

Rotavirus vaccine efficacy against antibiotic use and microbiome antimicrobial resistance gene carriage

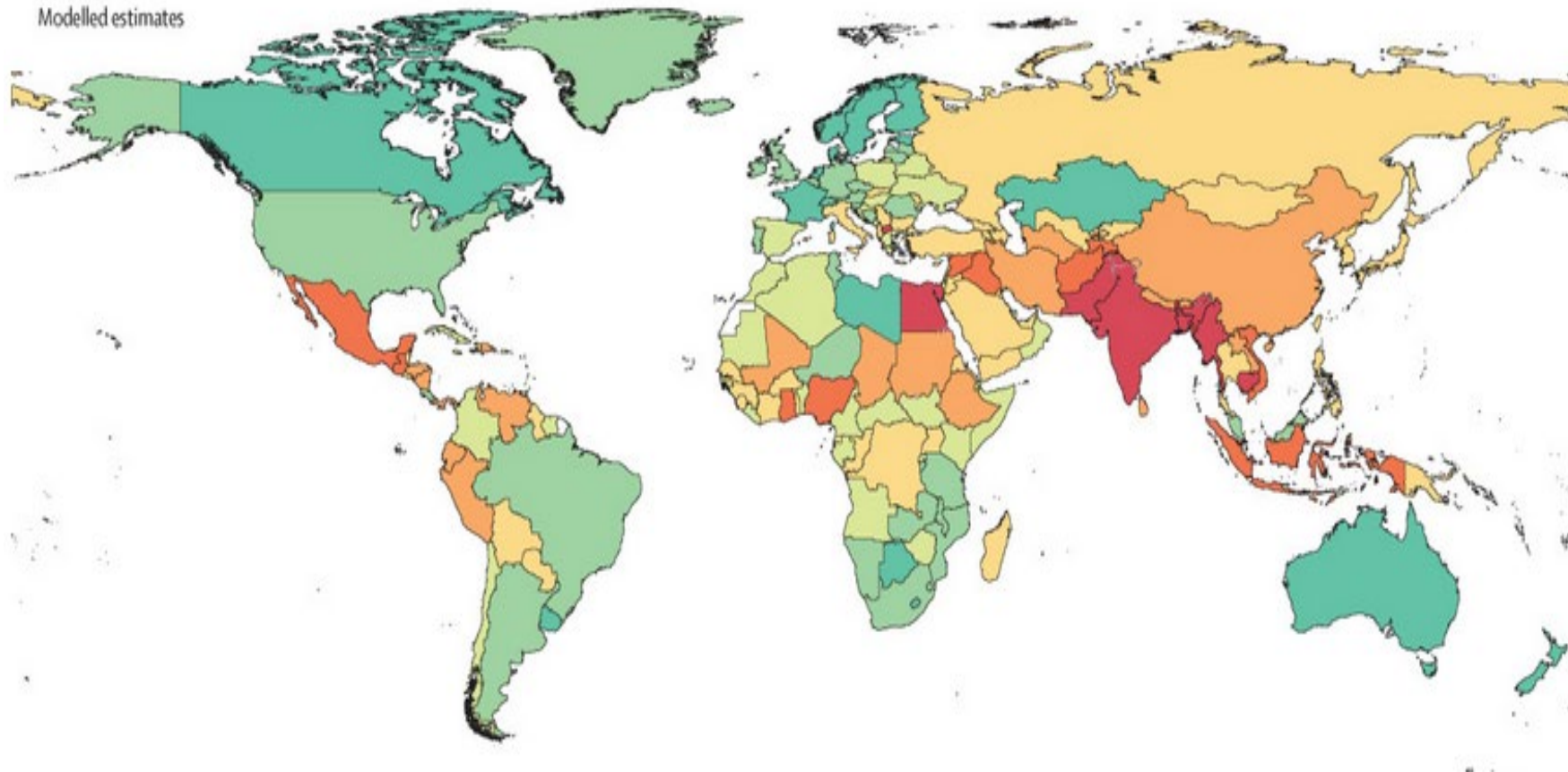
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Gonçalo Piedade



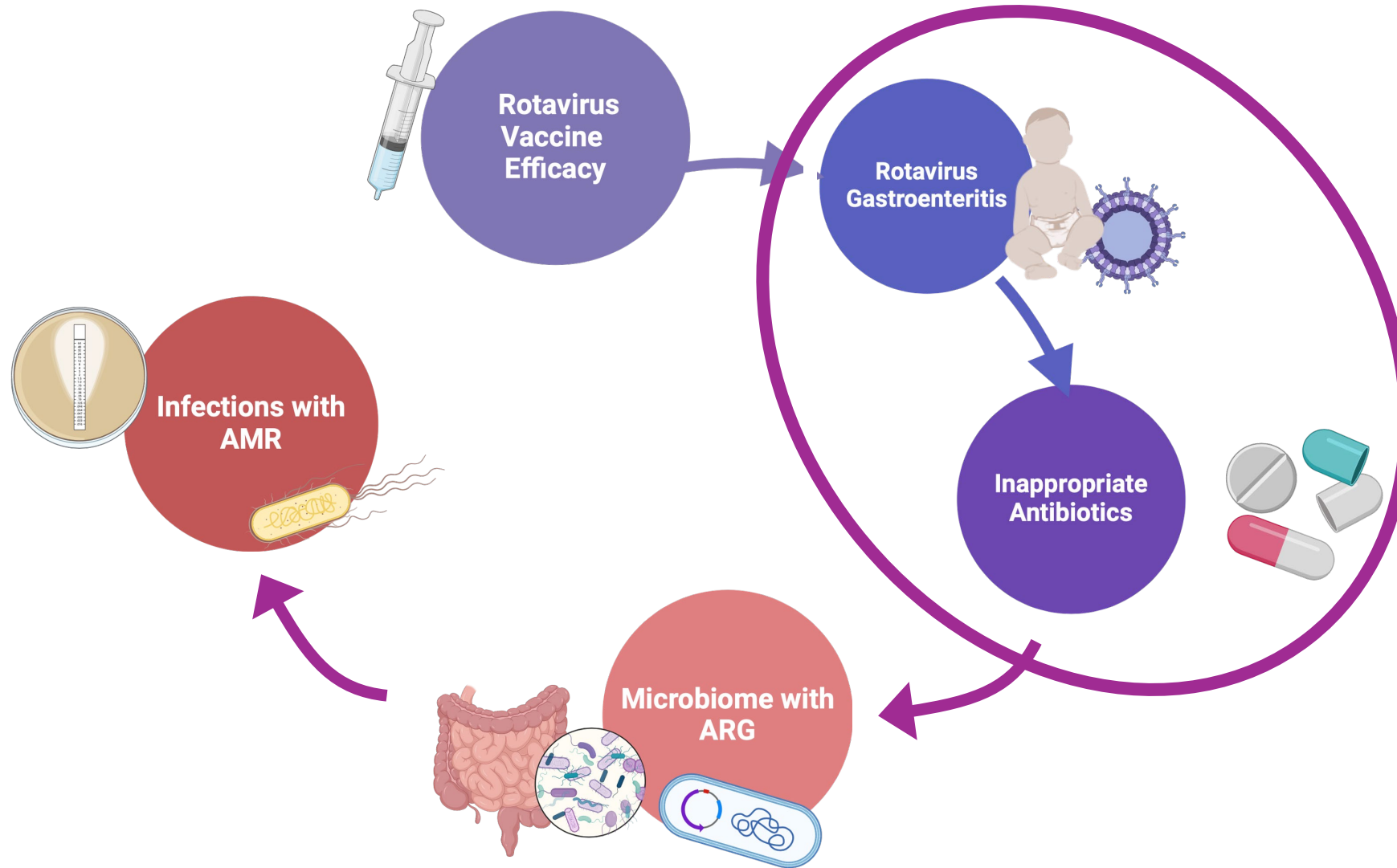
Charlie Luchen

Antimicrobial resistance – A rising global health issue



Modelled estimates of percentage of fluoroquinolone-resistant pathogenic *E. coli*

ROTABIOTIC – Preventing AMR with vaccines



Study design

Phase III RCT
P2-VP8
subunit NRRV
Zambia,
Ghana, Malawi

3500 healthy
infants

Rotabiotic trial
cohort
1285 infants
Zambia, Ghana

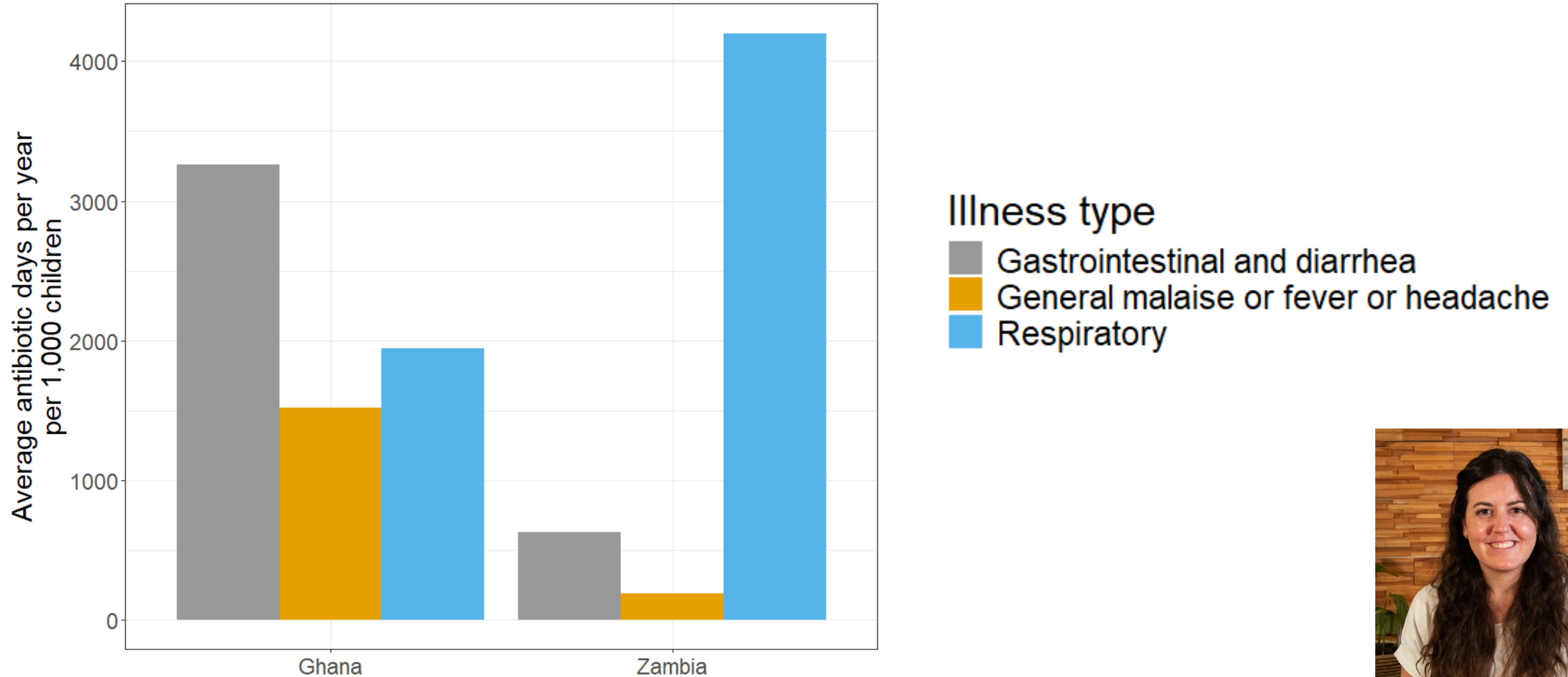
Weekly illness and
medicine cabinet
review
>50,000 visits

Fecal samples
6, 10, 14 weeks and
6, 12 and 18 months

6 weeks

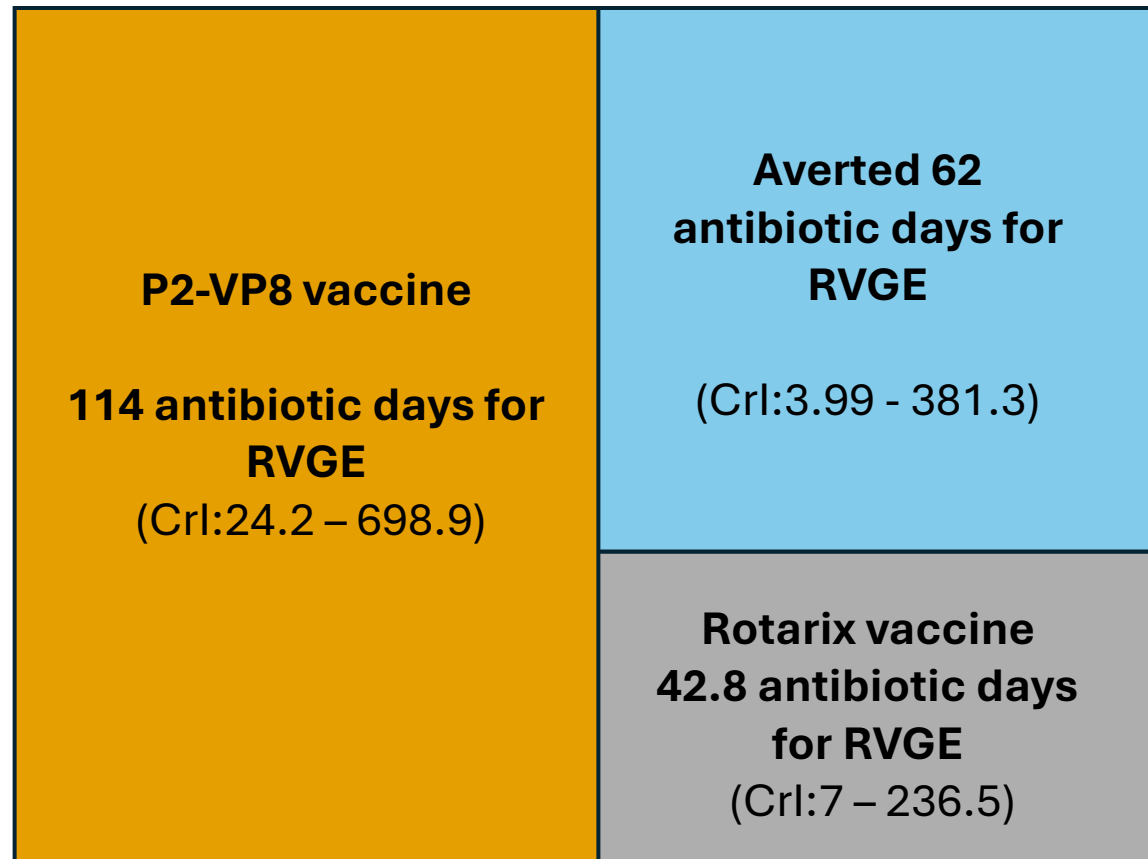
18 months*

Antibiotic use is common and Gastrointestinal illness is a driver of antibiotic use



Kelly Herdzyk

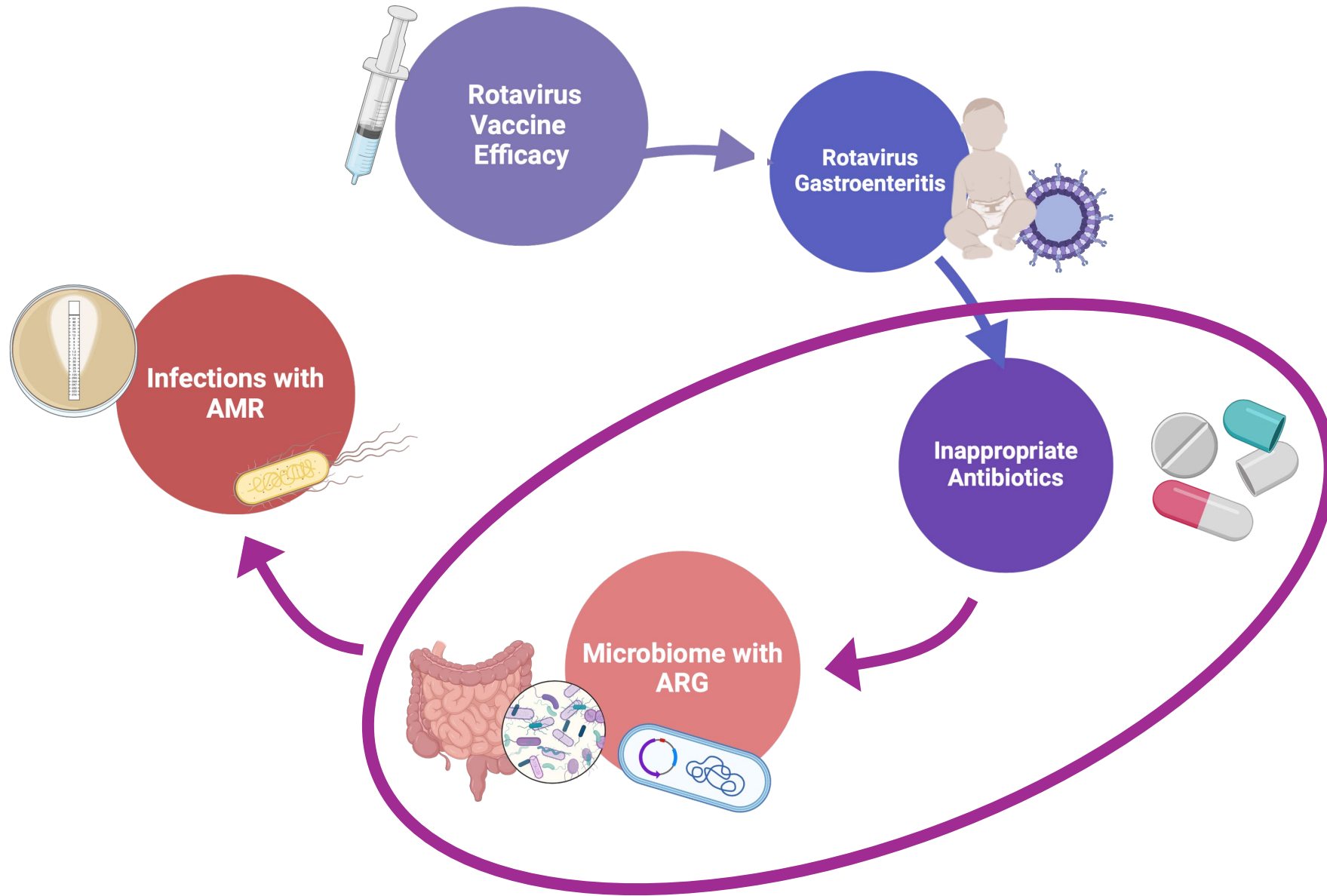
Rotarix prevents inappropriate antibiotic use



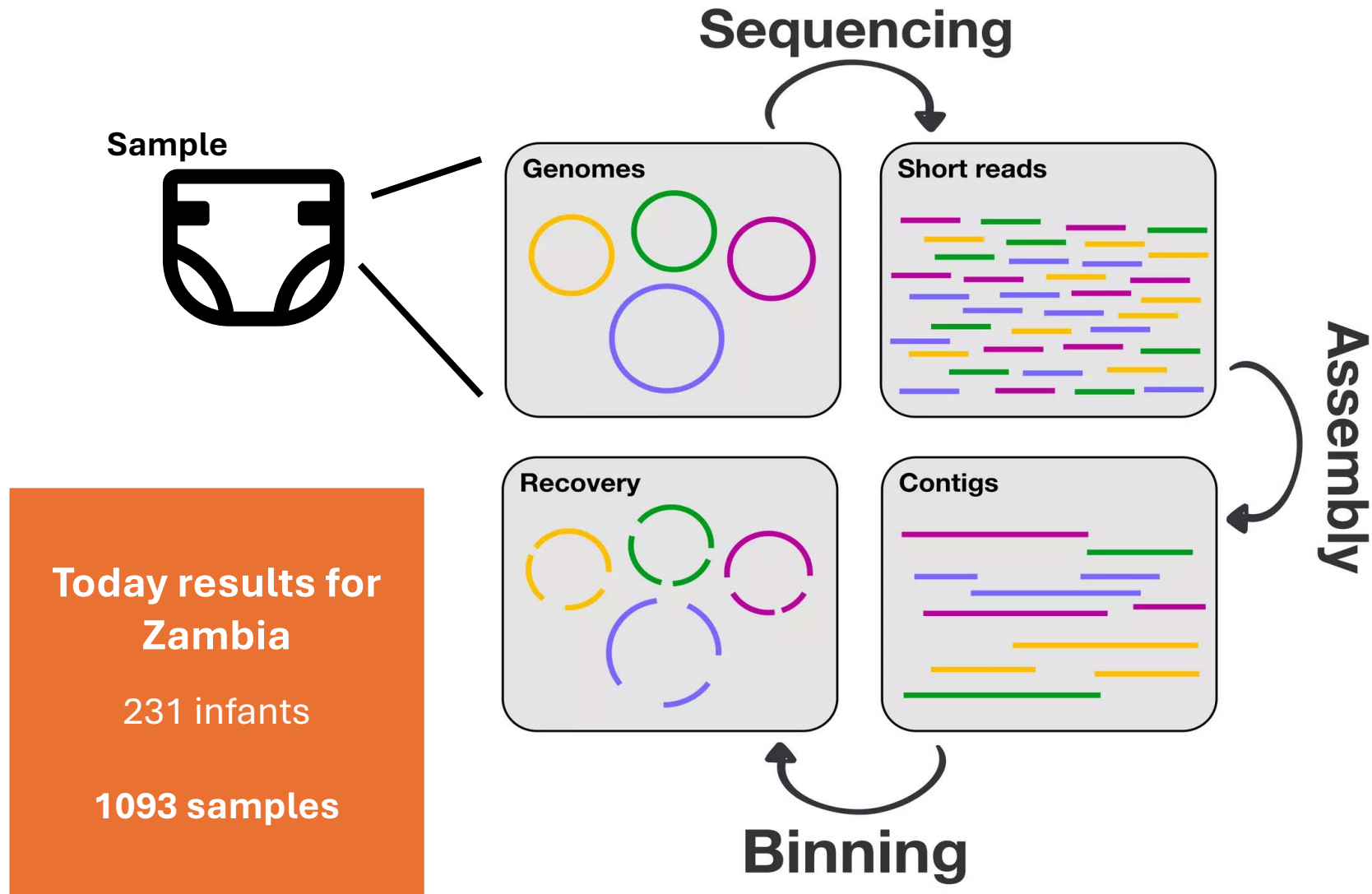
Units per 100,000 children per year



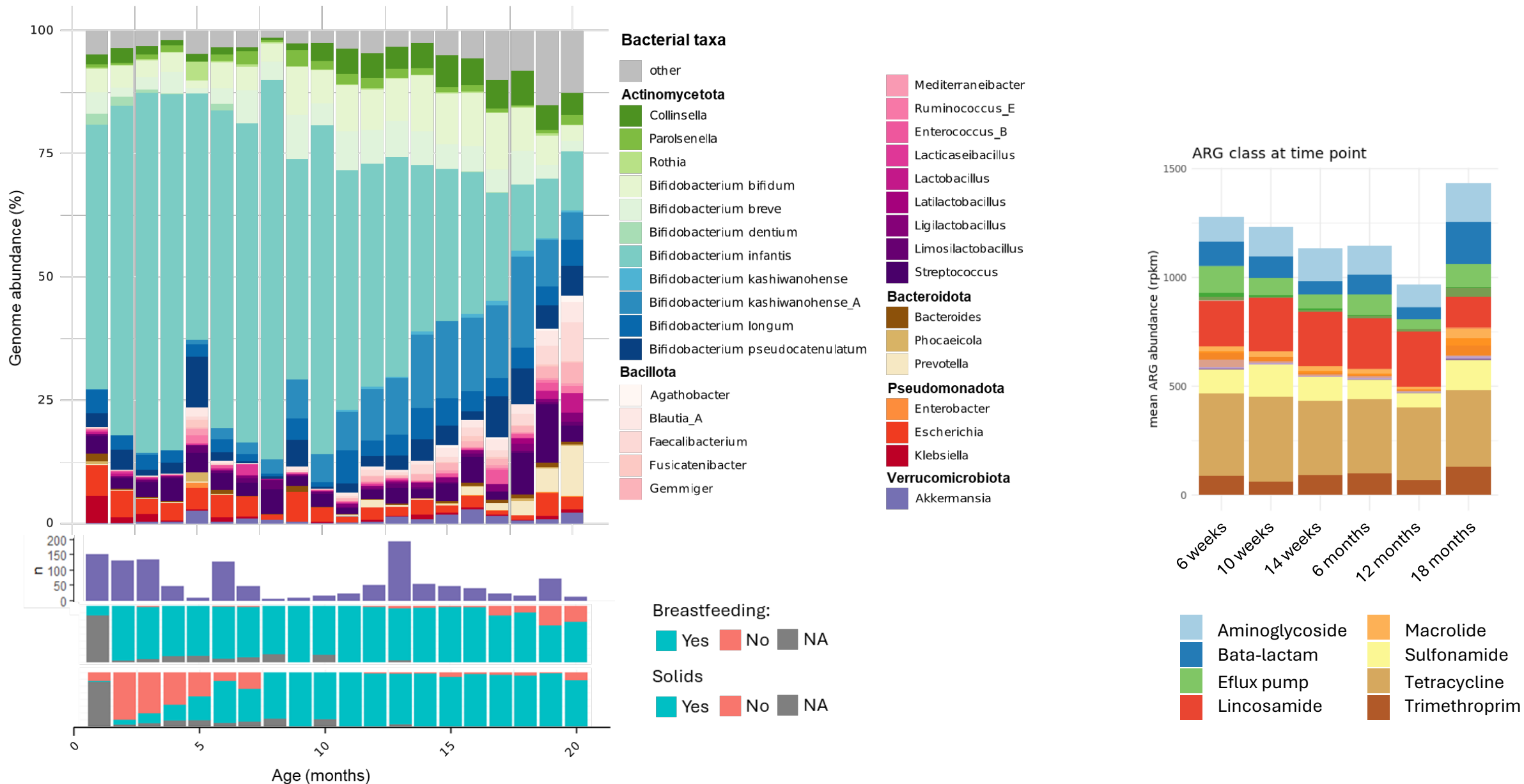
Kelly Herdzik



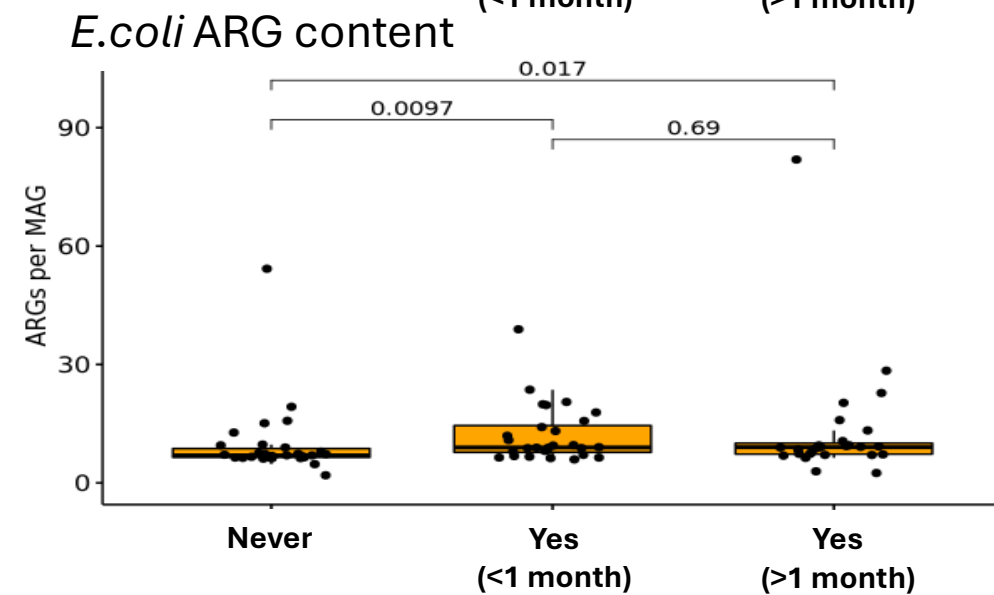
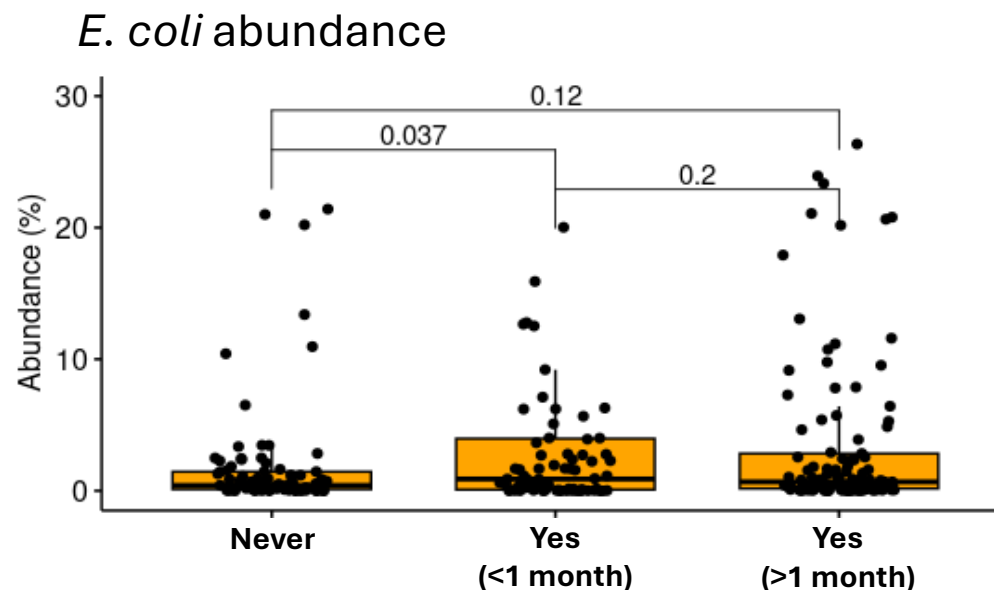
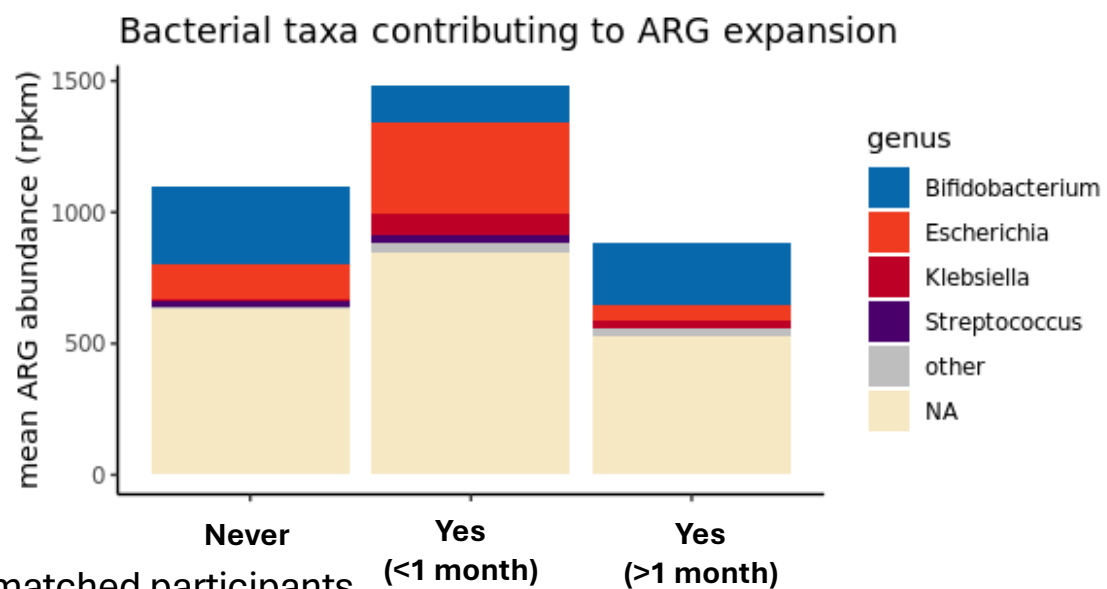
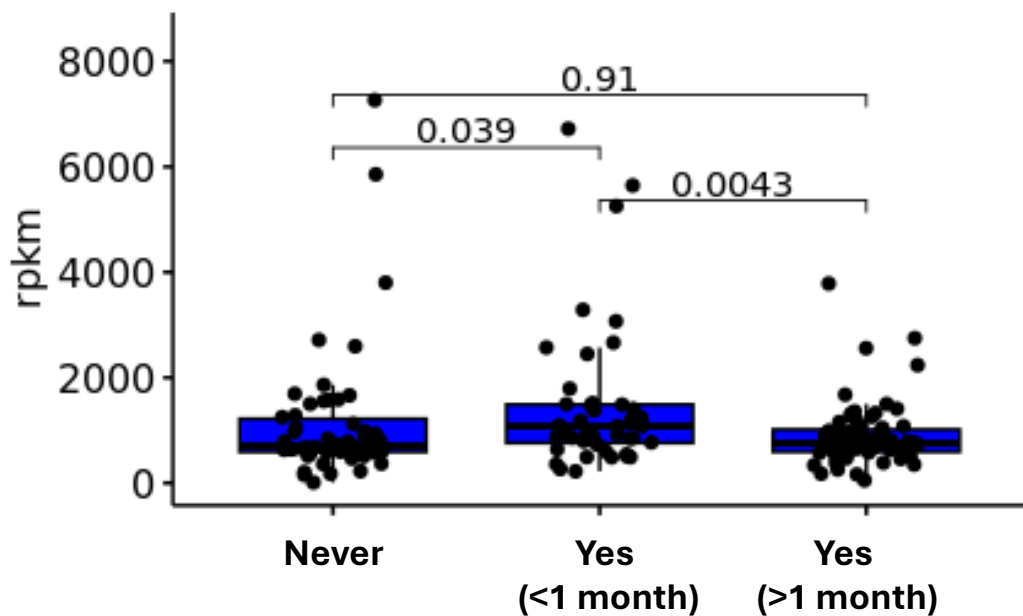
The microbiome and AMR gene characterization



A large-scale metagenomics longitudinal dataset

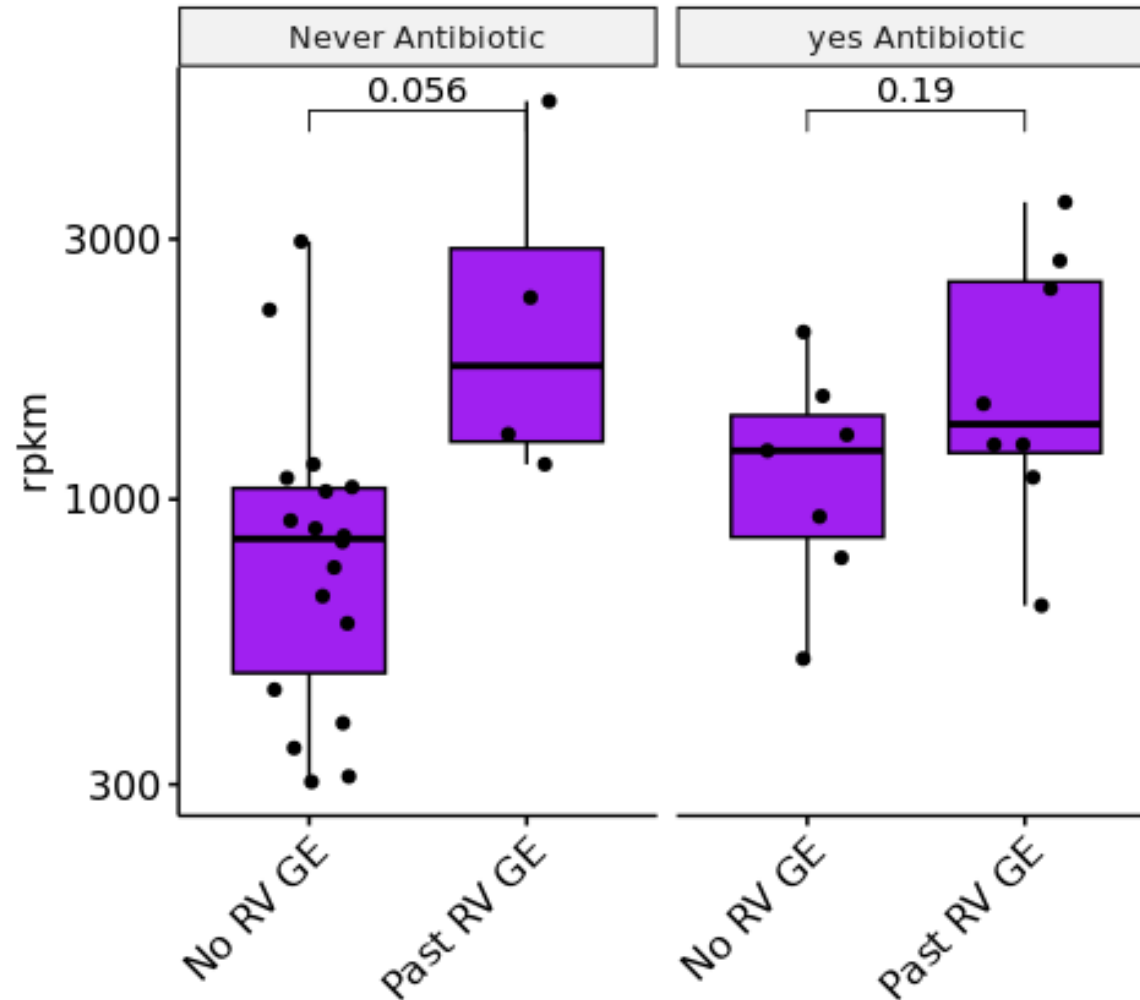


Antibiotics drive ARG carriage



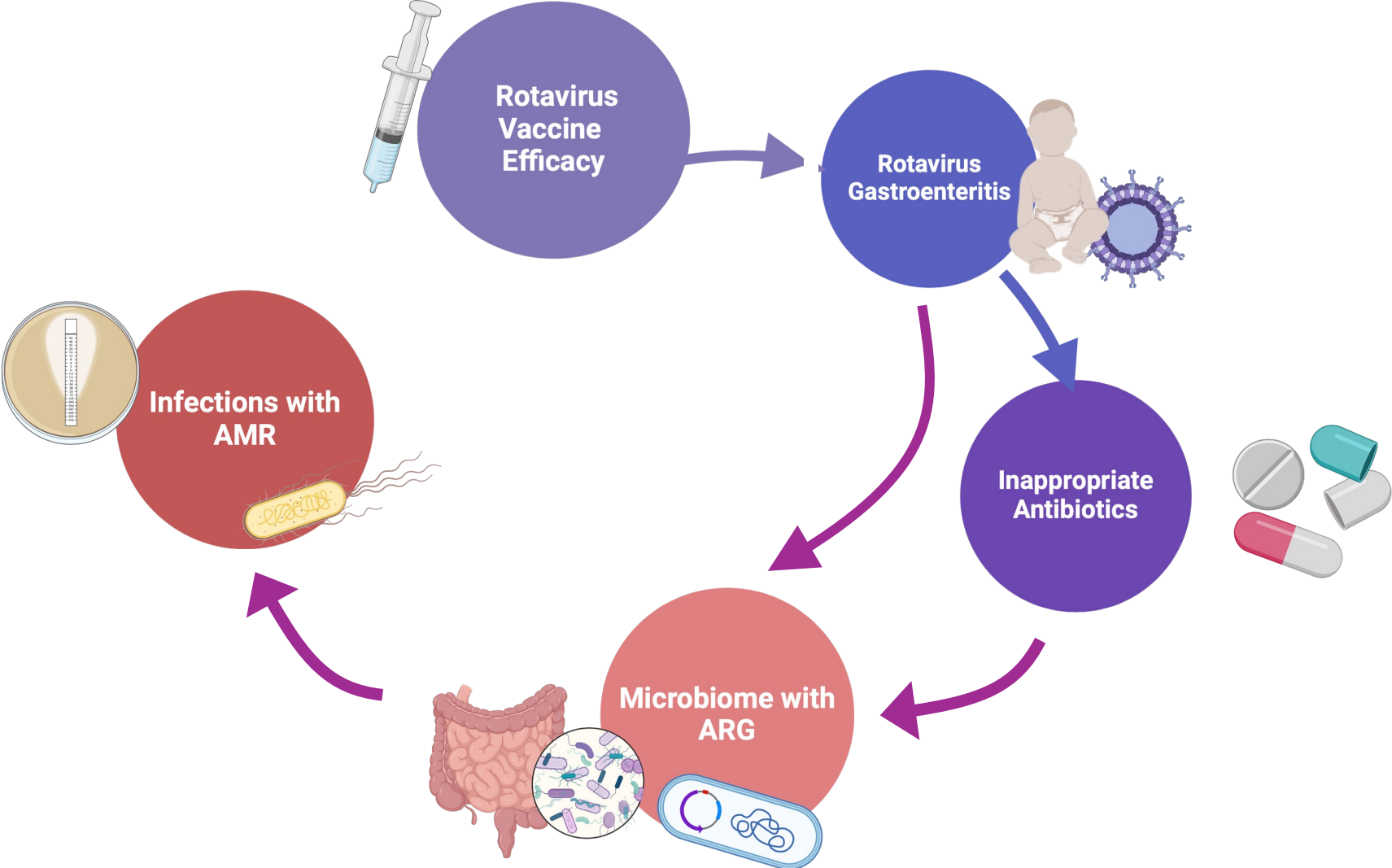
*Age matched participants

RV GE drives ARG carriage



Rotarix vaccine averts 41 866 ARG RPKM per 1000 children per year (90% CrI: 2185 - 134302)

Take home



Rotabiotic team:

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- **Centre for Infectious Disease Research, Zambia**
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Paul Somwe, Charlie C. Luchen
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Dr. Stan Cryz, Dr. Alan Fix, Dr. Tushar Tewari, Dr. Joanne Csedrik
- **AIGHD and Amsterdam UMC, Netherlands**
Dr. Vanessa Harris, Dr. Daniel Mende, Dr. Logan Stuck, Gonçalo Piedade
Dr. Kelly Herdzik, Charlie C. Luchen, Prof. Constance Schultsz

Funded by:

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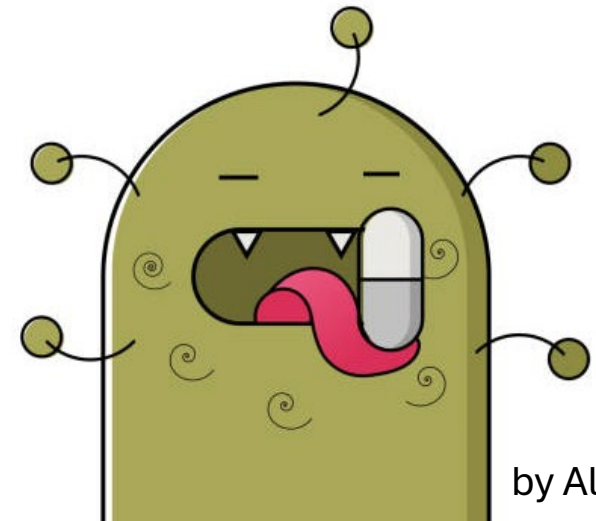


**Thank Sabin institute
for travel grant**

Harris and Mende teams



Thank you!



by Alkov (cc)