



Canadian Public Health Laboratory Network (CPHLN) Voluntary Reporting of Carbapenemase-Producing Enterobacteriaceae (CPE)

PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH



Overview of NML CPE Activities

- Reference services for hospital/provincial laboratories in Canada as well as other countries requesting assistance
 - » Confirmation using both susceptibility testing and genetic testing
 - » Outbreak investigations using molecular typing methods for strains and plasmids
 - » Whole genome/plasmid sequence analysis for specific cases or research projects
- Laboratory support and leadership for CPHLN, the Canadian Nosocomial Infection Surveillance Program (CNISP), the Canadian Integrated Program on Antimicrobial Resistance Surveillance (CIPARS), and CAN-WARD hospital surveillance
- Information dissemination to other federal departments and the research community in Canada and abroad

Data Acquisition

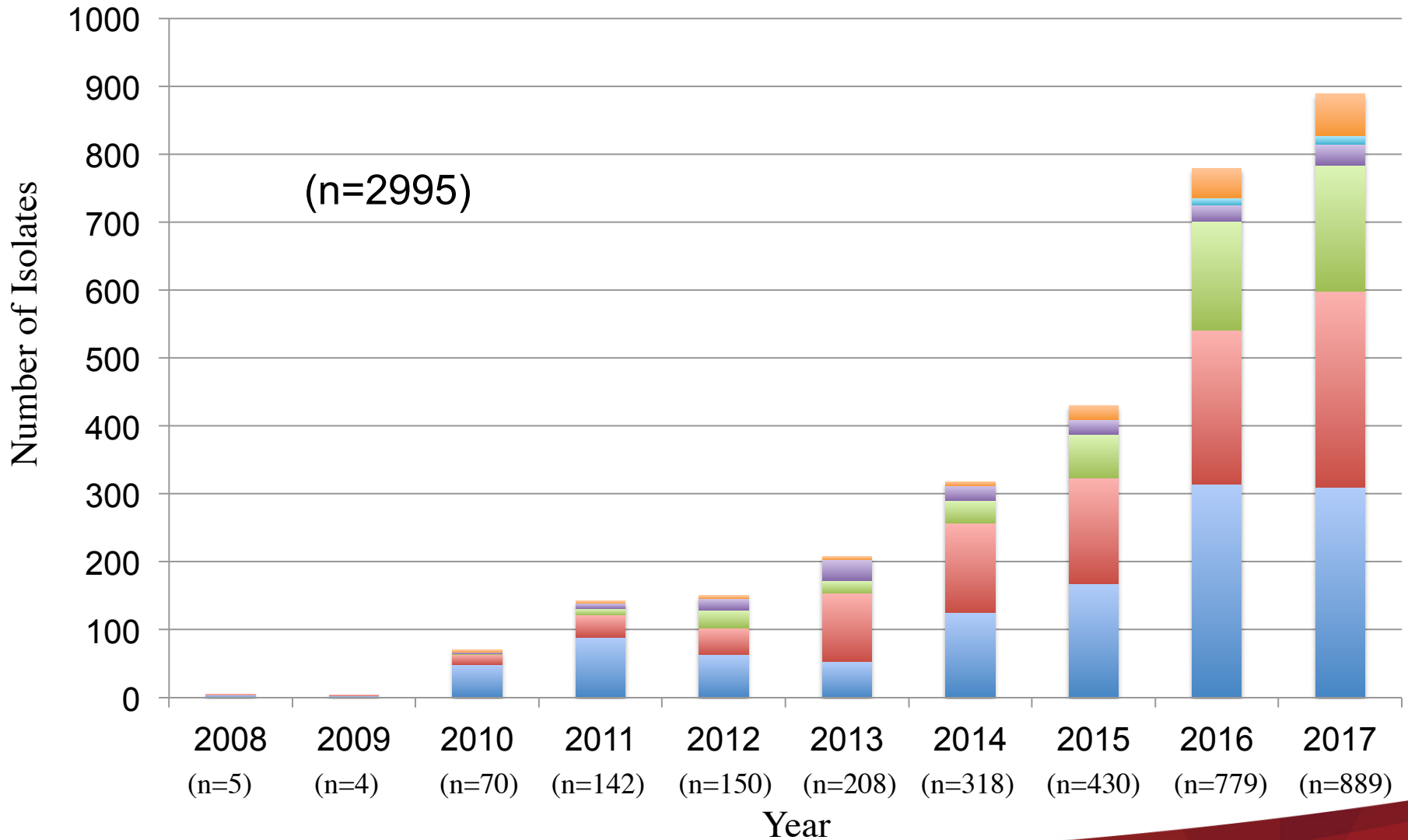
- Data or isolates were submitted by members of the Canadian Public Health Laboratory Network (CPHLN) on a voluntary basis
- CPE was identified at the provincial/NML level using in-house screening assays
- Numbers of CPE were submitted by provincial public health laboratories (ON, QC, or BC), while NML generated numbers for other provinces
- Some data from BC and QC were generated by NML
- Limitations
 - The numbers could involve duplicate samples on the same patient although efforts to reduce this have been made
 - As CPE is not reportable in all provinces, the numbers most likely represent an underestimate of CPE cases reported to the CPHLN
 - This data represents patient infections and colonizations, and it is believed that no environmental samples were included
 - Increased numbers of CPE could be a reflection of increased screening at healthcare facilities
 - The SME reports from Ontario represents data from 2013 onwards
 - Quebec data represents isolates from 2010 to present and is acquired from a mandatory surveillance program that includes a lowered screening meropenem ≥ 0.25 mg/L
 - Rates for 2017 data used preliminary postcensal estimates

Notable Observations from this Report

- Rates per 100,000 population now included in the analysis
- CPE numbers continue to double every two years: 2015 (n=430); 2017 (n= 889)
- CPE rates increased in all regions in Canada from the previous year
- Total numbers and rates of KPC declined slightly from the previous year while all other CPEs increased
- The eastern provinces continue to report very few cases of CPE with Prince Edward Island now reporting its first CPEs (2 SME)

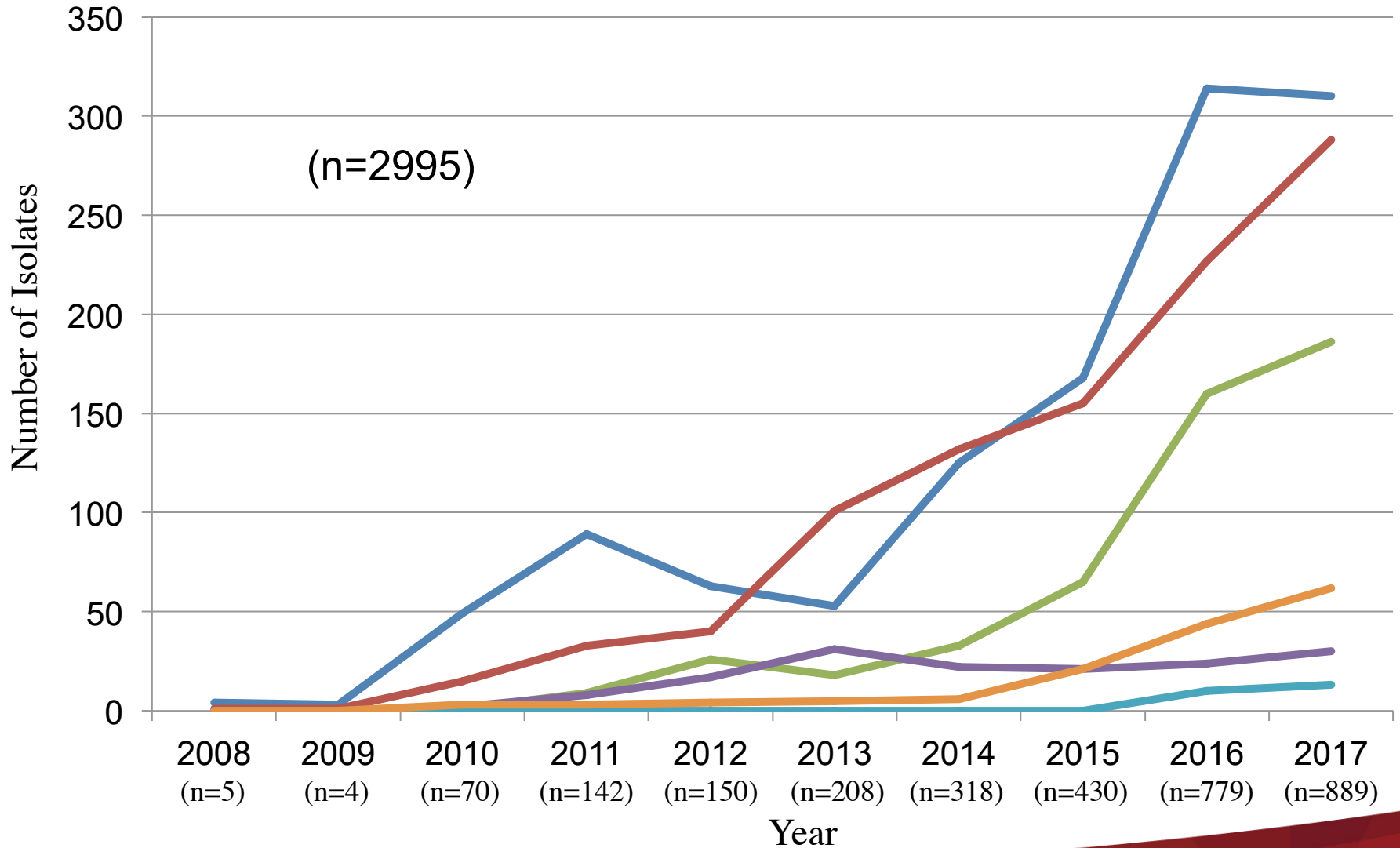
CPE in Canada: CPHLN Data

■ KPC
 ■ NDM
 ■ OXA-48-like
 ■ SME
 ■ OXA-48/NDM
 ■ Other

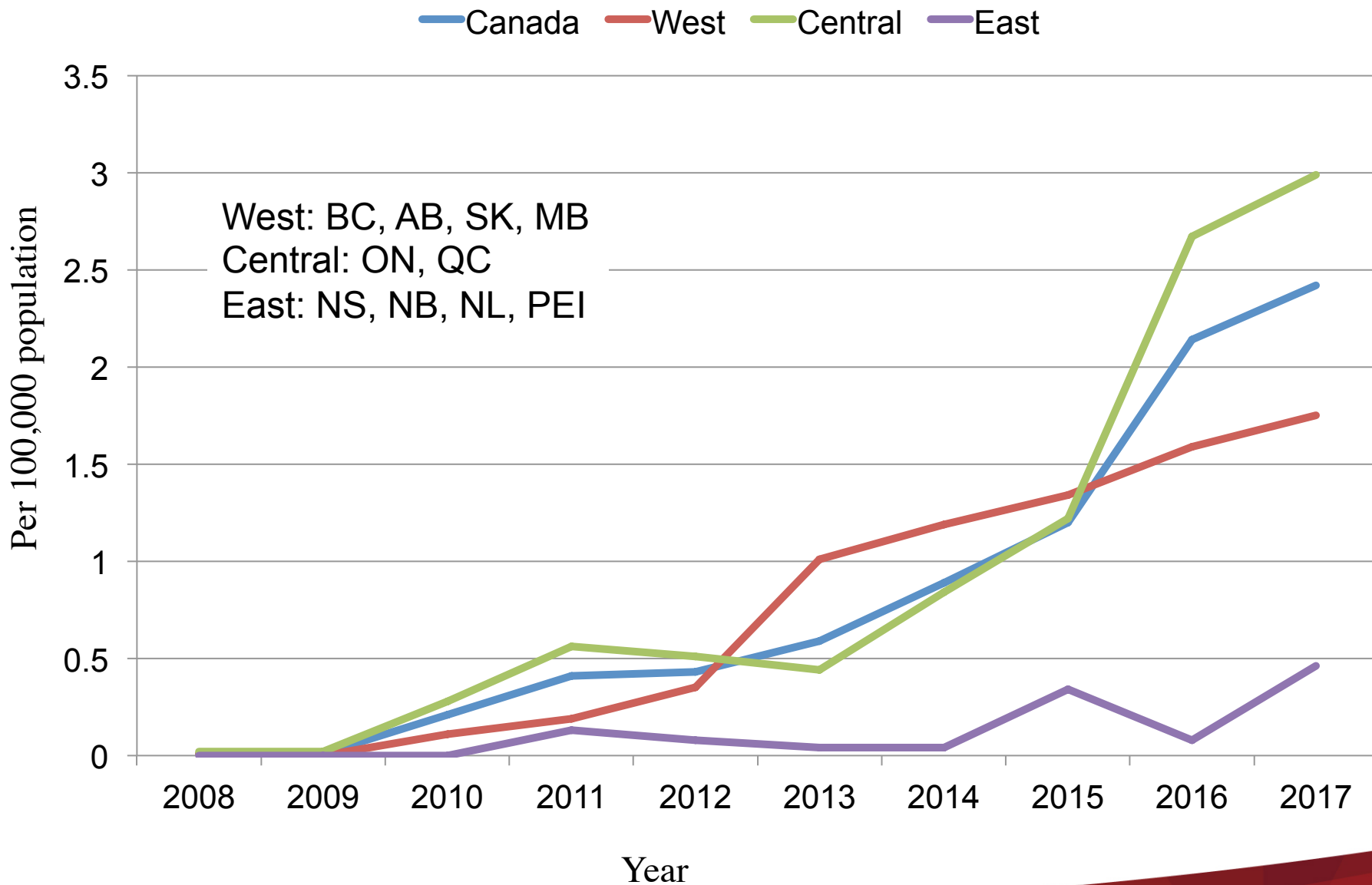


CPE over time in Canada

— KPC — NDM — OXA-48-like — SME — OXA-48/NDM — Other

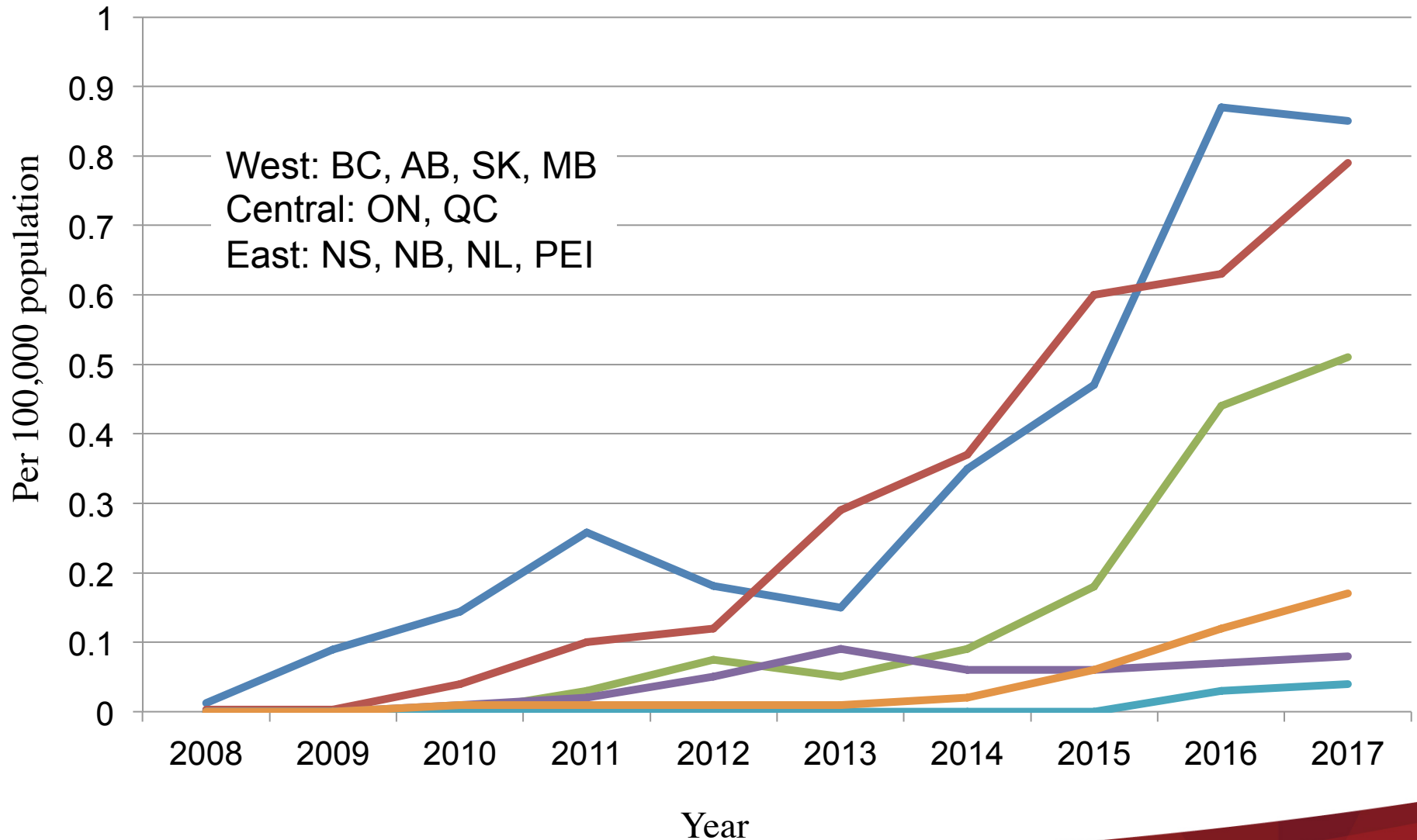


CPE Rate by Region in Canada

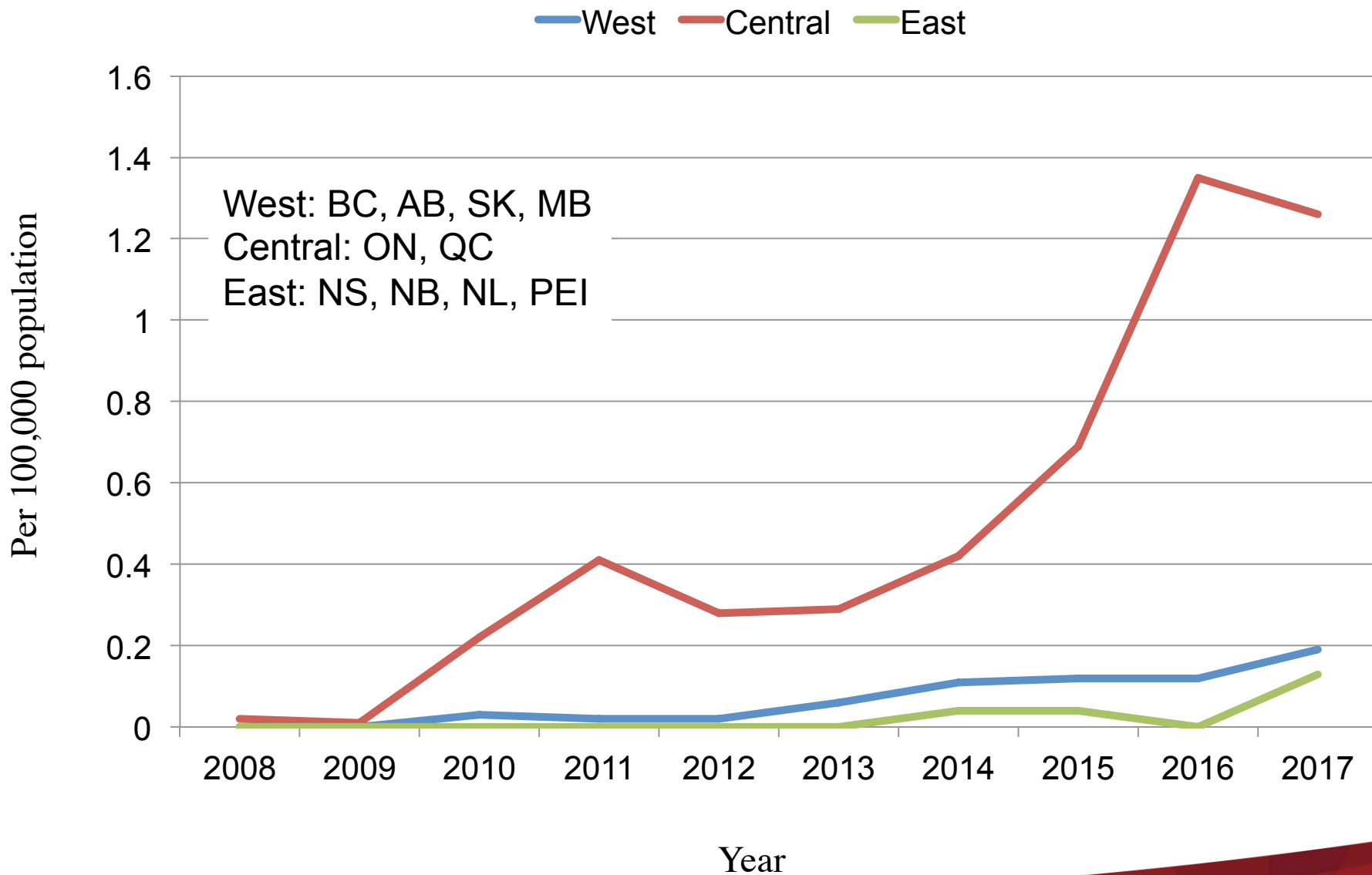


Rate of CPE Type in Canada

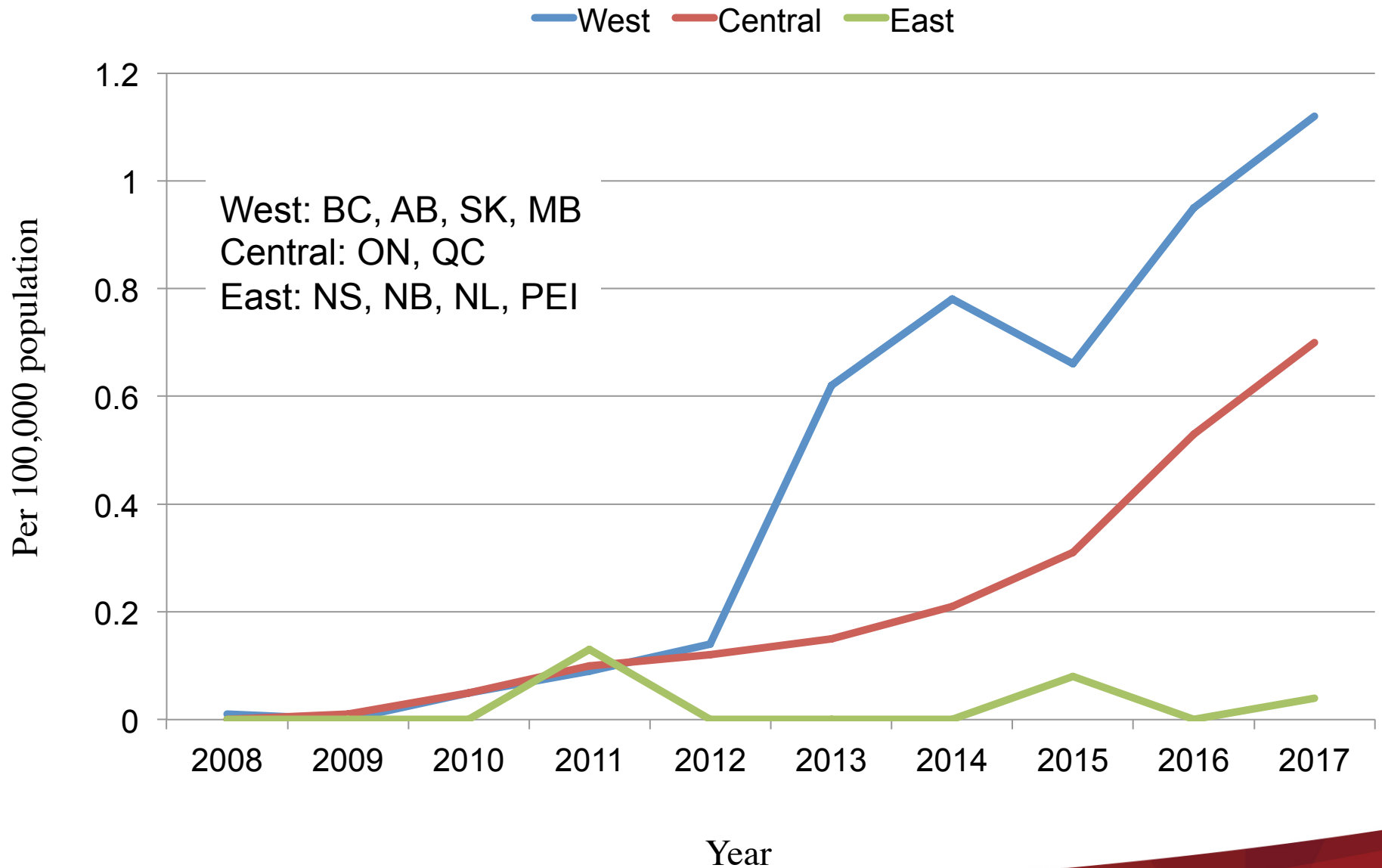
— KPC — NDM — OXA-48-like — SME — OXA-48-like/NDM — Other



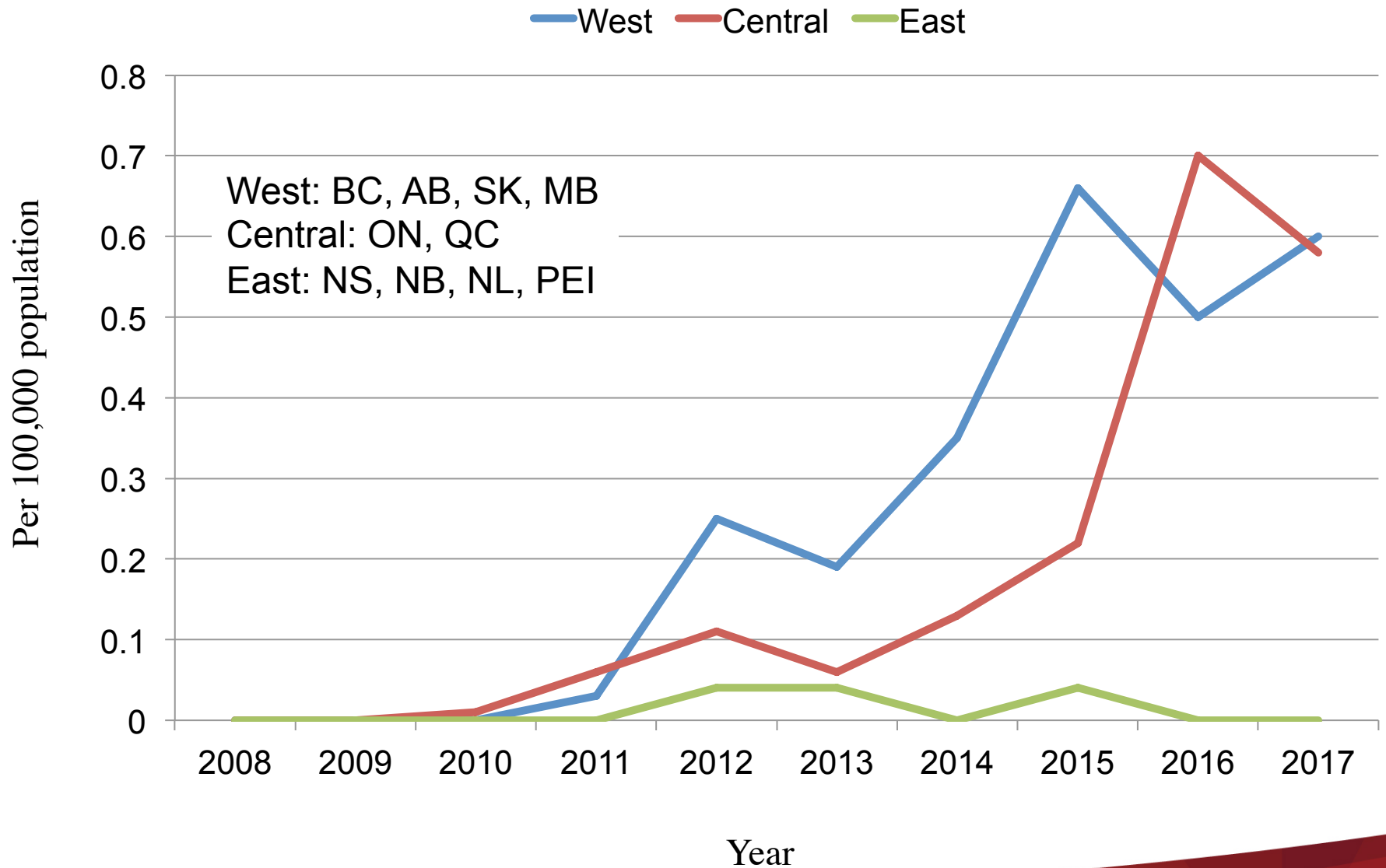
KPC Rate by Region in Canada



NDM Rate by Region in Canada



OXA-48-like Rate by Region in Canada



Other Carbapenemases* Rate by Region in Canada

