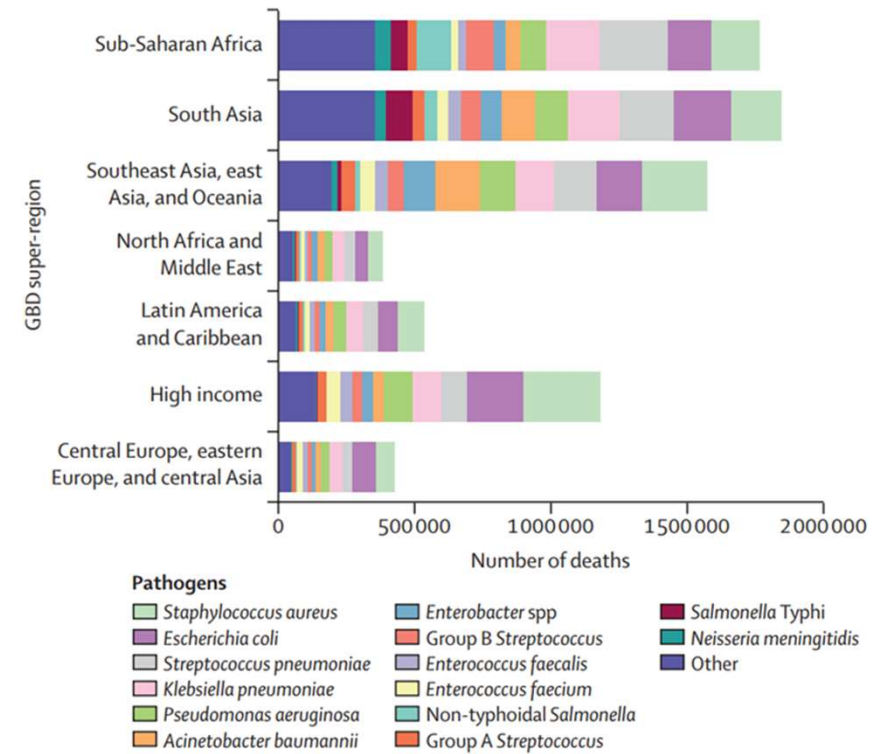
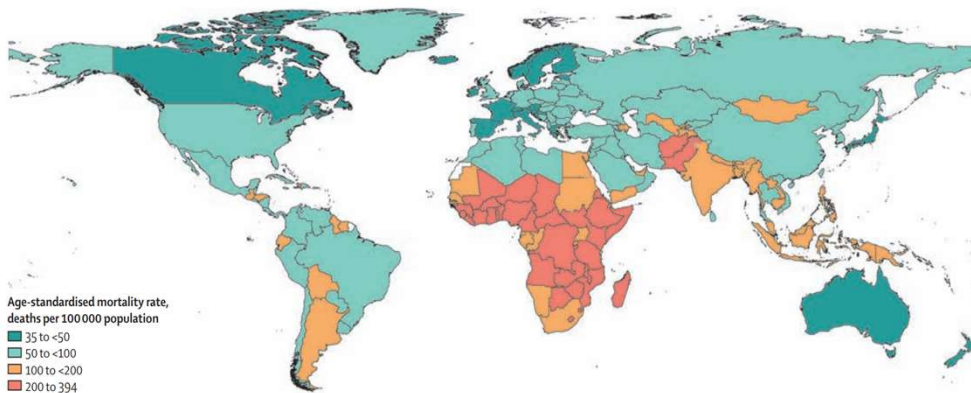


Accelerating global antibacterial innovation to combat AMR

Richard Alm

Global mortality caused by bacterial infections in 2019

- Estimated 7.7 million deaths
 - More than 1 in 8 of all global mortality
- Top 5 species accounted for 55% bacterial deaths
- Rates of mortality extremely unbalanced



Antibacterials are essential for life-saving medical procedures



Cancer

9.8M people chemotherapy/yr globally. Infection is the 2nd leading cause of death for people with cancer



Transplants

>170,000 globally/yr. Patients are vulnerable to infection from surgery & suppressed immune system



Dialysis

4.35M people with kidney disease receive dialysis or a kidney transplant, many require antibiotics



Sepsis

11M people die of sepsis/yr (1 in 5 global deaths). Without effective antibiotic treatment, sepsis can lead to tissue damage, organ failure and death



Surgery

Surgical site infections require antibiotics. Globally, 1 in 5 births are by cesarean section/yr



Disease

Chronic conditions increase risk of infection. Many meds lower ability to fight infection. >460M people with diabetes



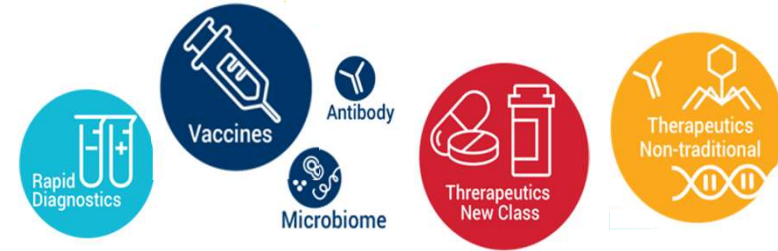
ANTIBIOTICS ARE THE FOUNDATION FOR GLOBAL HEALTH



A global non-profit partnership replenishing the clinical pipeline of innovative products to prevent, diagnose and treat the most dangerous drug-resistant bacterial infections



CARB-X now operating at global scale



- Accelerates translational R&D projects into **human clinical trials**
- Support development of **therapeutics, preventatives and diagnostics**
- Selects R&D projects through **public funding calls**
- Focus on **performance characteristics, pathogens and infectious syndromes with highest morbidity and mortality rates** attributable to/associated with AMR globally
- Requires **stewardship and access** obligations
- Provides **non-dilutive funding** plus a **multi-layered support** model
- Requires product developers to cover a **cost-share** to ensure sustainability



Targeting the Deadliest Global Threats

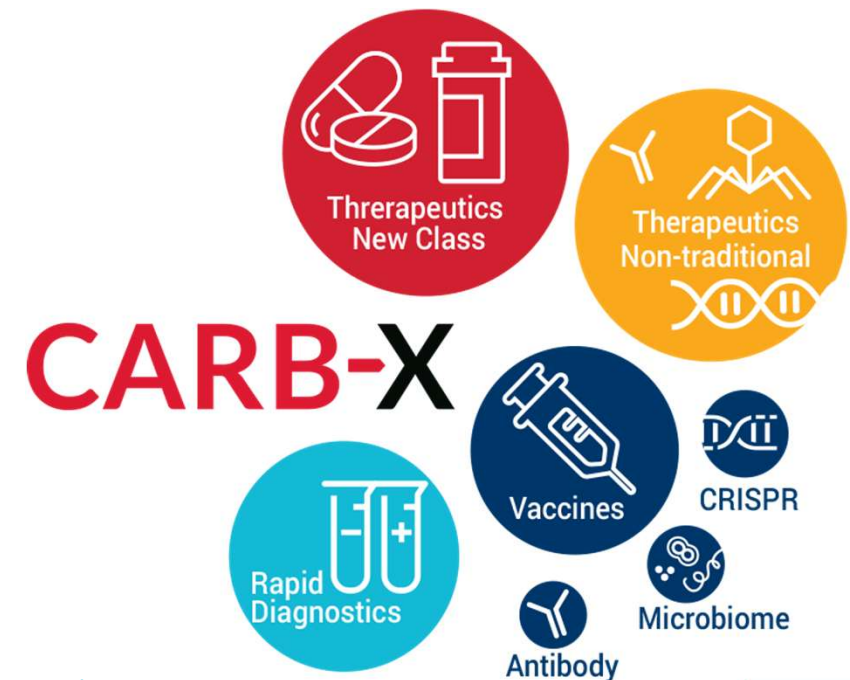
Global deaths attributable to (dark grey) and associated with (light grey) drug-resistant bacterial infections, by syndrome, 2019



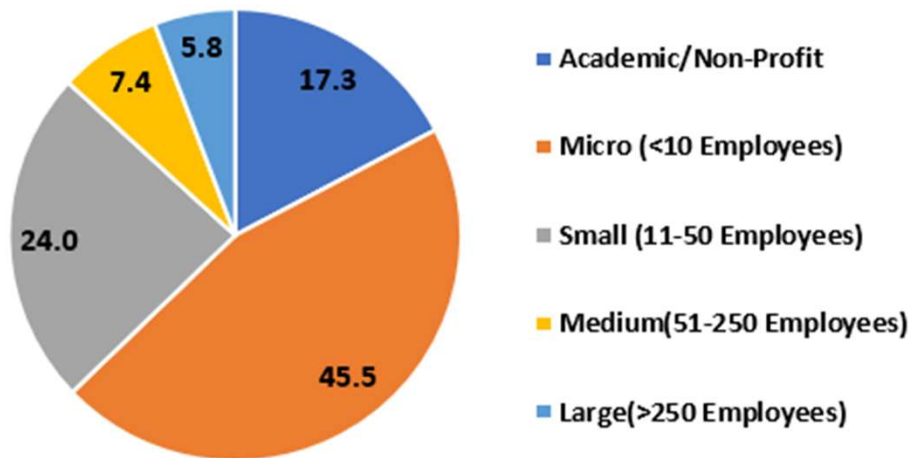
CARB-X supports a diversity of innovative approaches

*Profile of the **42** projects progressing in current portfolio*

- **15** therapeutics
 - 8 non-traditional projects (e.g. proteins, peptides, anti-virulence, engineered bacteriophage)
 - 2 therapeutics post-IND
- **16** preventatives
 - 11 vaccines (covering 6 different pathogens)
 - 1 microbiome-modifying LBP
 - 1 CRISPR-phage in clinical studies
 - 2 antibody; 1 slow-release formulated peptide
- **11** rapid diagnostics
 - 5 for BSI (4 direct from whole blood)
 - 4 for STI
 - 2 novel-specimen LRTI



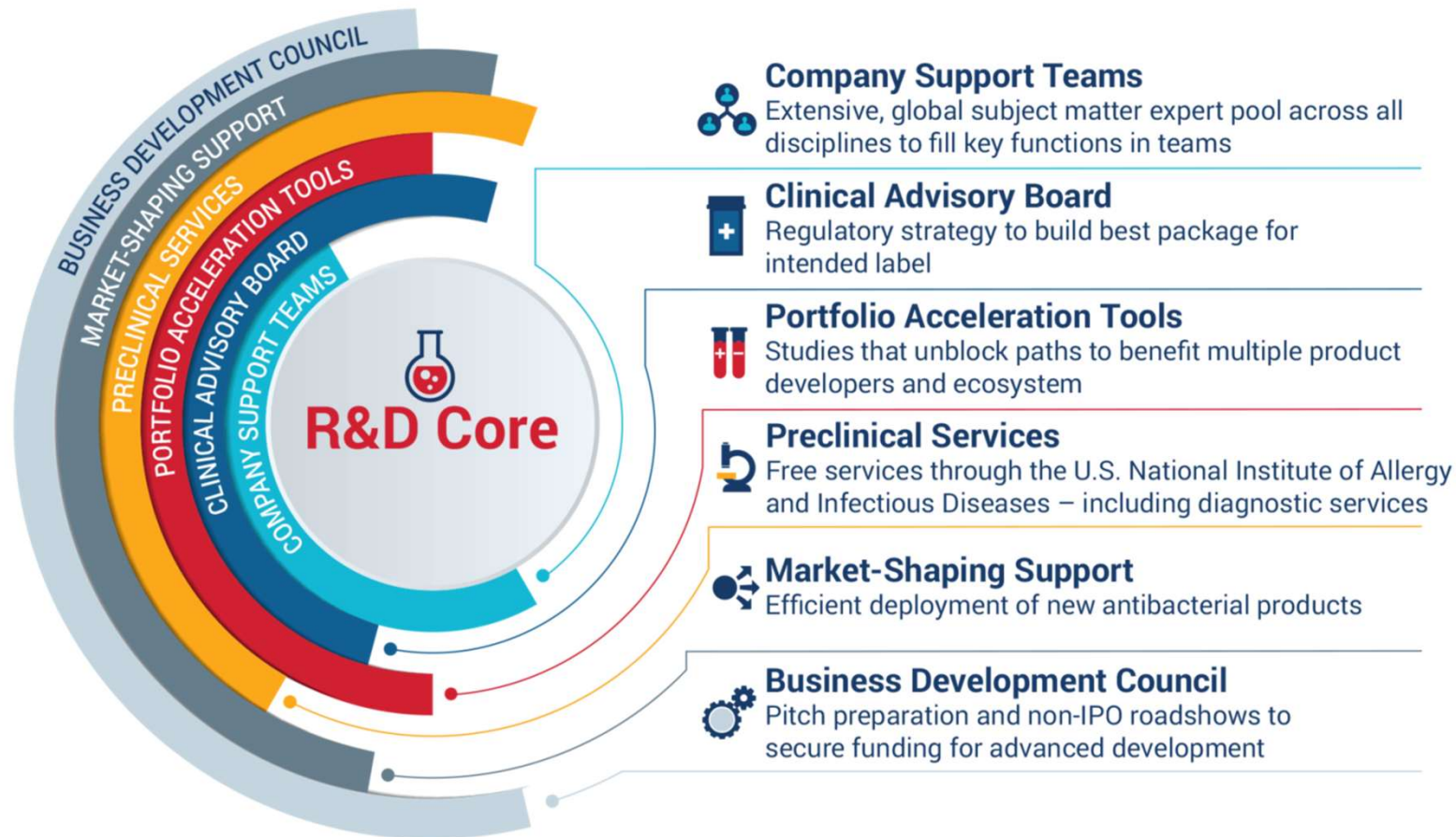
CARB-X is supporting a fragile AMR ecosystem



Source: CARB-X EOI applications (2016 – 2024)
(n = 1733)

- **Almost 1 in 2 applications are from companies with <10 employees**
 - 85.6% companies are private
 - Large companies not solely AMR focused
- **Significant attrition observed**
 - Typically have single asset/small portfolios
 - Many (37.1%) of early company applicants (2016-2019) no longer exist
- **Small groups carry risk around less breadth of discipline expertise**
 - CARB-X support teams include technical expertise

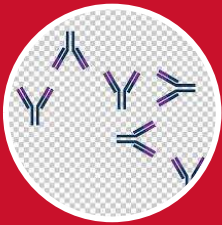
A Comprehensive and Layered Support Model



Portfolio Acceleration Tools



early-evaluation
of pre-existing
resistance



early-evaluation
of antigenic
variability risk



consistent
assessment of
key safety risk



models of
efficacy with
back-translation



sample
collection
optimization
and availability



clinical-trial
design

Many programs experience the same hurdles – let's lower them

Global cross-species
susceptibility panels

Customized
bioinformatic analysis

Comparative
nephrotoxicity
studies

Lung model
standardization and
validation

Improved methods
for diagnostic
development and
sample availability

Superiority-design
workshops

2025 Funding Themes



Therapeutics for infections caused by Gram-negative pathogens

- Direct-acting small molecules
- IV/oral preferred
- Eligible TPPs: LRTI, UTI, diarrheal diseases



Diagnostics for typhoid fever for low-resource settings

- To support diagnosis of acute typhoid fever
- Primary healthcare level setting preferred
- Ease of use, high performance, and affordability prioritized

Key dates for cycle 1

- EOI portal live: 16 April 2025 @ 10:00 ET
- EOI submission deadline: 30 April 2025 by 23:59:59 ET

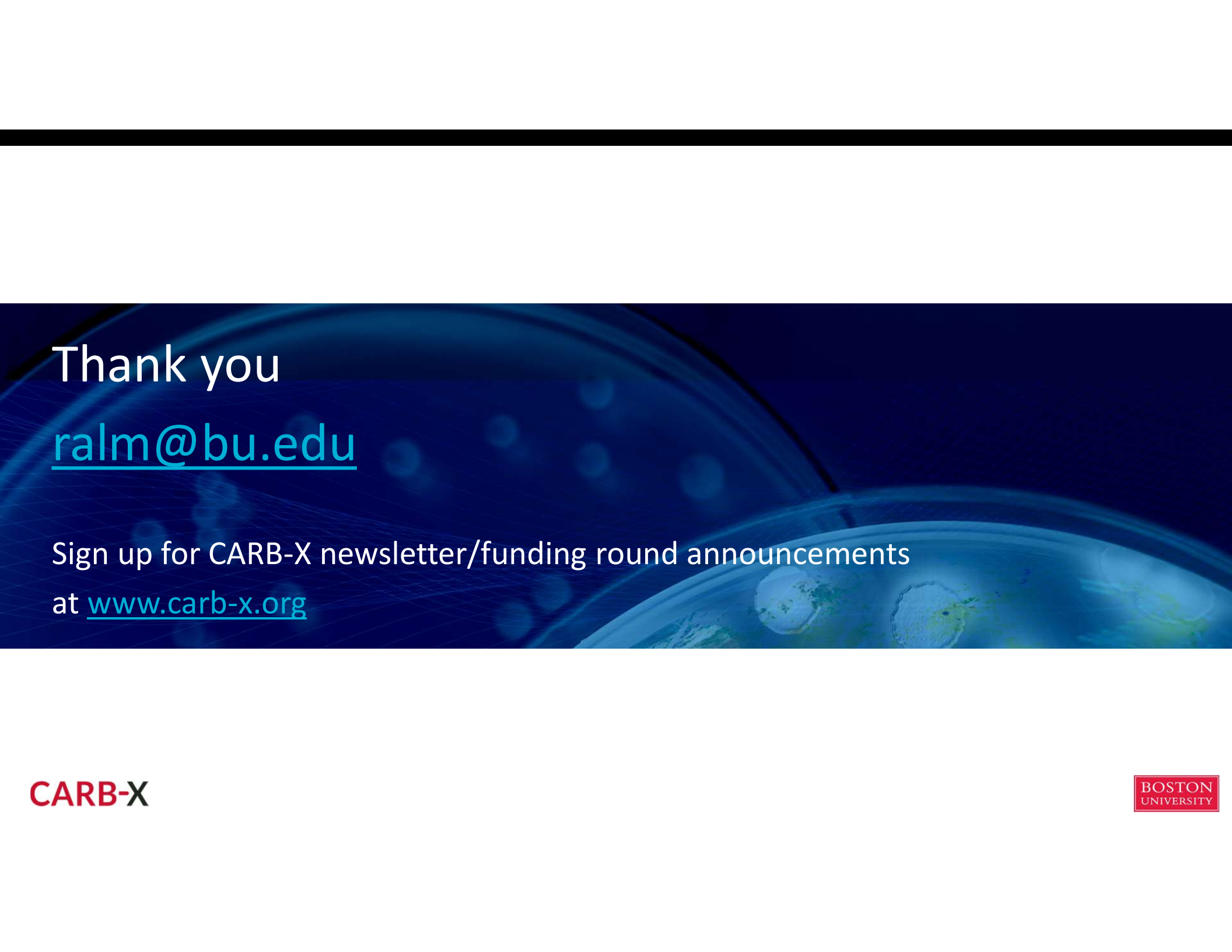
Summary



- Significant need for push incentives, more can be done as demand for funding is still extremely strong – CARB-X just one link in the chain.
 - Critical phase of development is significantly underfunded
 - Also need pull incentives to change the way antibiotics are reimbursed
- Small groups performing majority of the work increase the fragility of the pipeline and AMR ecosystem.
- Global investments in product developers with stewardship and access obligations required.
- Funding calls target focused areas of greatest global unmet medical needs.
- Model of additional wrap-around support is well-received and multiple Portfolio Acceleration Tools used to provide additional benefit to funded groups and ecosystem.

Acknowledgements





Thank you
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Sign up for CARB-X newsletter/funding round announcements
at www.carb-x.org