

WP3: Infections and antimicrobial resistance

Kathy Hughes & Harry Ahmed



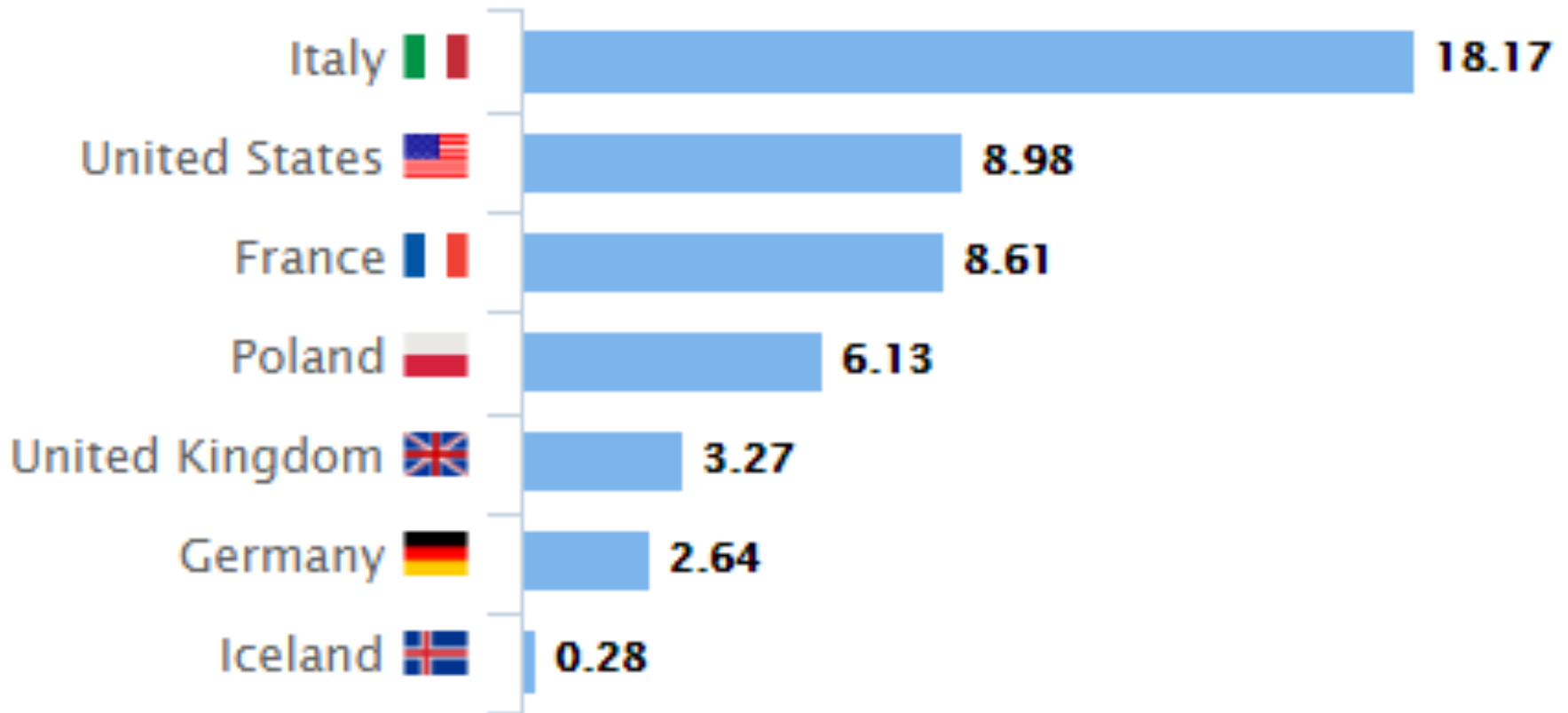
ABOUT OUR





Predicted deaths due to antimicrobial resistance 2015-2050

AMR mortality rate per 100,000 persons

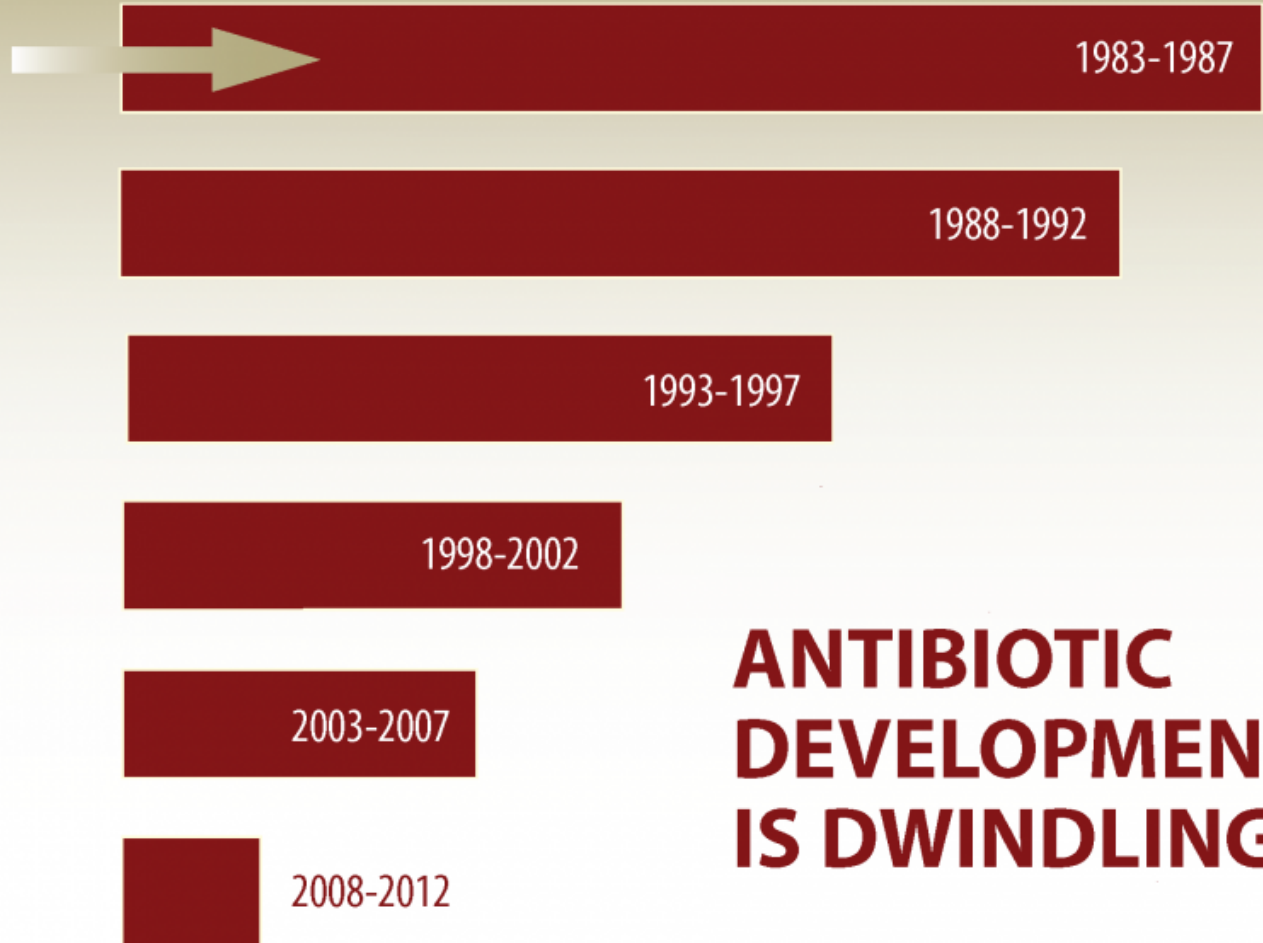


Source: OECD (2018), Stemming the Superbug Tide: Just A Few Dollars More

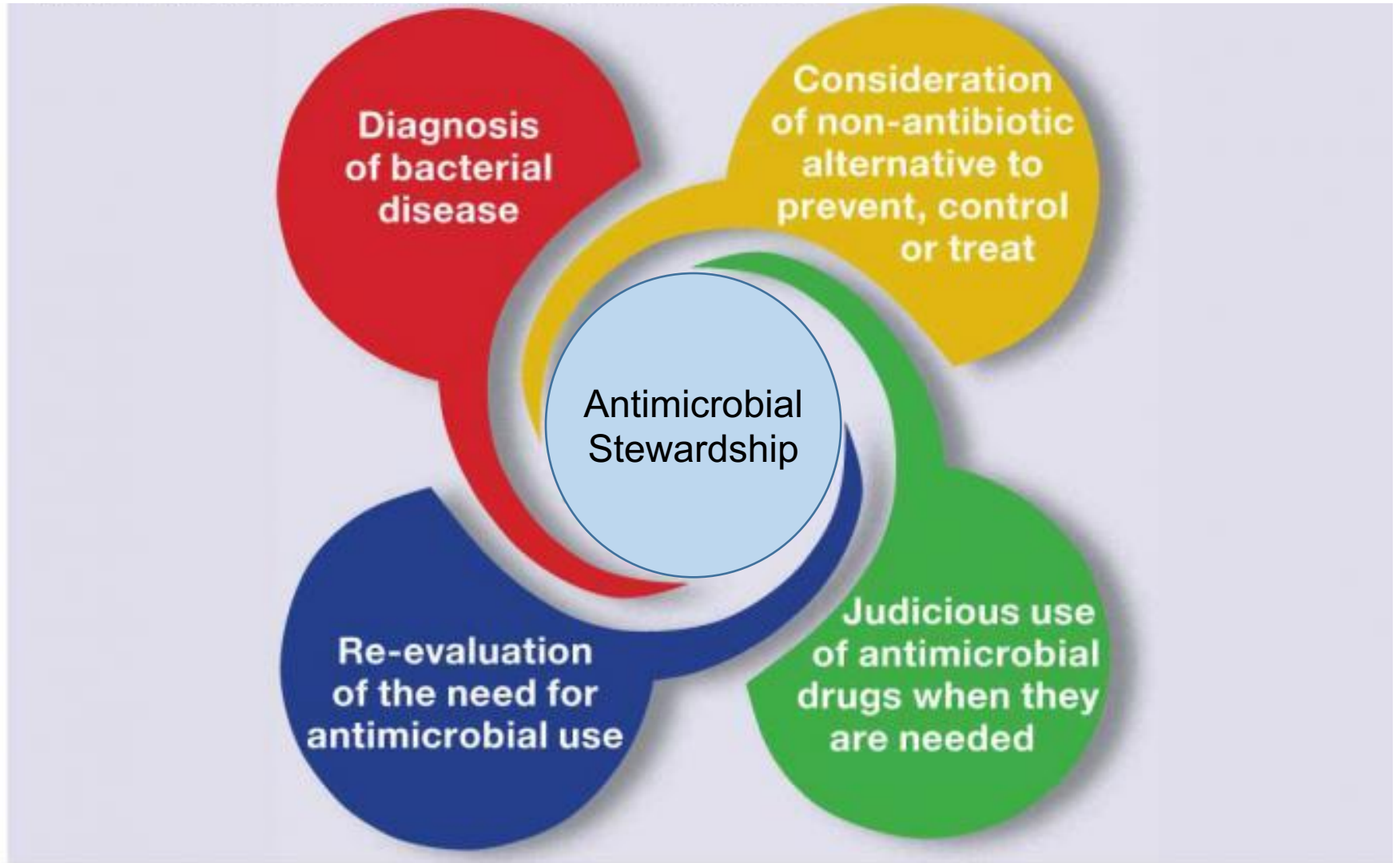


Total Number of New Antibacterial Agents

0 2 4 6 8 10 12 14 16



**ANTIBIOTIC
DEVELOPMENT
IS DWINDLING**



Our research aims to improve **diagnosis and treatment of infections** and **optimise antibiotic use**

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**Molecular
epidemiology &
basic science**

**Observational
epidemiology &
data science**

**Clinical
Trials**

Our research aims to improve diagnosis and treatment of infections and optimise antibiotic use



Public Health
England



PRIME

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Southampton



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**Molecular
epidemiology &
basic science**

EURICA

Bacterial genomic
analysis for diagnosis
UTI in children

MISSING LINK

Bacterial genomics &
immune markers for
diagnosis UTI in adults

**Observational
epidemiology &
data science**

LUCI study

Long term outcomes
following UTI in
children

**UTI in older
adults**

Antibiotics in older
adults with UTI

**Clinical
Trials**

PACE

CRP in COPD
exacerbations

POETIC

POCT diagnosis UTI
in women

OSTRICH

steroids for ear
infections

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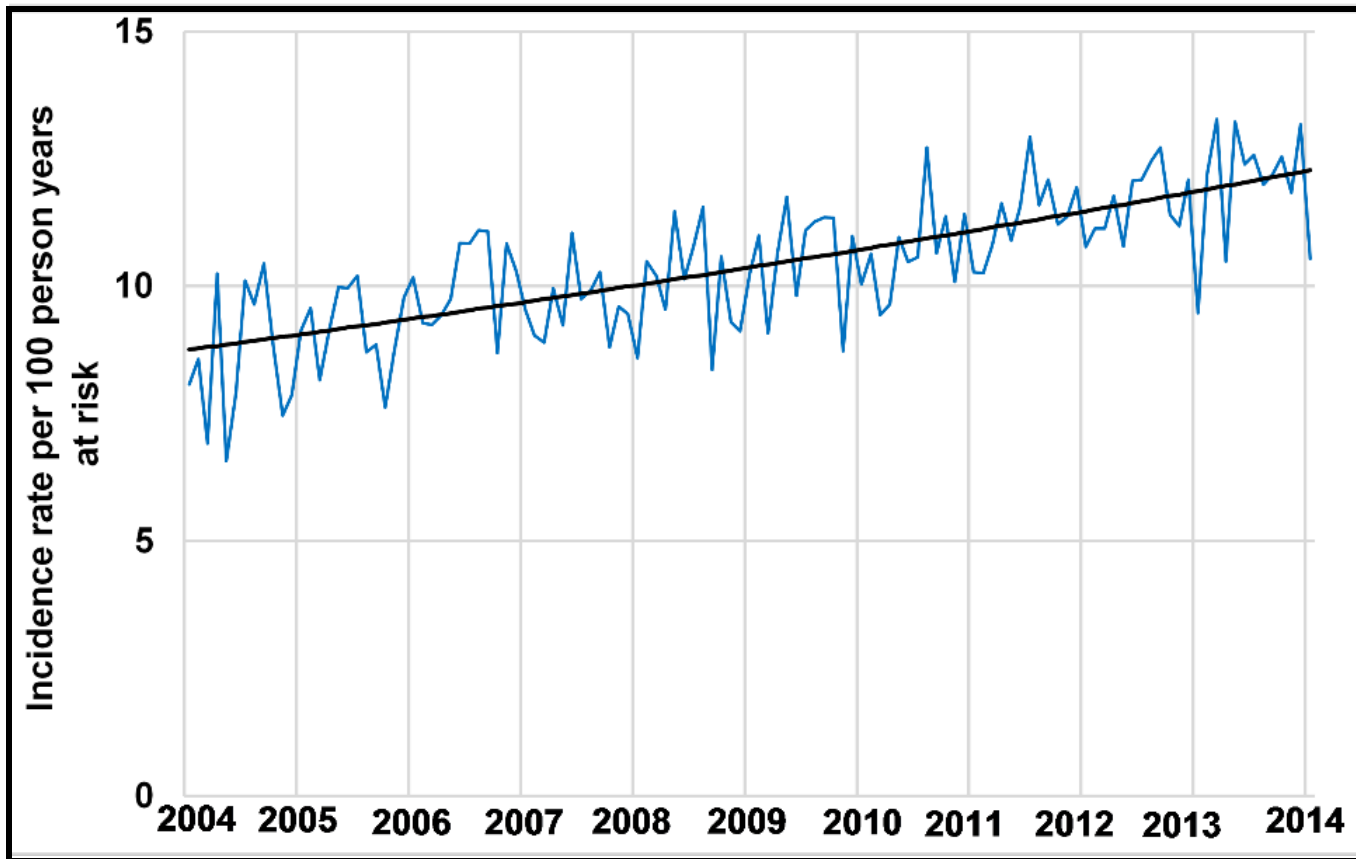


Observational
epidemiology &
data science

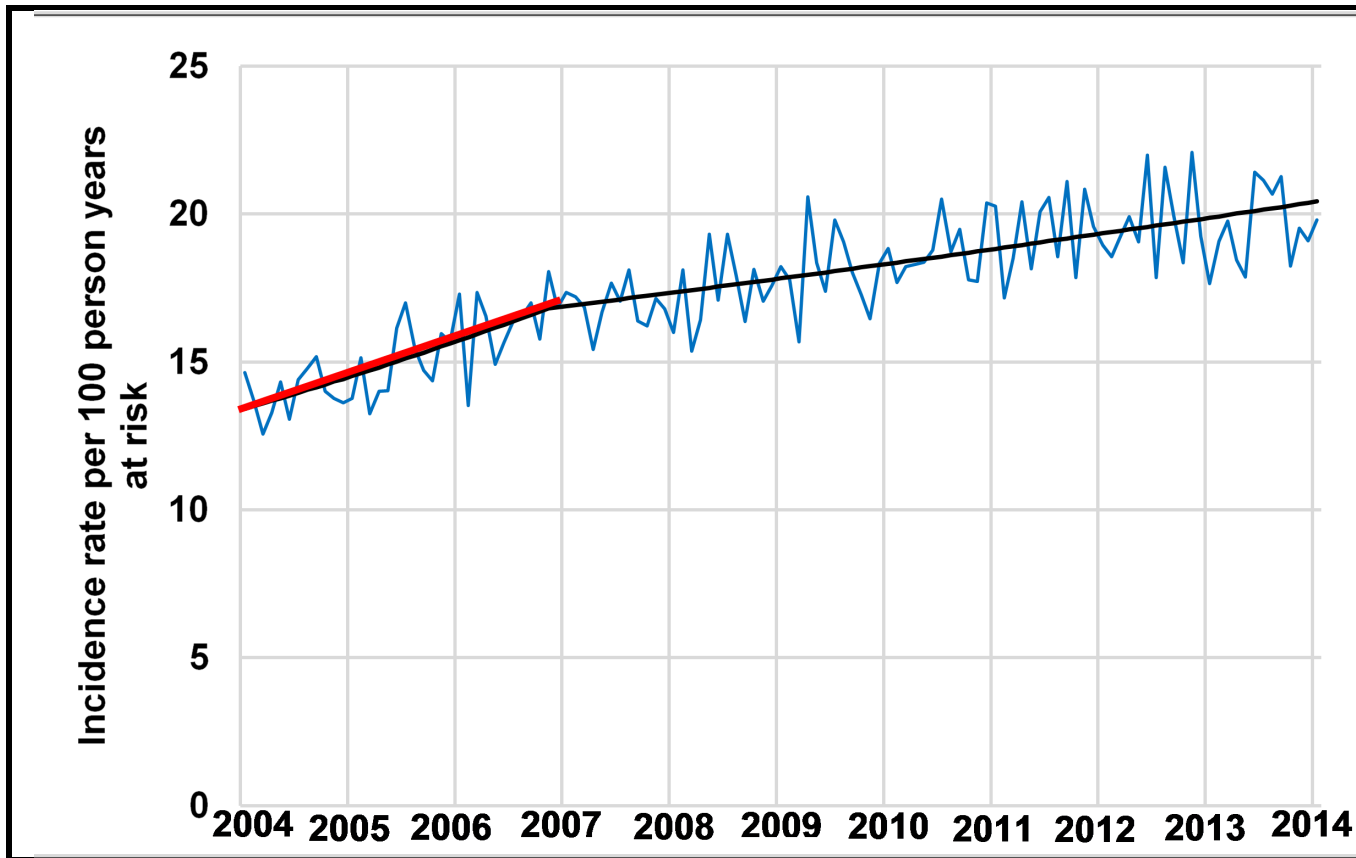
UTI in older
adults

Antibiotics in older
adults with UTI

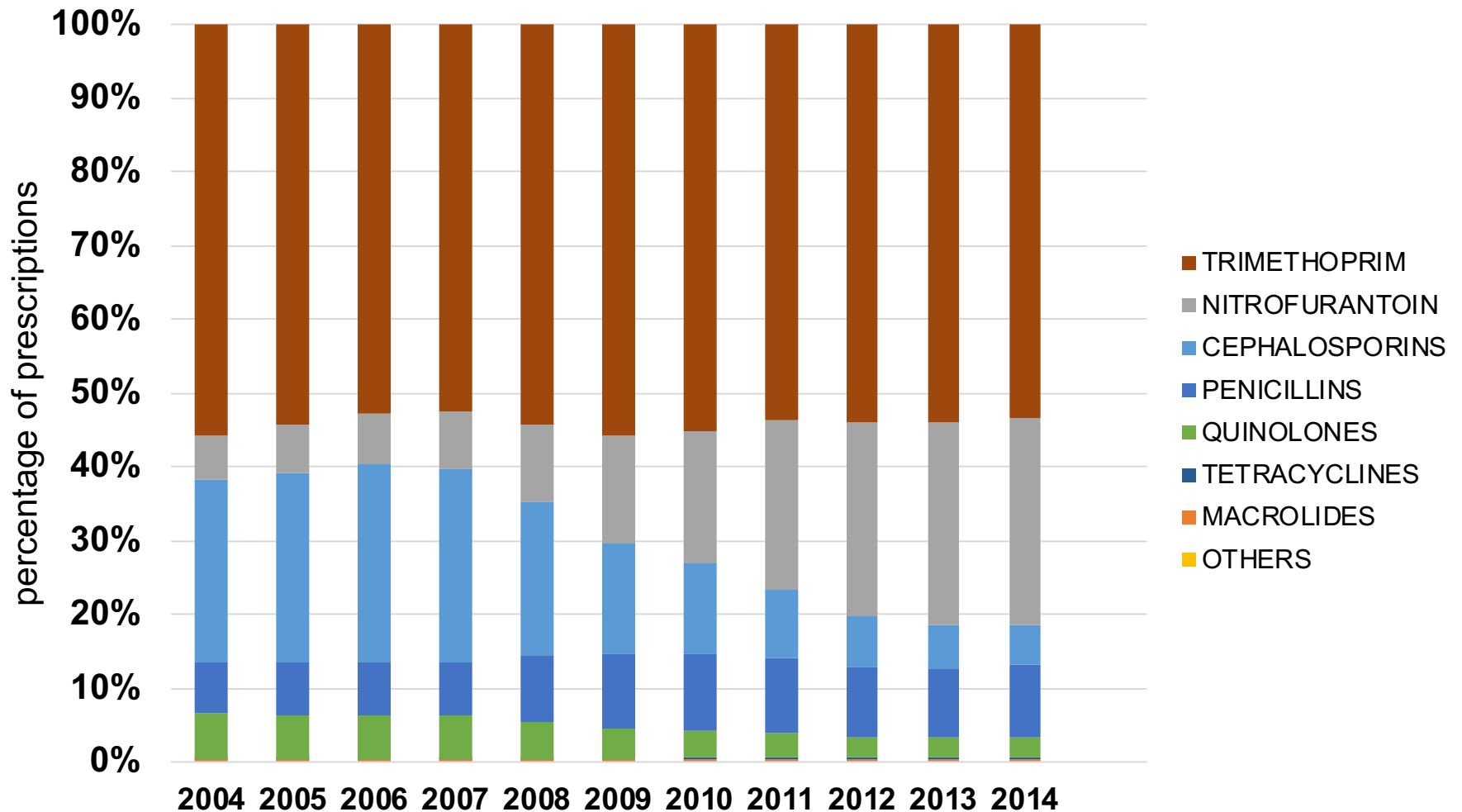
UTI incidence rate for men aged 85 and over, 2004-2014



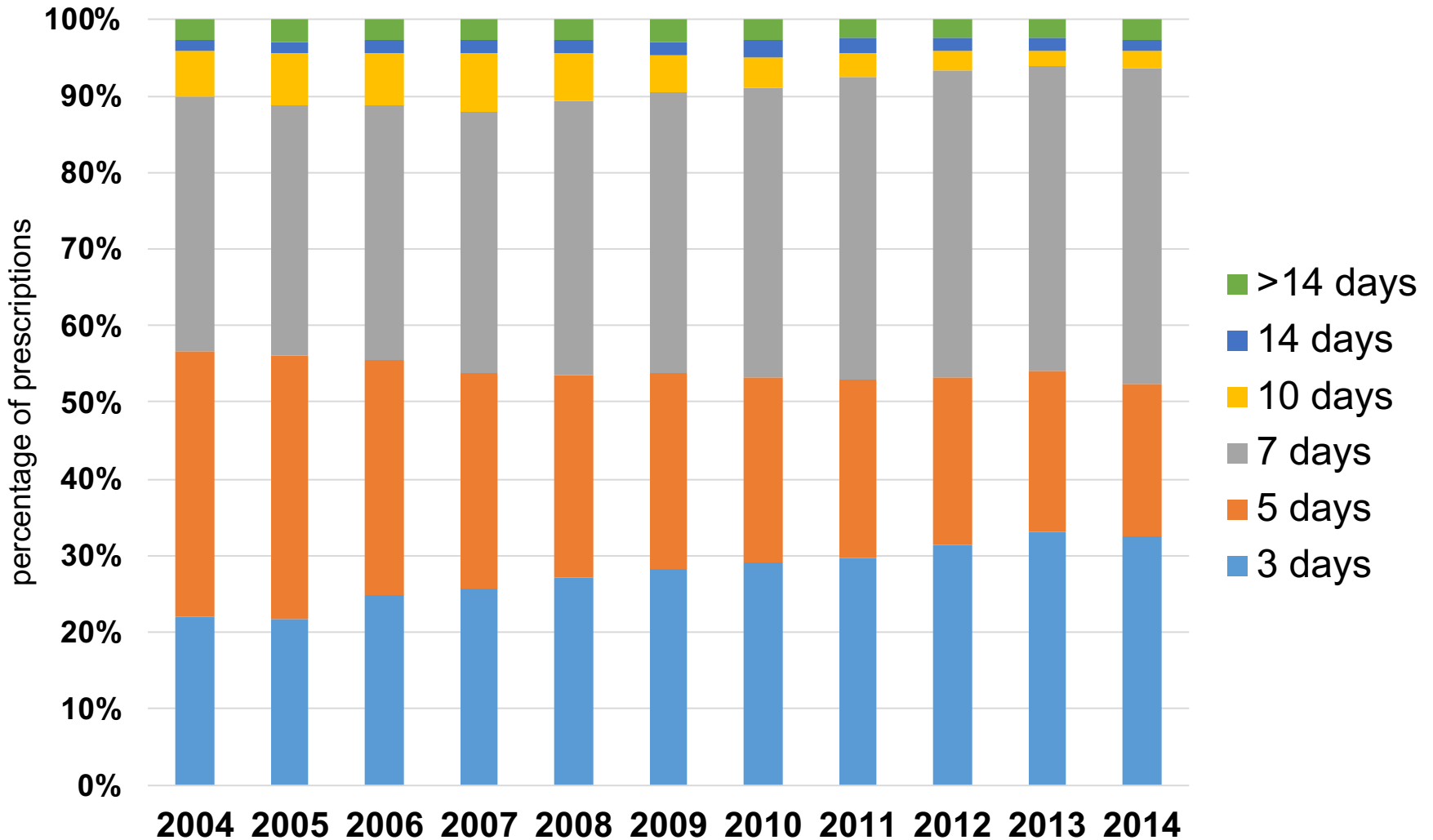
UTI incidence rate for women aged 85 and over, 2004-2014



Antibiotic prescribing for community acquired UTI for older women by year and antibiotic group



Duration of antibiotic prescription for community acquired UTI in older women



Urinary tract infection (UTI) in children

EURICA & DUTY studies

- EURICA (HCRW funded) 1003 children in Wales
- DUTY (NIHR HTA funded) 7163 children in England & Wales



EURICA PCR study

- EURICA urine samples
- Molecular methods – bacterial DNA

LUCI study: long-term outcomes following childhood UTI

- 159,201 children <5 in Wales; 11,099 with UTI
- Childhood UTI & kidney scarring
- Risk factors for scarring; antibiotic resistance



Urinary tract infection in adult women

- 60% women prescribed antibiotics for presumed UTI have negative urine culture

POETIC study

- Multinational RCT (Centre for Trials Research (CTR), Public Health Wales (PHW), Southampton, Oxford, Spain, Netherlands)
- Diagnostic test (Flexicult)

Missing link study

- Identification of biomarkers for UTI
- Bacterial DNA





Future direction for WP3

- Strengthen existing collaborations
- Work with other work packages in PRIME
- Increase patient & public involvement
- Develop industry links
- Build capacity

Infections in primary care; appropriate prescribing & AMR

Focus on UTI



Routine data

Diagnostics & bacteria





PACE

Point of care testing to target antibiotics for chronic obstructive pulmonary disease exacerbations