

# The impact of pneumococcal conjugate vaccine in nonbacteremic pneumococcal pneumonia among cancer patients

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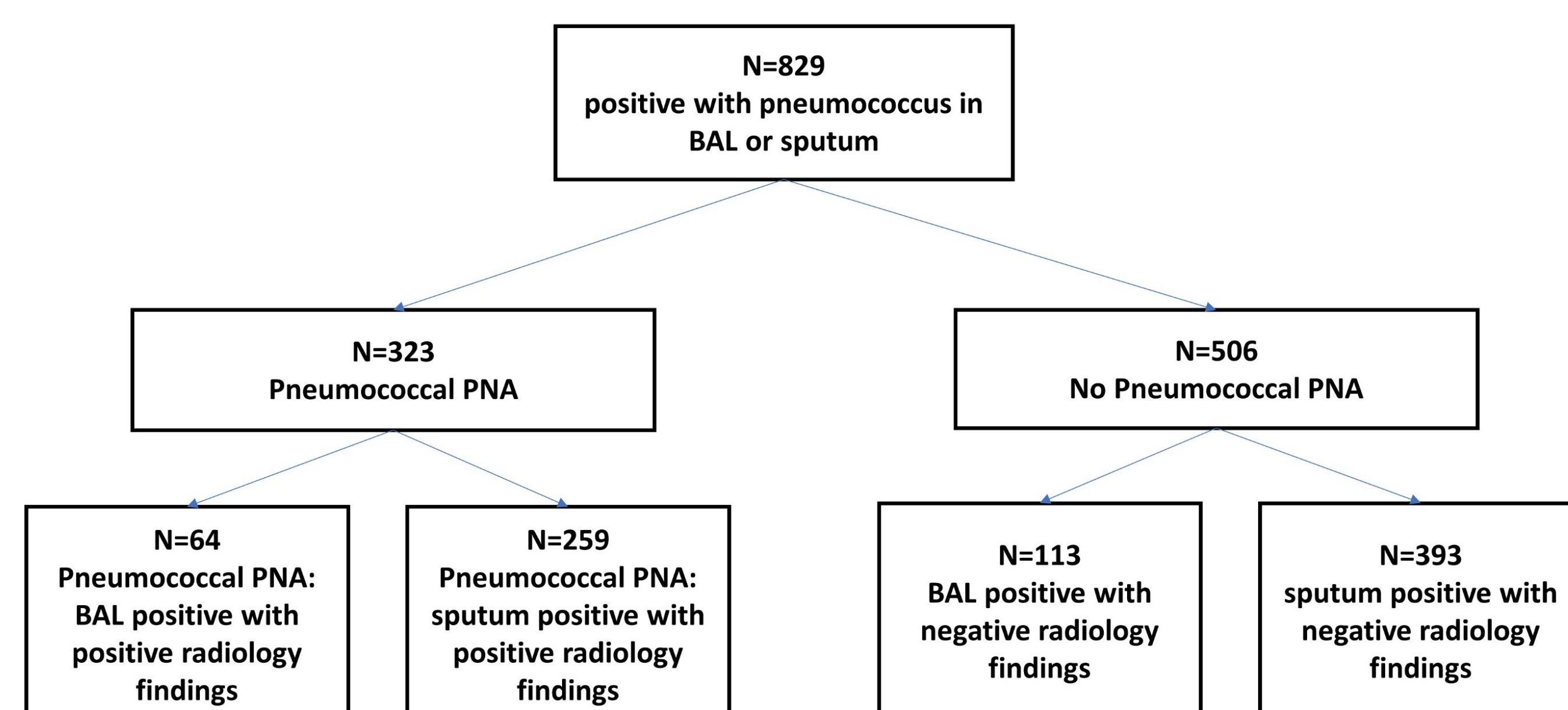
## Introduction

- Invasive pneumococcal disease (IPD) and non-bacteremic pneumococcal pneumonia (NB-PNA) are associated with substantial morbidity and mortality in cancer patients.
- We have previously reported a decline in the incidence of IPD in cancer patients treated at MSKCC after the introduction of routine childhood immunization with the 7-valent pneumococcal conjugate vaccine (PCV7) into the community.
- We compared the incidence of NB-PNA in cancer patients treated at MSKCC before and after the introduction of PCV7.

## Methods

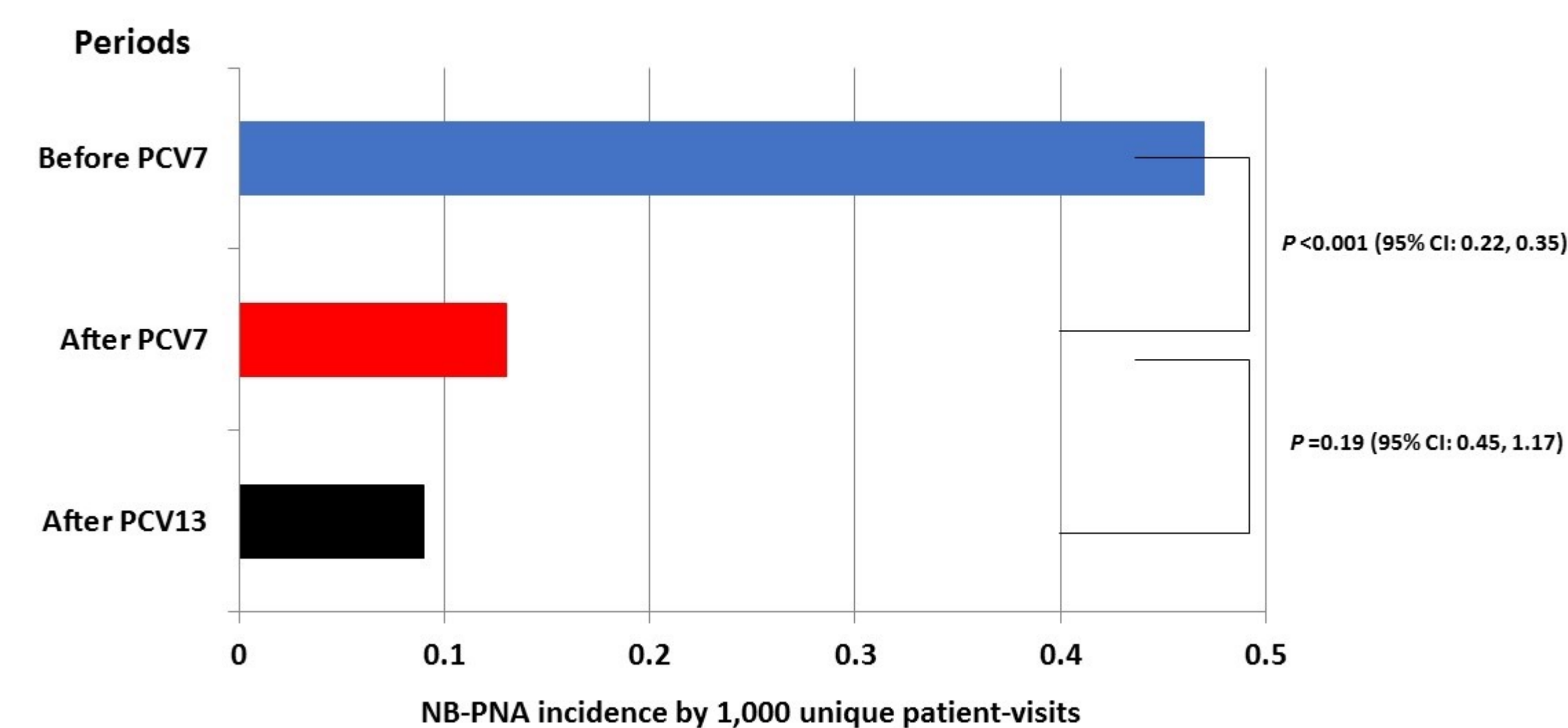
- Retrospective cohort study of patients treated at MSKCC from 1993 through 2002.
- Unique patients visits (UPV) per year were defined as  $\geq 1$  inpatient or outpatient encounter within one calendar year.
- Patients with respiratory cultures positive for *S. pneumoniae* specimens were identified from clinical microbiology records.
- NB-PNA was defined as isolation of *S. pneumoniae* from sputum or bronchoalveolar lavage (BAL) with associated symptoms and radiographic findings compatible with pneumonia.
- NB-PNA incidence was calculated as number of NB-PNA cases per 1000 UPV. Three time-periods were examined: "before PCV7" (1993-2000), "after PCV7" (2001-2010), "after PCV13" (2011-2012).

## Adjudication of PNA cases



- Of 323 NB-PNA cases, *S. pneumoniae* was isolated from BAL in 64 (20%) and sputum in 259 (80%).

## Incidence of PNA (#cases per 1,000 UPV)

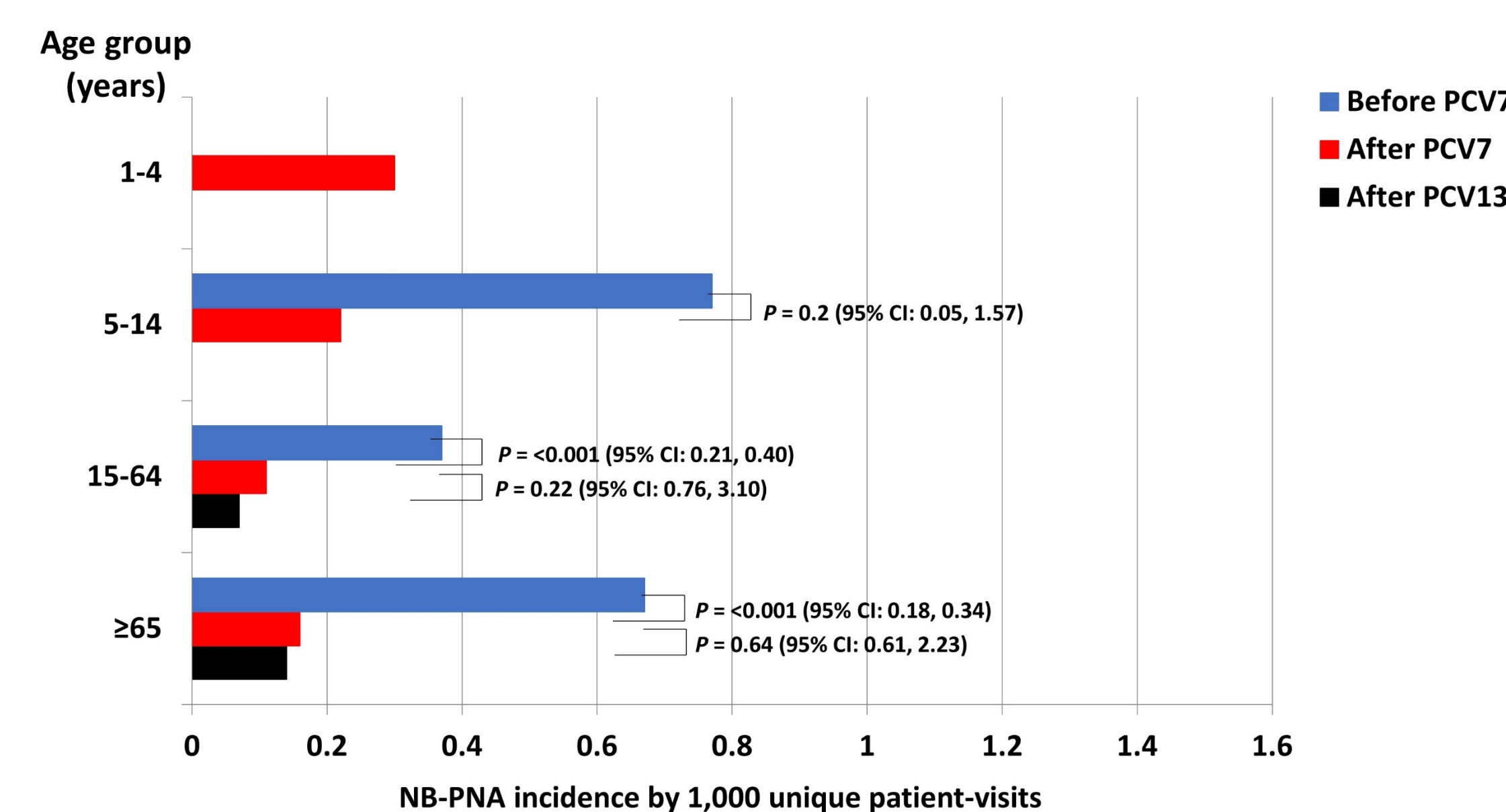


## Conclusions

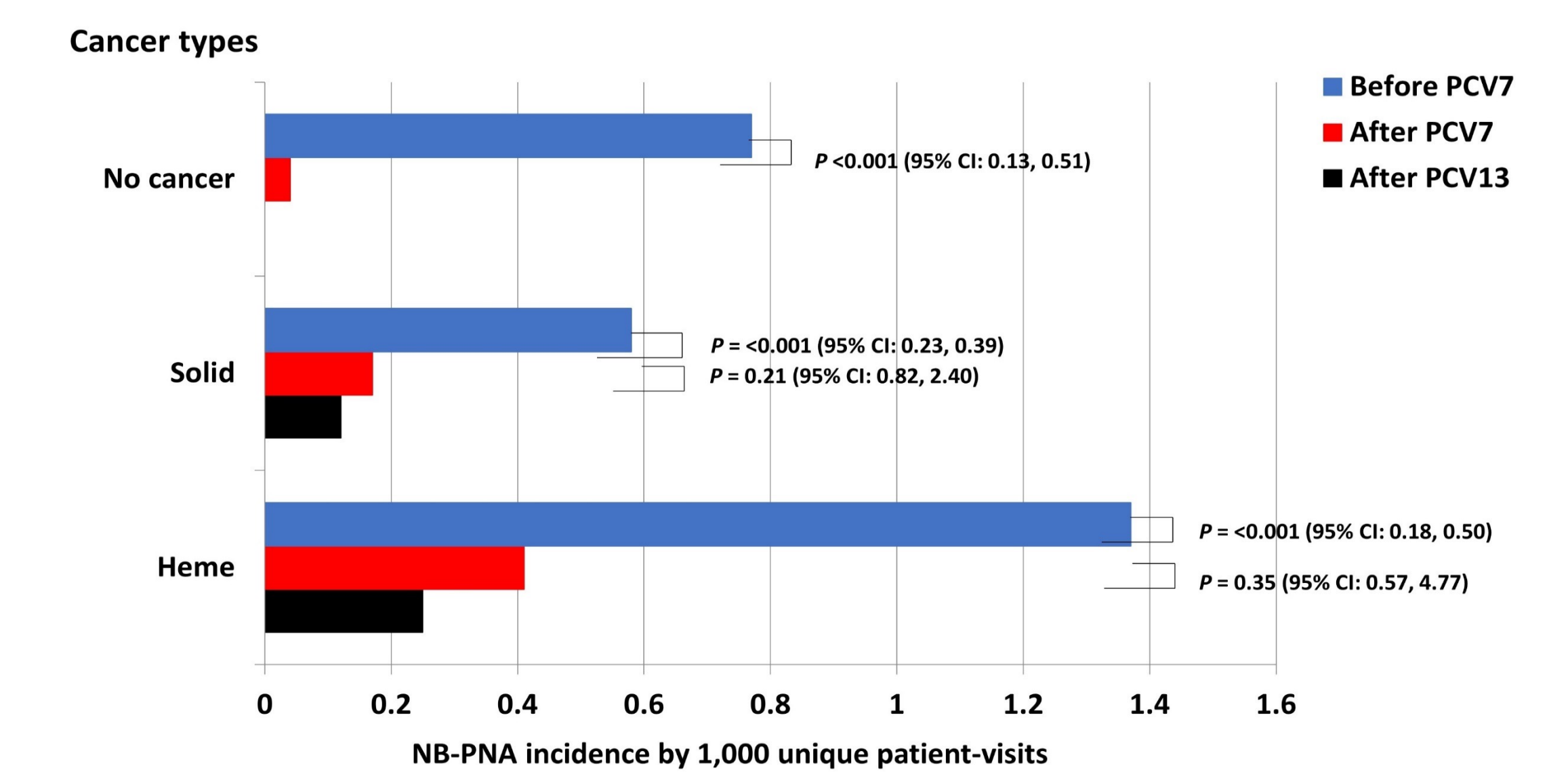
- The incidence of NB-PNA in adult cancer patients declined after PCV7 compared to before the introduction of PCV7.
- The reduction in NB-PNA was highest in patients  $\geq 65$  years suggesting an indirect effect from PCV7 childhood immunization.
- A trend towards decreased incidence in NB-PNA was noted after PCV13; further surveillance is required to ascertain this trend.

## Incidence of PNA by age and cancer types

PNA incidence by age groups

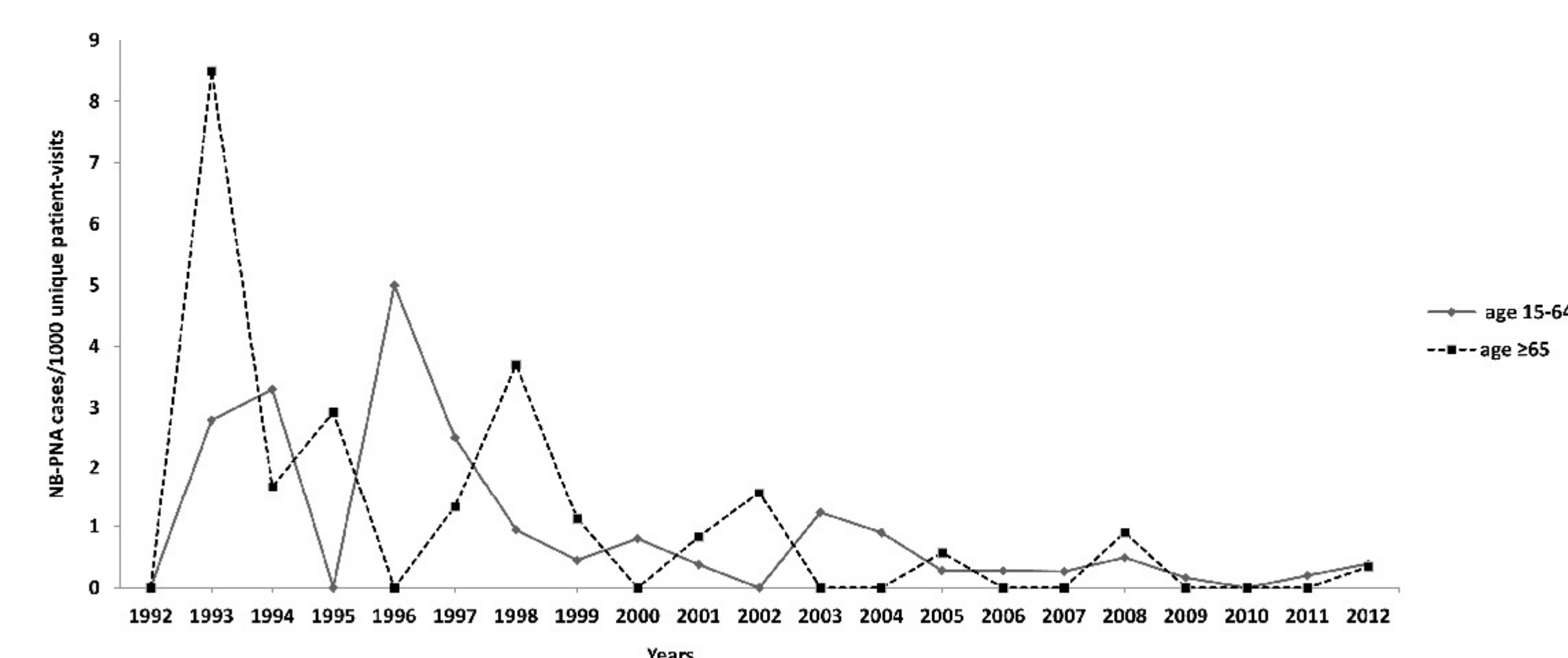


PNA incidence by cancer types

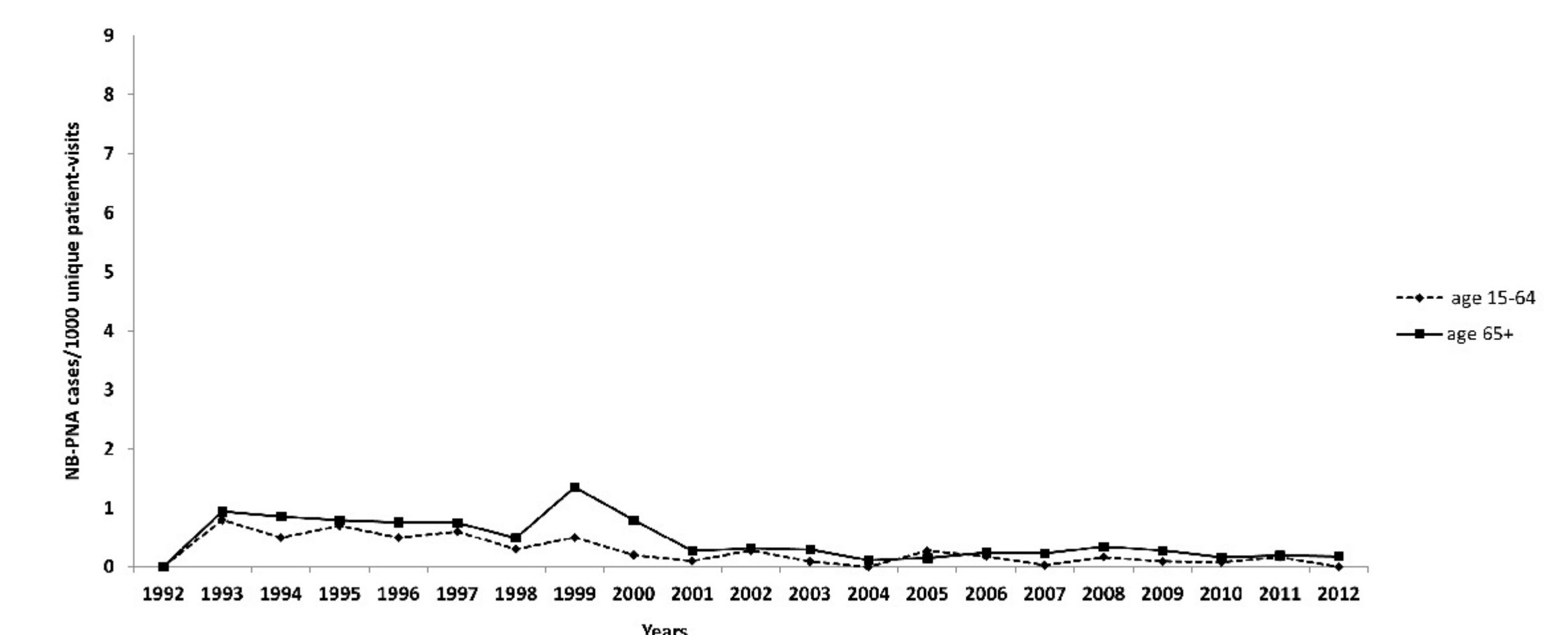


## Annual trends in the incidence of PNA in adult cancer patients

Hematologic malignancies 15 -  $\geq 65$  years



Solid tumors 15 -  $\geq 65$  years



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