

ABSTRACT

Background: With a globally aging population, there has been an increase in the number of older patients undergoing percutaneous coronary intervention.

Methods: We evaluated the outcomes of PCI performed in 114,464 patients from 2018 to 2022 in participating hospitals in the Blue Cross Blue Shield Cardiovascular Consortium.

Results: Breakdown of age groups was as follows: 57.6% aged < 70 years, 28.1% ages 70-79 years, 12.8% aged 80-89 years, and 1.3% aged ≥ 90 years. Average patient age increased at 0.22 years per year. Patients < 70 years and ≥ 90 years had higher rates of cardiovascular instability at presentation. Increasing age was associated with higher MACE (composite of death, stroke, or non-elective CABG - 2.1% for < 70 years, 2.8% for 70-79 years, 3.7% for 80-89 years, and 5.7% for ≥ 90 years, $p < 0.001$), longer length of stay, higher rates of kidney injury, and post PCI cardiogenic shock. Age was not significantly associated with major bleeding. Increasing age was strongly associated with in-hospital mortality (1.4% for < 70 years, 2.1% for 70-79 years, 3.3% for 80-89 years, and 5.5% for ≥ 90 years, $p < 0.001$).

OBJECTIVE

Evaluate the current trends in post procedural outcomes by age in a statewide registry.

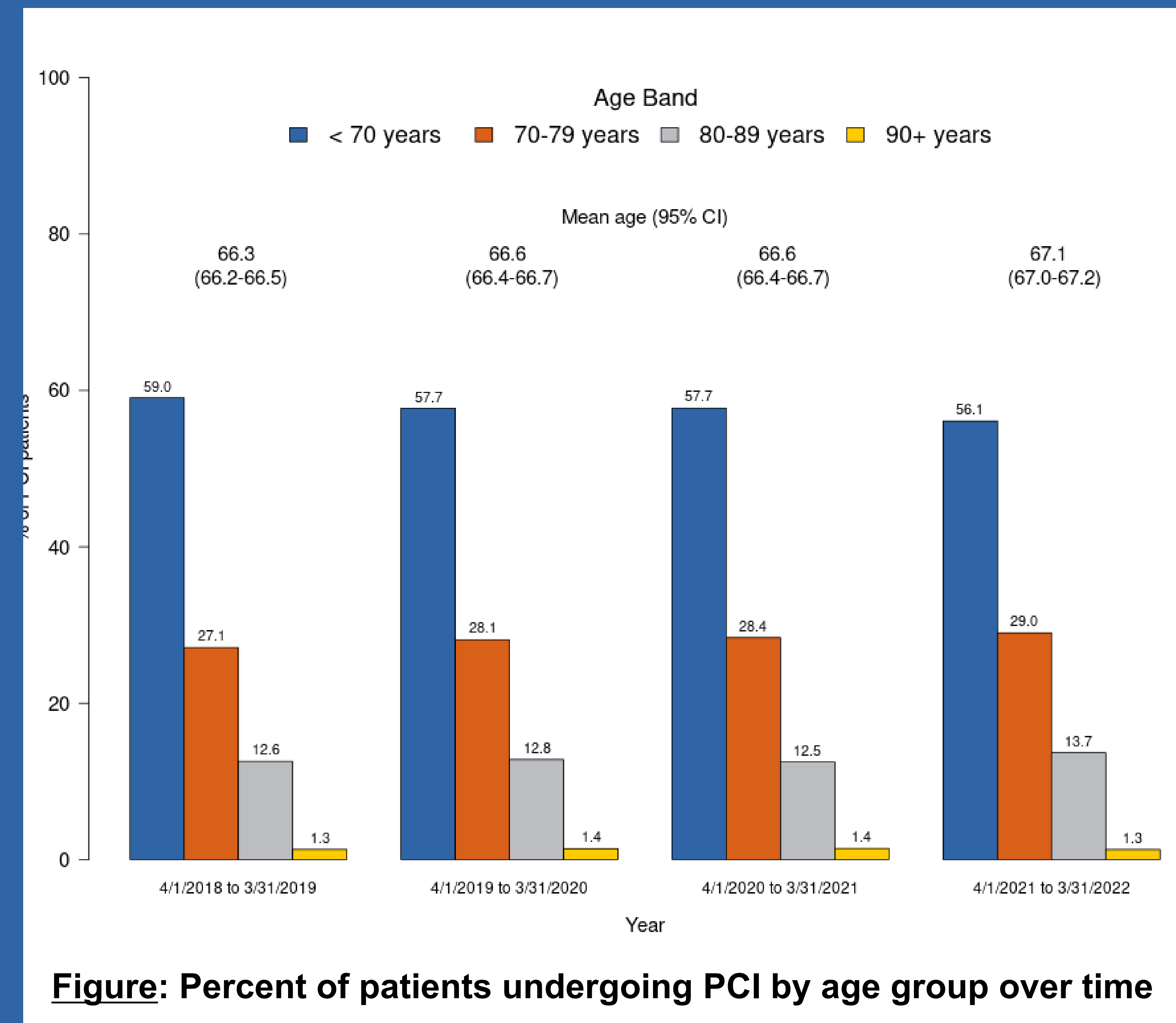


Figure: Percent of patients undergoing PCI by age group over time

METHODS

A retrospective review of the outcomes of patients undergoing PCI within the Blue Cross Blue Shield of Michigan Cardiovascular Consortium was performed. A linear regression model was used to assess trend in age by year. Specific in-hospital post-PCI outcomes were assessed by age.

RESULTS

- The mean age of patients undergoing PCI increased from 66.3 years to 67.1 years from 2018 to 2021. Average patient age increased at an estimated rate of 0.22 years old per year, $p < 0.0001$.
- Increasing age was associated with higher MACE (composite of death, stroke, or non-elective CABG, 2.1% for < 70 years, 2.8% for 70-79 years, 3.7% for 80-89 years, and 5.7% for ≥ 90 years, $p < 0.001$) and higher in-hospital mortality (% of cases: <70: 1.4%, 70-79: 2.1%, 80-89: 3.3%, ≥ 90: 5.5%, $p < 0.001$).
- Increasing age was also associated with a longer mean hospital length of stay, (days: <70: 2.7, 70-79: 3.0, 80-89: 3.6, ≥ 90: 3.9, $p < 0.001$) higher rates of acute kidney injury (% of cases: <70: 2.1%, 70-79: 3.2%, 80-89: 4.4%, ≥ 90: 6.6%, $p < 0.001$), and Post-procedural cardiogenic shock (% of cases: <70: 1.5%, 70-79: 1.6%, 80-89: 2.2%, ≥ 90: 3.3%, $p < 0.001$).
- BMI significantly decreased with age (<70: 31.6, 70-79: 30.24, 80-89: 28.15, ≥ 90: 26.21, $p < 0.001$).
- Rates of femoral arterial access increased with age (<70: 40.1%, 70-79: 46.3%, 80-89: 51.7%, ≥ 90: 57.3%, $p < 0.001$).

CONCLUSIONS

The proportion of older adults undergoing percutaneous coronary intervention continues to increase reflecting demographic changes in the population. Despite advances in interventional cardiology equipment and technique, increasing age continues to remain a risk factor for adverse procedural outcomes post PCI.