



Introduction

- Allergy to β -lactam (BL) antibiotics is one of the most frequently reported adverse drug reactions (Prevalence of reported penicillin allergy in western populations has been estimated at approximately 10%)
- Many patients mistakenly report non-immune-mediated adverse drug reactions as allergy, and up to 90% of these patients are found not to be genuinely allergic after evaluation
- Misreported BL antibiotic allergies are associated with obligatory use of less effective antibiotics and a multitude of adverse clinical consequences (adverse patient outcomes, increased health care costs, induce multi-drug resistant organisms etc.)
- Epidemiological data of drug and BL allergy in Hong Kong or Chinese populations are lacking
- Evaluation of suspected allergy BL antibiotic allergy includes history taking, skin tests (including skin prick and intradermal), and drug provocation tests
- Ethnic- and region-specific data on sensitization patterns are needed to determine optimal local antibiotic skin test strategies
- Studies from Chinese cohorts have not yet been performed
- Few studies have looked into the incidence rather than just prevalence of reported BL antibiotic allergy (that is, how many new reports of BL antibiotic allergy are being generated over time)

Objective

- To identify the prevalence, incidence and sensitization patterns of reported BL antibiotic allergy in patients in Hong Kong

Methodology (Study period: 2018-2019)

- To study the prevalence and incidence of reported BL allergy, we retrieved anonymized data regarding physician-reported drug allergies from the Hospital Authority Clinical Management Systems
- To study the sensitization pattern of patients with BL antibiotic allergy, we recruited a subgroup of patients referred to Queen Mary Hospital for allergy testing during the study period

Figure 1. Prevalence of Reported Drug and β -lactam Antibiotic Allergies in Hong Kong

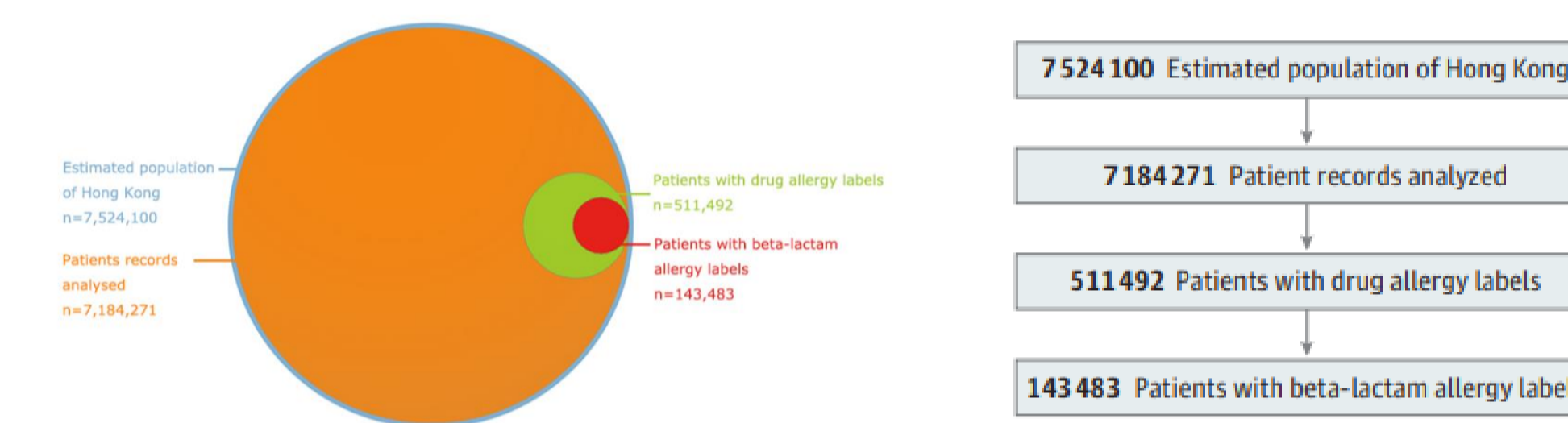


Figure 2. Incidence of New β -lactam Antibiotic Allergies in Different Regions in Hong Kong

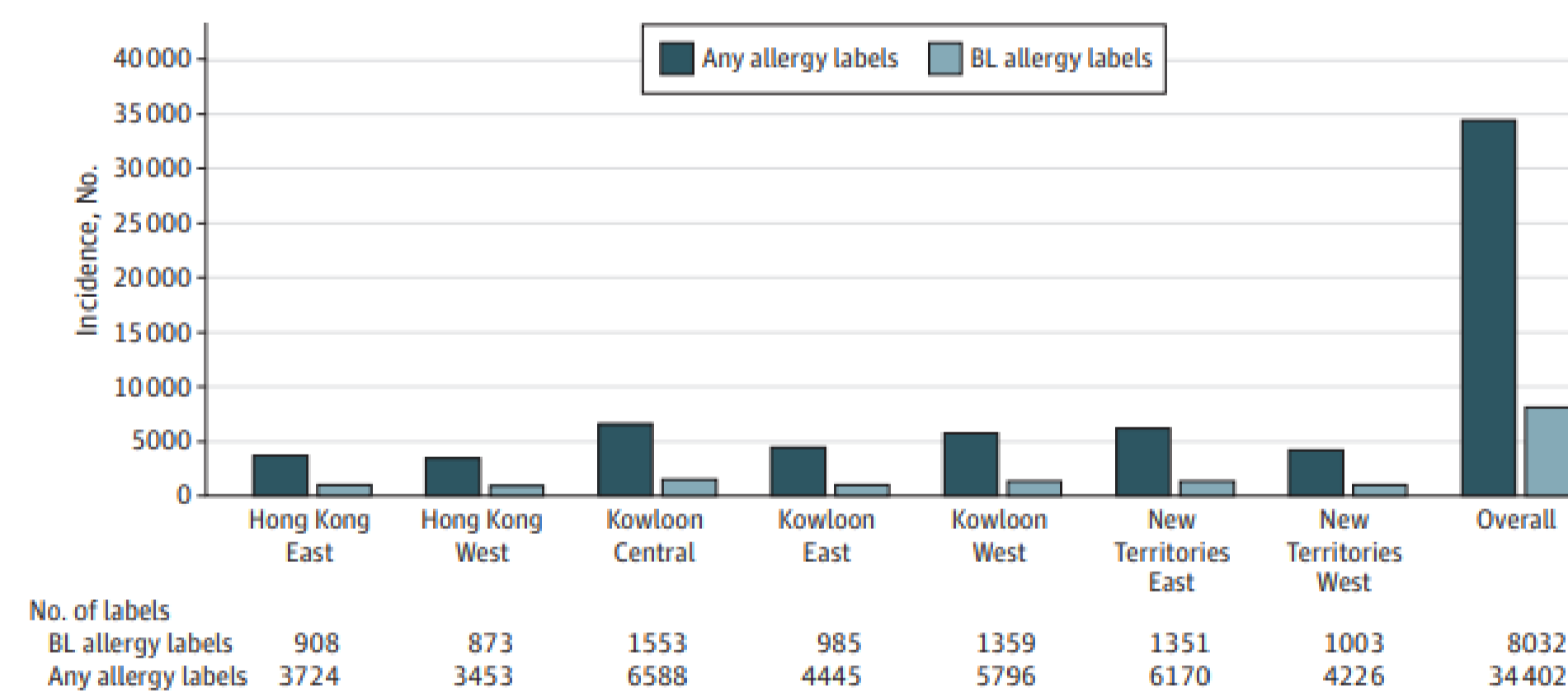
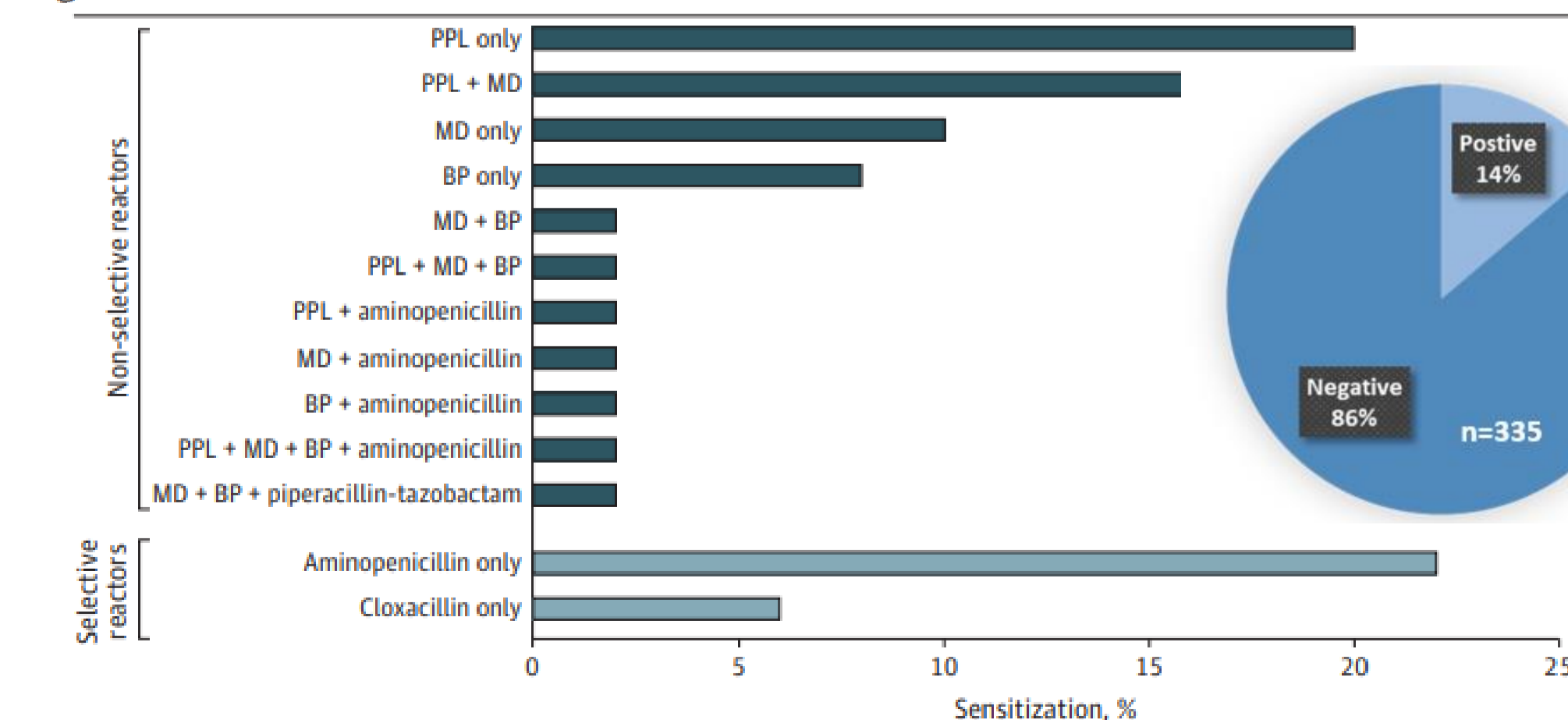


Figure 3. Sensitization Rates of Positive Skin Test Results



Results

- A total of 7,184,271 unique patients were analyzed, representing more than 95% of the total estimated population of Hong Kong
- 511,492 (7.1%) had physician-reported drug allergies, of which 143,483 (28.1%) were BL antibiotic allergies
- Point prevalence of BL allergy labels = 2.0% (95% CI, 1.99%-2.01%)
- Cumulative incidence = 107 per 100,000 population, with 8,032 new BL antibiotic allergies reported in 2018 alone
- Skin tests performed for a subgroup of 355 patients, of which only 14% had positive skin test results
- Among those who completed BL allergy testing (including drug provocation test), only 14% were confirmed to be genuine (i.e. 86% of incorrect BL allergy labels were removed)

Conclusions

- We performed the largest study of beta-lactam allergy ever reported and the first ever among Chinese populations
- Around 1 in every 50 patients in Hong Kong are labelled with a beta-lactam "allergy" (with >8,000 new labels per year)
- However >85% of these "allergy" labels are false, and can be safely de-labelled after allergological investigation
- This overwhelming prevalence, incidence of BL allergy (but also high rate of mislabeling) highlights the urgent need and demand for Immunology & Allergy services in Hong Kong

Reference:

Prevalence, Incidence, and Sensitization Profile of β -lactam Antibiotic Allergy in Hong Kong. Li PH, Yeung HFF, Lau CS, Au EYL. *JAMA Netw Open*. 2020 May 1;3(5):e204199. doi: 10.1001/jamanetworkopen.2020.4199.