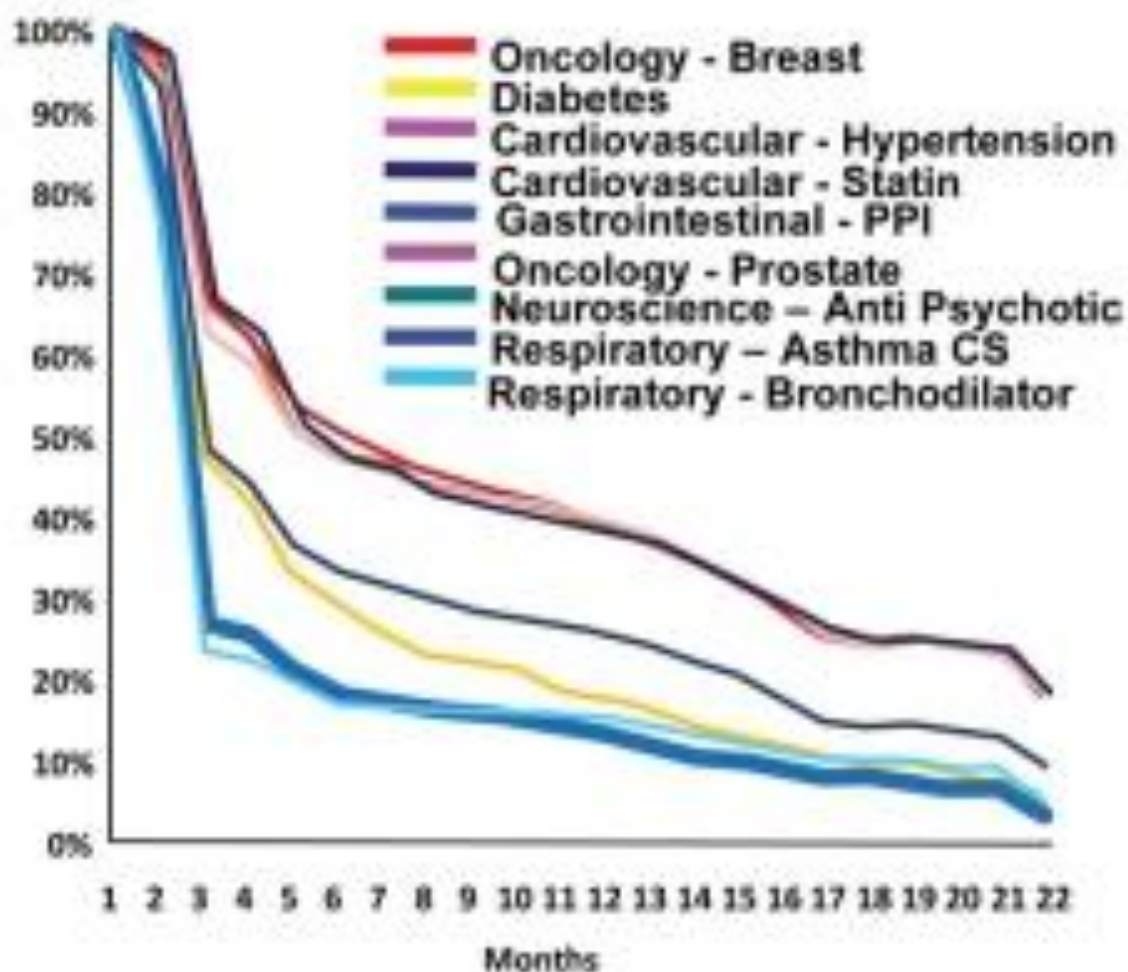
**PATIENT**

Social Service  
Providers



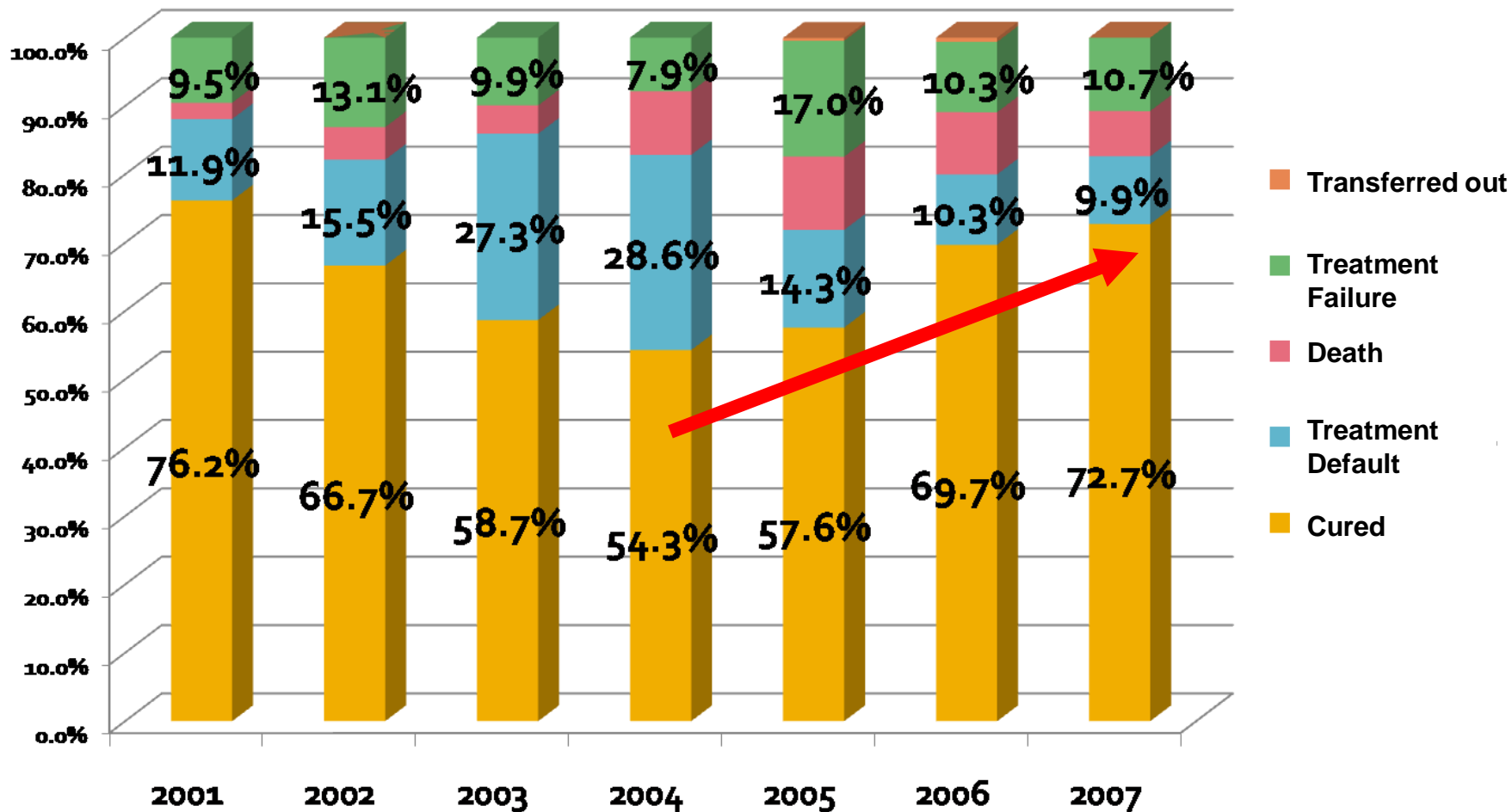
## **Can the TB care-delivery model inform a system for chronic care?**

# Compliance

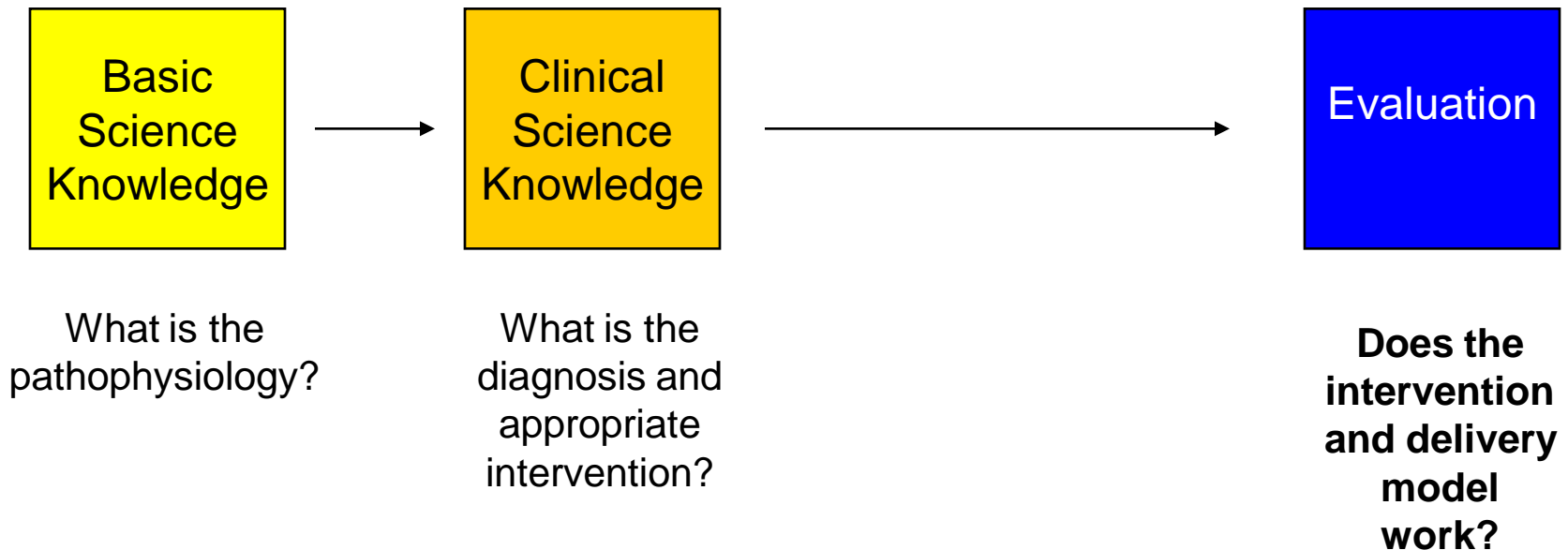


Cross Industry Data MDC Health

## Treatment Outcomes, Civilian Sector Tomsk Oblast, Russian Federation 2001-2007

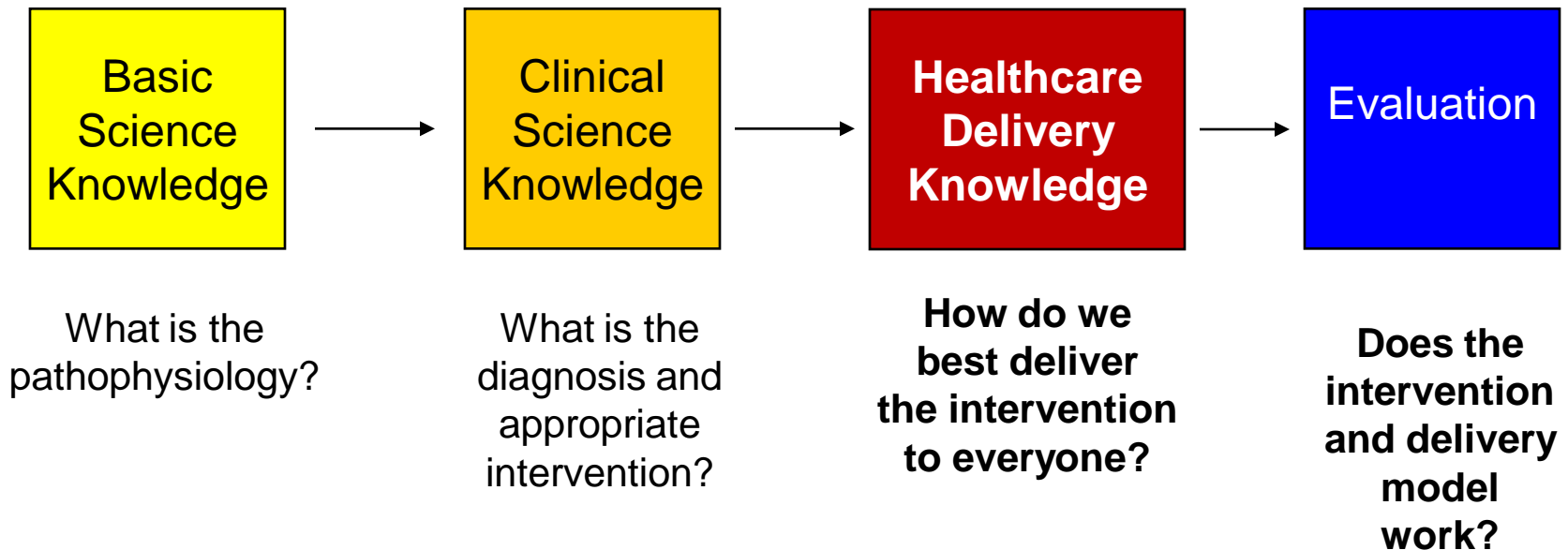


# What has been missing in our approach to health delivery?






# What has been missing in our approach to health delivery?



# A platform for 21<sup>st</sup> century health care delivery



Platform for  
community-based  
care delivery for  
TB and DR-TB

## Community-based health delivery platform

- Links the clinic with patients in the communities where they live
- Essential to stopping the spread of tuberculosis in families and communities

21<sup>st</sup> century  
platform for  
community-based  
care delivery for  
chronic disease

## Community-based health delivery platform

- Extends the reach of the clinic into the communities where patients live
- Essential to the delivery of care for chronic diseases in the 21<sup>st</sup> century
  - Diabetes
  - COPD
  - Heart Disease
  - Mental health

# DIABETES

- 450 million people have diabetes (2015); by 2030 this will have risen to 700 million
- The number of people with type 2 diabetes is increasing in every country
- 80% of people with diabetes live in low- and middle-income countries
- The greatest number of people with diabetes are between 40 to 59 years
- 225 million people (50%) with diabetes are undiagnosed
- Diabetes caused >5 million deaths in 2015
- Diabetes caused at least USD 500 billion dollars in healthcare expenditures in 2015; 12% of total healthcare expenditures in adults (20-79 years)
- Diabetes and its sequelae risk overwhelming health systems

# The cost of inaction in diabetes:



# Delivering care across a spectrum for chronic diseases



SMS

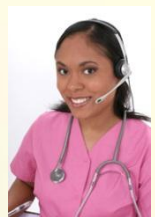


Internet portal

Light care

Heavy care

Phone call



Nurse home visit







**ZERO TB**  
Initiative

**Thank You**

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