

Background

- AMR has become a central public health and economic concern
- While resistant genes develop naturally, humans' inappropriate and excessive use of antibiotics has accelerated the process of selection to unprecedented rates
- Most improper use stems from a lack of awareness amongst patients and prescribers, and insufficient regulation of drugs

Objective of the Study

- This internship had analyzed AMR through three separate studies:
 - The relationship between AMR and primary Health Care
 - Global consumption of antibiotics in retail versus hospital sectors
 - The incorporation of AMR into ICD

Methods

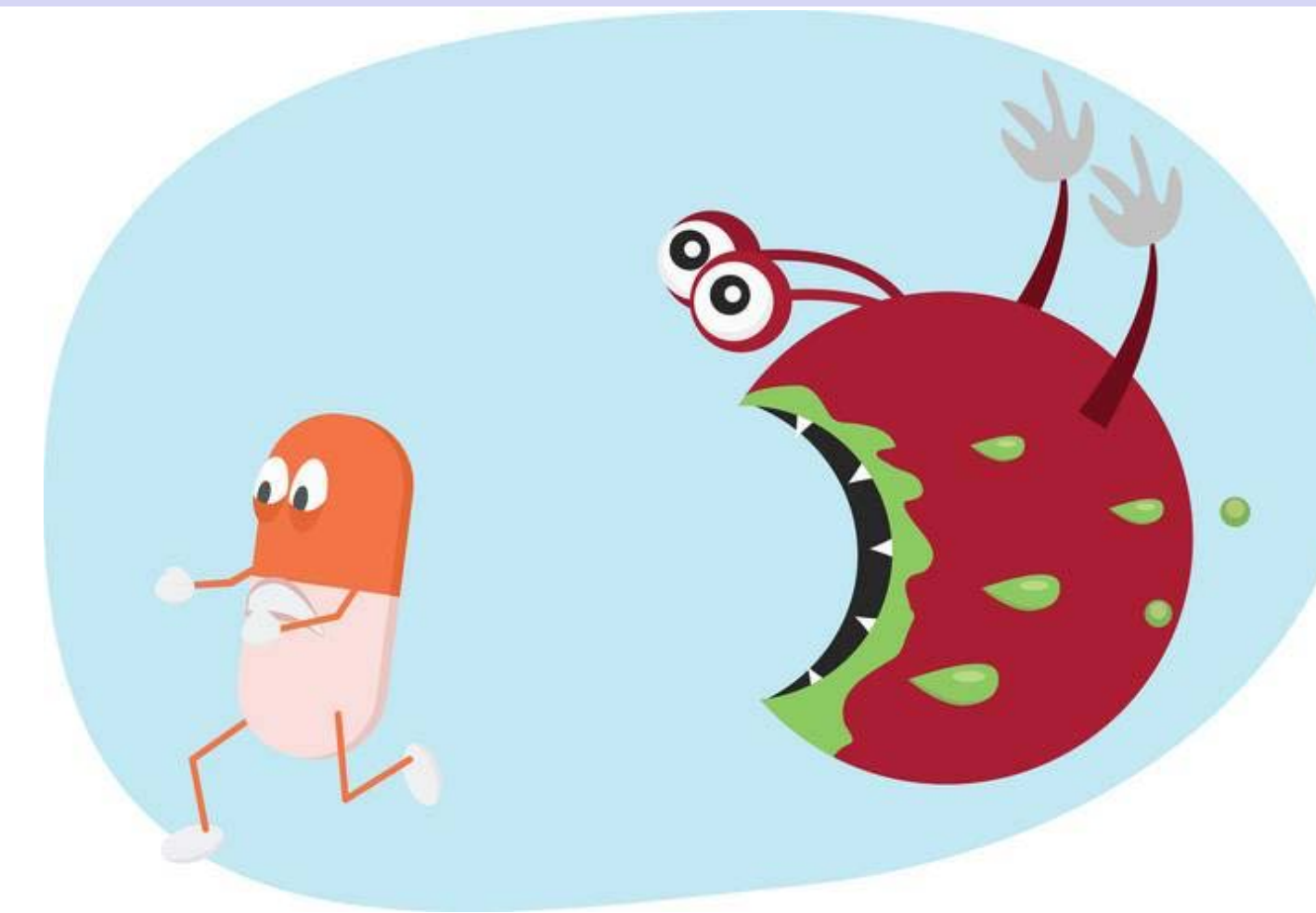
- Used existing research and data to analyze the linkages between AMR and primary care through a bidirectional lens and examine the ways in which issues of AMR and access to primary care could be addressed collaboratively
- ICD-11 was analyzed for changes in code, categorizations, and alignment with GLASS standards, that reflected a changing approach to AMR
- The relative proportions of antibiotics sold in the retail and hospital sectors were calculated using the IQVIA MIDAS database on antibiotic sales; potential economic and health indicators that could explain consumption deviations were measure.

Results and Reflections

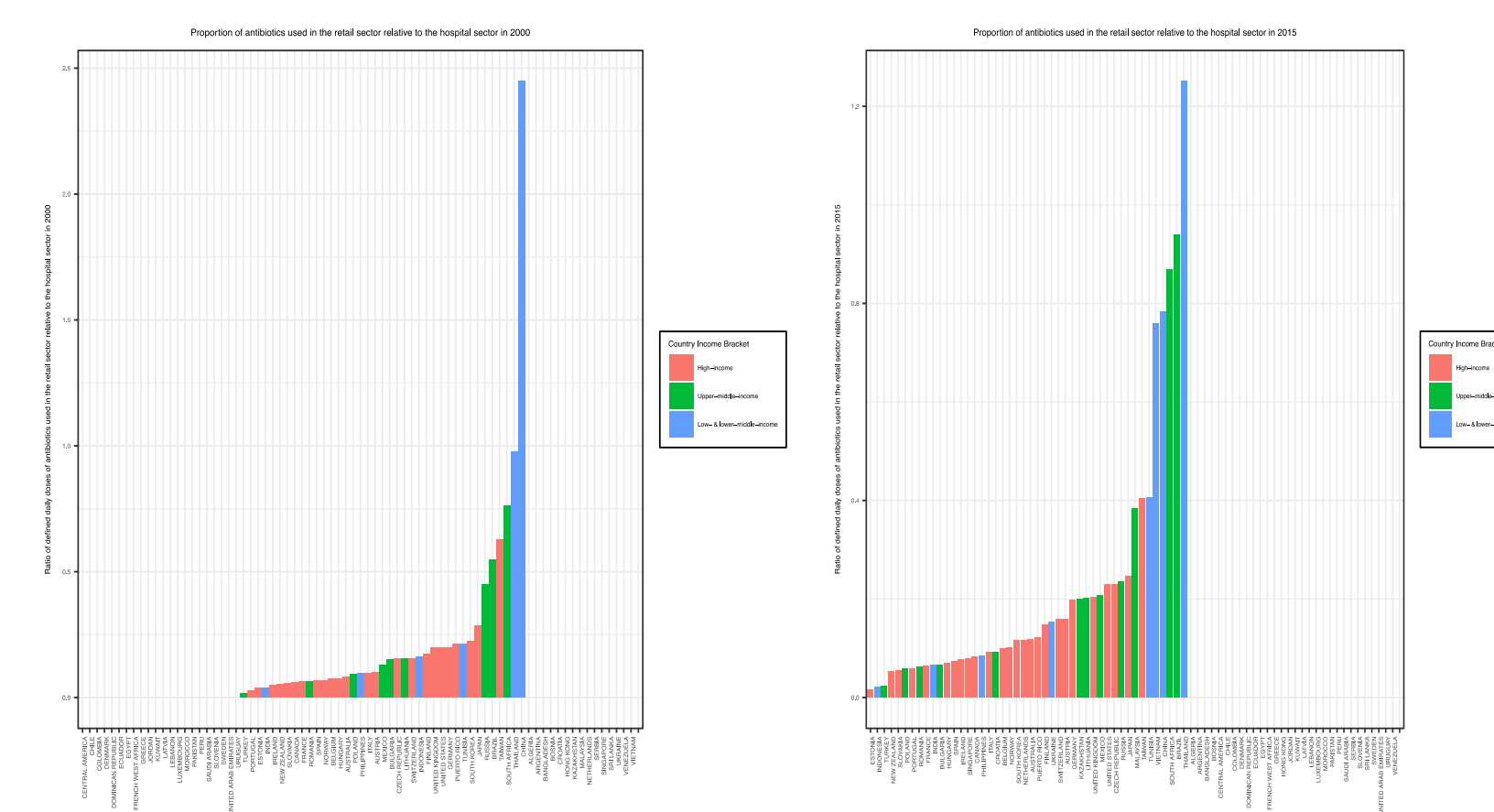
- The rapid emergence of infectious pathogens, resistant to the antimicrobial drugs that have facilitated their control since the early 1940s, poses an existential threat to modern medicine. The expansion of health care provision over the last 40 years has acted as a catalyst for growing antibiotic consumption and excess antibiotic use.
- Primary health care, as described in the original Alma Atta declaration, is not limited to the health sector, but also requires the coordination of related sectors, including agriculture, animal husbandry, and food



- In most countries, especially LMIC, there were more antibiotics sold in the retail sector than in the hospital sector.
- For HICs, health expenditures as % GDP, GDP, and population size were all significantly correlated with the ratio of antibiotics sold in the hospital versus retail sector
- Many LIC lacked data on the consumption of antibiotics in hospitals



- ICD-11 has been adopted to better incorporate AMR, as reflected in its language and adherence to GLASS standards, yet medical professionals are still limited in coding for cases of co-morbidity; this will again lead to under-reporting of AMR.



Discussion

- Quality primary care is an important pathway to ensuring the appropriate use and availability of quality antibiotics globally. At the same time, preserving the effectiveness of antibiotics through improved stewardship is central to adequate primary care.
- While the new ICD allows professionals to identify the type of resistant pathogens, faults in user-friendliness and double coding may limit awareness and inhibit the aggregation of data and accurate documentation of cases.
- The lack of significance between free health care and the consumption ratio suggests that the former does not disproportionately drive consumption in either sector; insufficient data makes it difficult to examine other influences.

Looking Ahead

- The ICD is intended to be a living document, it should be adjusted to better incorporate resistance into the daily language of doctors; professional use and feedback should be collected and analyzed to meet this end
- The lack of available statistics limited our regressions of consumption ratio; if more data is collected, follow up studies should re-examine the relationship between GDP per capita and ratio of antibiotics sold in the hospital versus retail sector.

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