

# Long-term trends in incidence and survival of pancreatic cancer in the Southeast of Spain: a population-based study.

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# Introduction

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- Pancreatic cancer: fourth leading cause of cancer-related mortality in Europe and one of the most fatal cancers worldwide. Five-year relative survival rates below 10% (Allemani, C. *et al.*, 2018).
- In 2018 there were almost half a million incident cases worldwide, and 2040 thus causing more deaths than prostate, colon and breast cancer (Ferlay, J. *et al.*, 2018).
- No major changes in incidence in Northern Europe, South America, Asia and Africa, whereas it has been increasing in North America, Canada and Southern Europe (Luo, G. *et al.*, 2019).
- In Spain there have been 6914 newly-diagnosed cases in 2015. (Galceran, *et al.*, 2015)
- Risk factors associated: tobacco use, obesity, diabetes, chronic pancreatitis and heavy alcohol consumption (World Cancer Research Fund 2018).
- Monitoring cancer incidence and survival at the population level provides valuable indicators for cancer control.

# Aim

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- To provide population-based incidence and survival trends of pancreatic cancer over a long time period in a Southeast region of Spain.

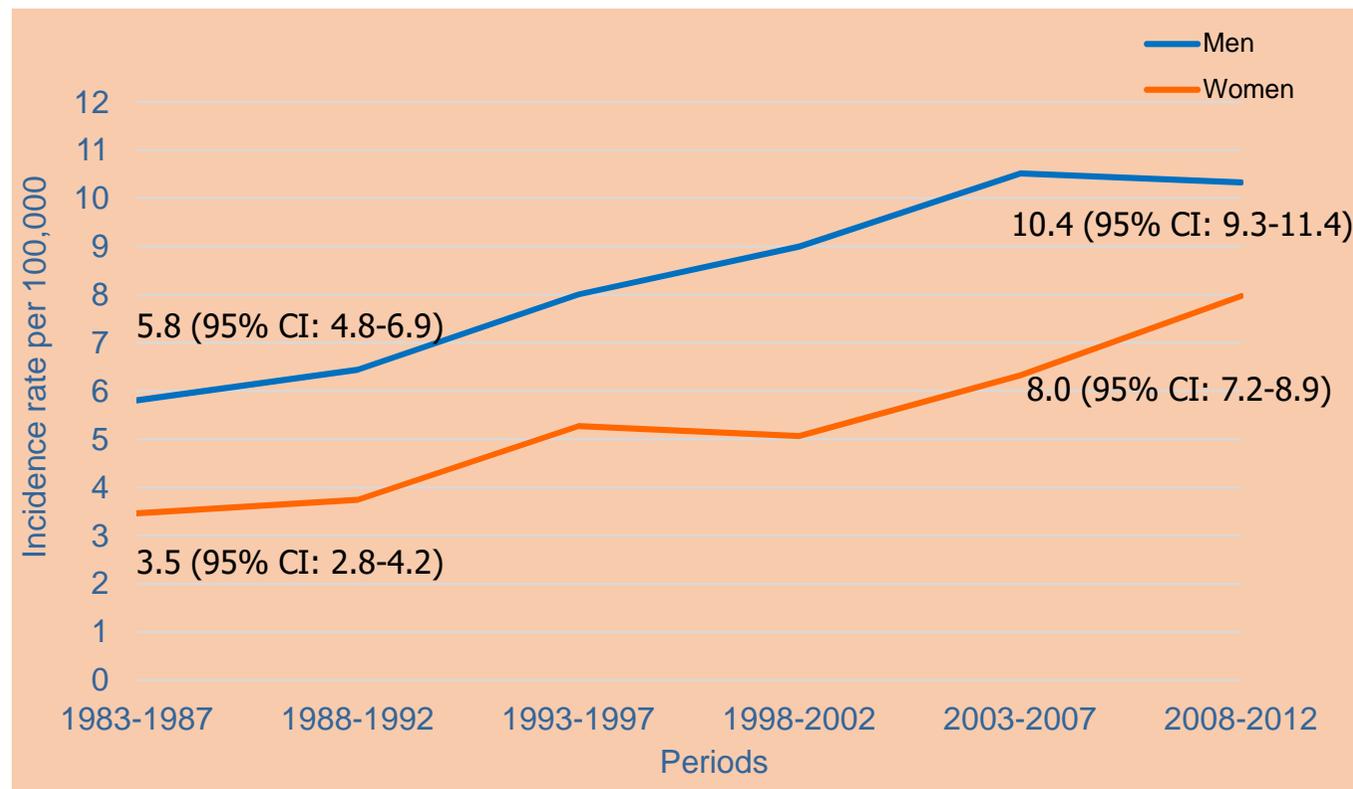
# Methods

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- **Study Population:** all patients of the Region of Murcia (Southeast Spain) with a primary invasive pancreatic cancer diagnosed within a period of 30 years.
- **Data:** Murcia Cancer Registry. C25 ICD-10.
- **Study period:**
  - Incidence: January 1st, 1983 to December 31st, 2012.
  - Survival: incident cases 1990 to 2010 and **Follow-up:** December 31<sup>st</sup>, 2015. Vital status (alive or dead 5 years after diagnosis).
  - The population data were provided by Spanish National Institute of Statistics.
- **Variables:** sex, age, date of incidence, date of end of follow-up, and vital status.
- **Statistical Analysis:**
  - Crude incidence rates by sex and age groups.
  - Age-specific and age-adjusted incidence rates by sex (European/World population standards).
  - Trend analysis: joinpoint regression.
  - 5-years observed survival (Kaplan-Meier),
  - 5-years crude and age-adjusted net survival (Pohar-Perme method).

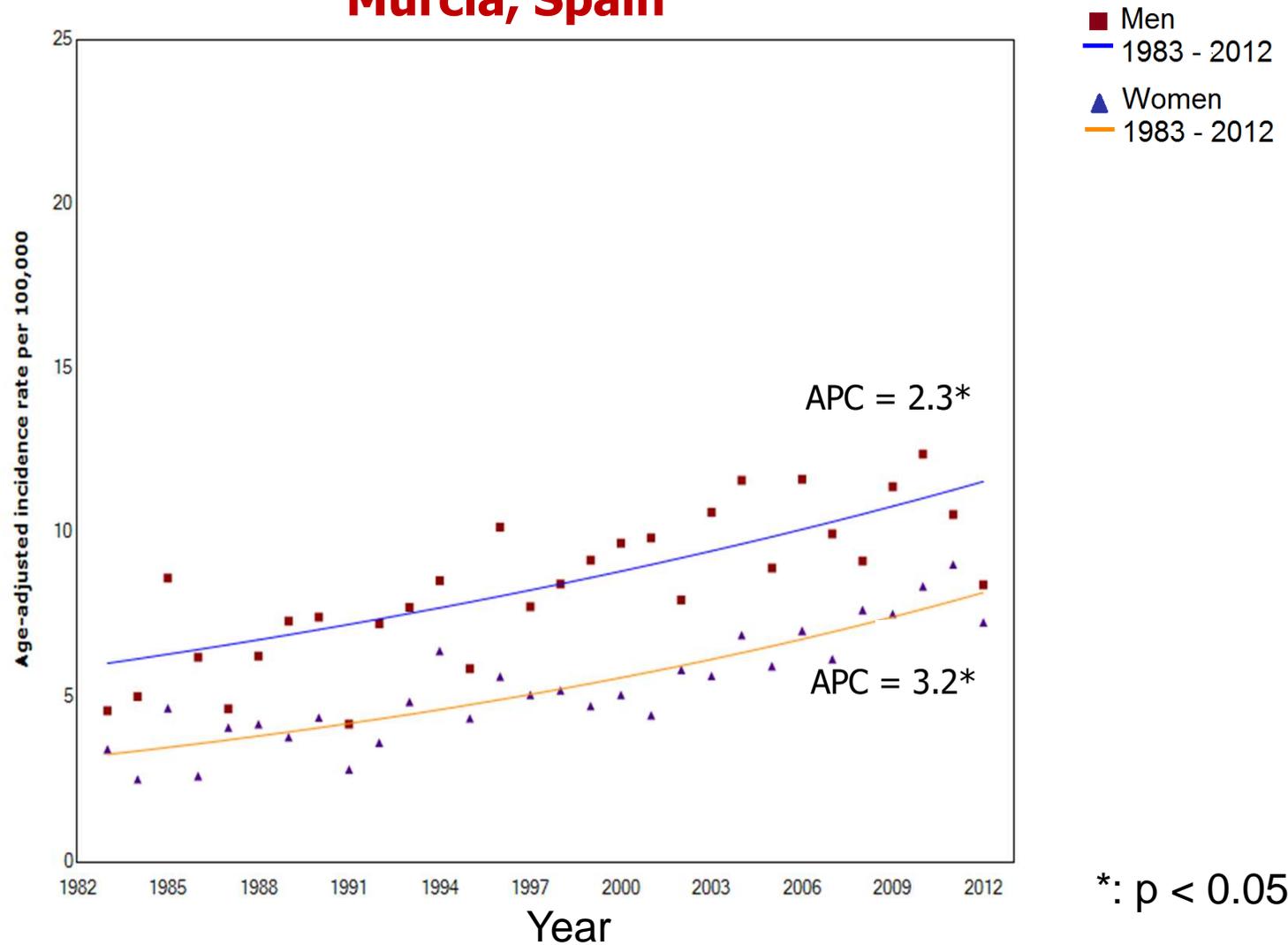
# Results

## Trends of standardized incidence rates of pancreatic cancer (per 100,000) during the 1983-2012 period by sex in the Region of Murcia, Spain. (n=2716)



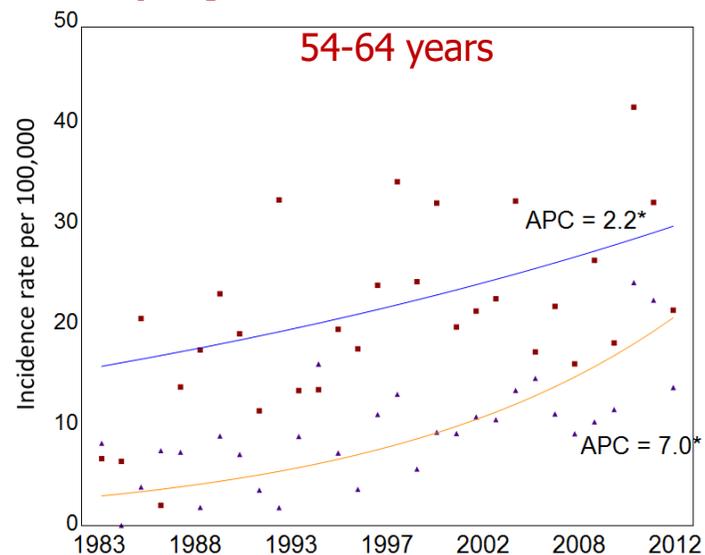
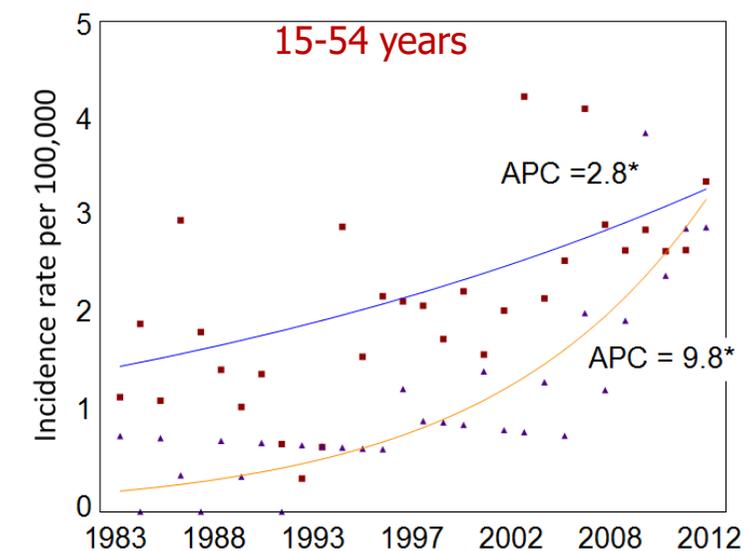
Age-standardized incidence rate (1976 European standard population).  
Men 54% and women 46%.  
Incidence Rate Ratios, Male-to-female: 1.03-1.35.

# Joinpoint analysis: Trends in pancreatic cancer incidence during the 1983-2012 period, by sex and year of diagnosis in the Region of Murcia, Spain



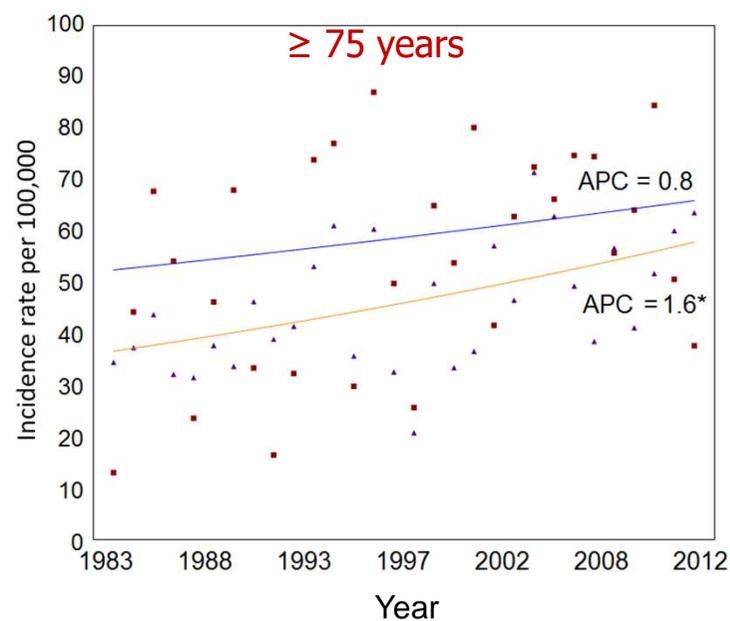
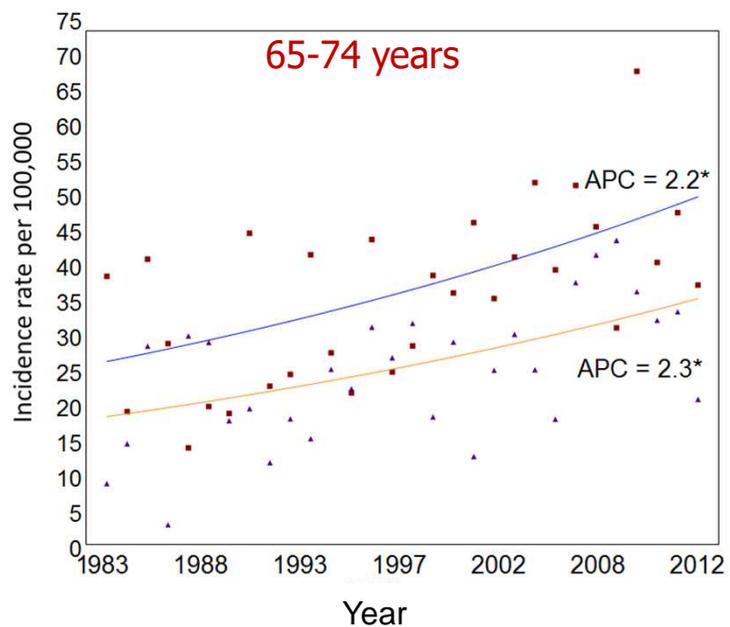
\*: p < 0.05

# Joinpoint analysis: Trends in pancreatic cancer incidence during the 1983-2012 period by sex and age at diagnosis in the Region of Murcia, Spain



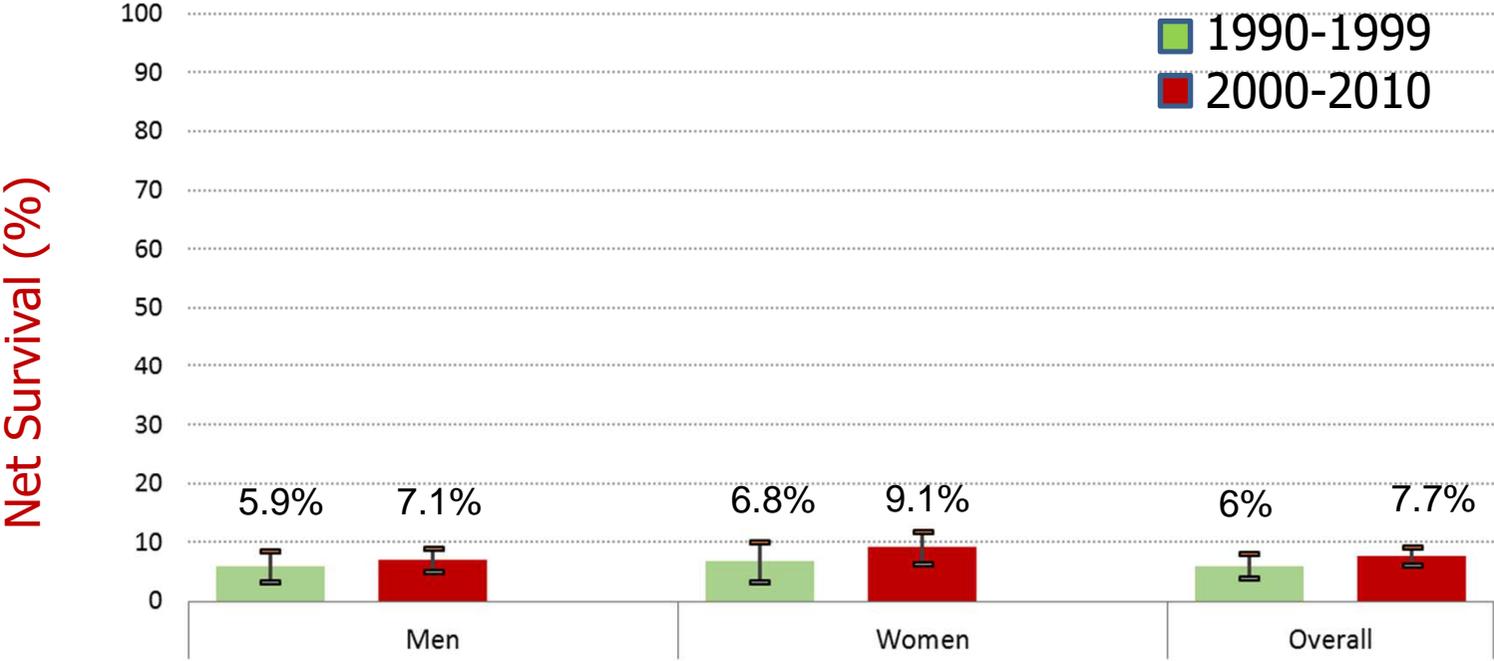
- Men
- 1983 - 2012
- ▲ Women
- 1983 - 2012

The mean age at diagnosis was 69.5 (SD 12.4)

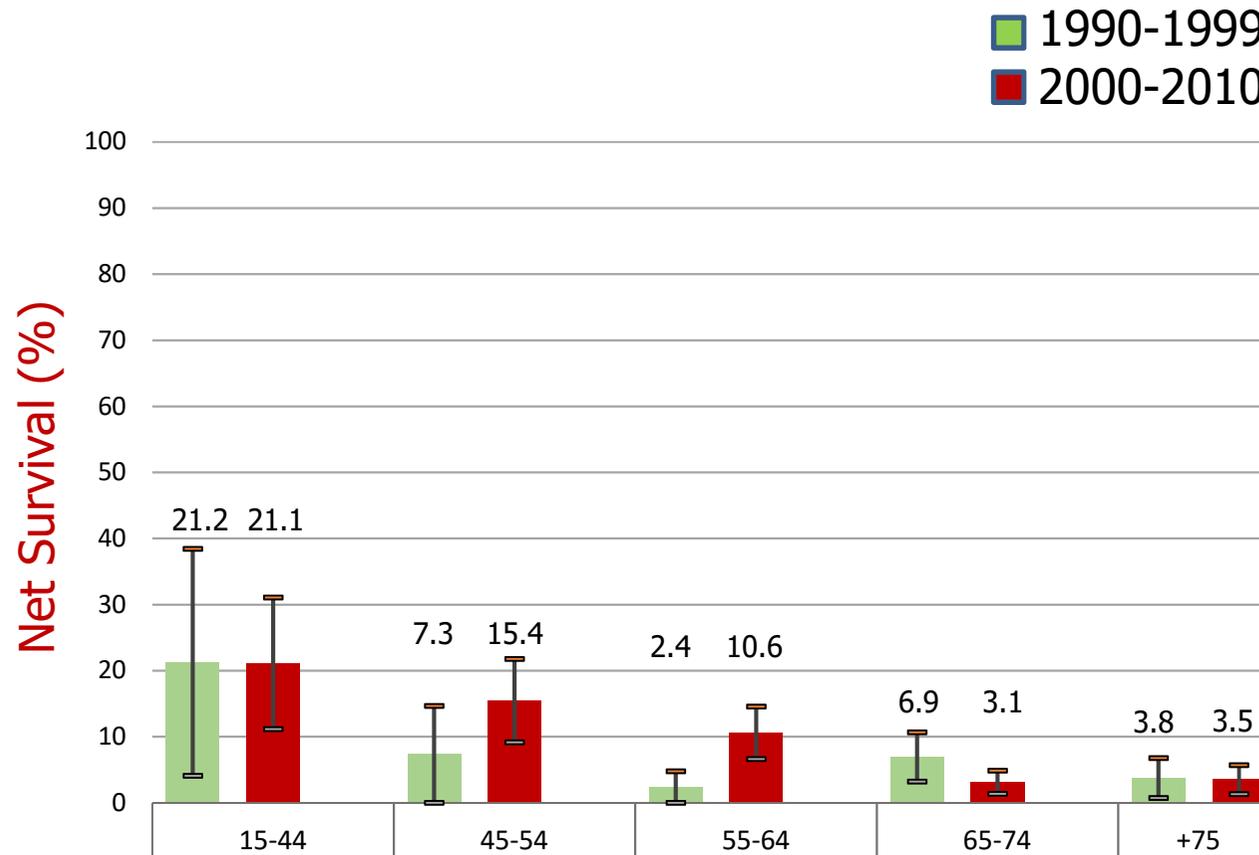


\* p < 0.05

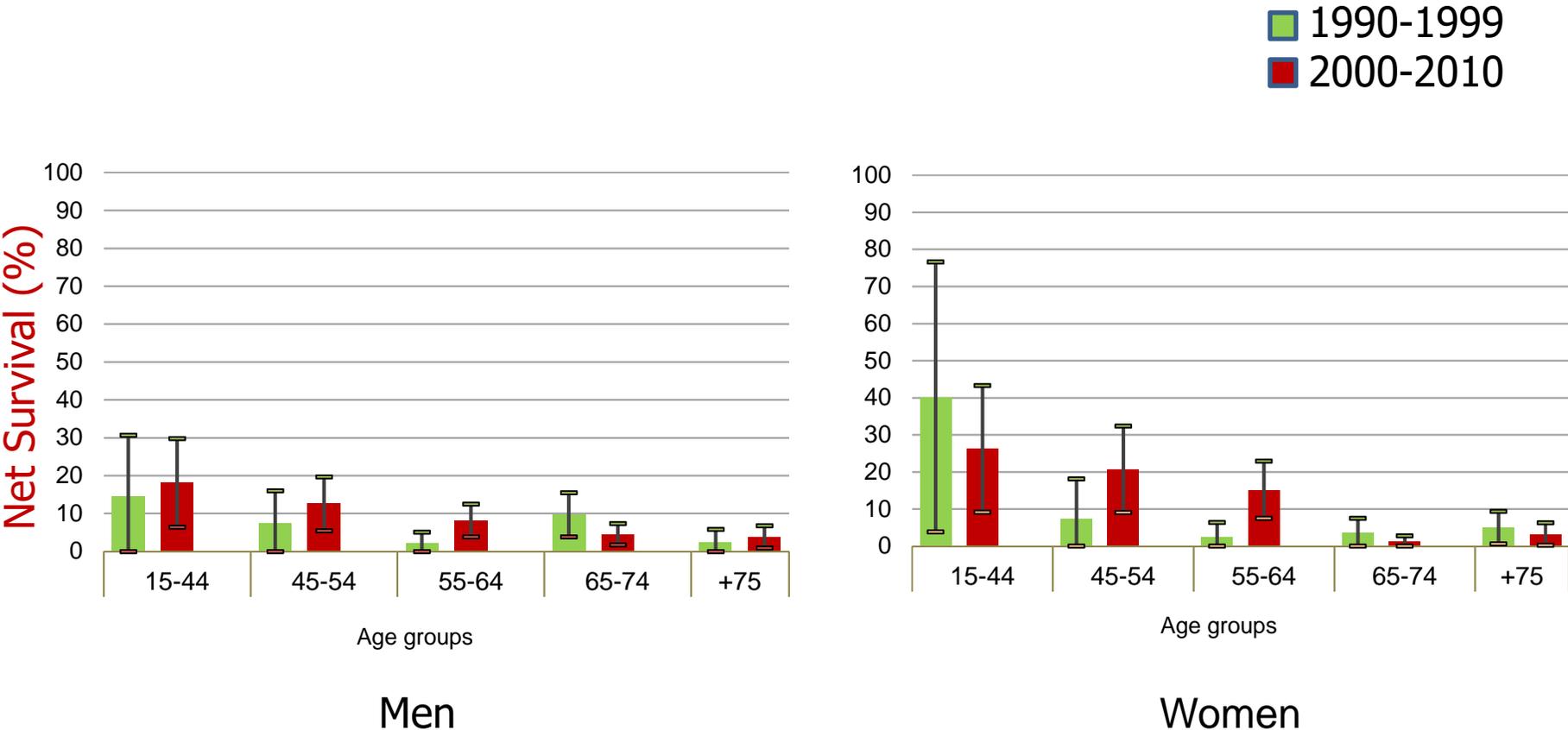
**Five-year age-adjusted net survival (and 95% confidence intervals) of pancreatic cancer, during the 1990-2010 period by sex and period in the Region of Murcia, Spain.**



# Five-year net survival (and 95% confidence intervals) of pancreatic cancer during the 1990-2010 period by age at diagnosis and period in the Region of Murcia, Spain.



# Five-year net survival (and 95% confidence intervals) of pancreatic cancer during the 1990-2010 period by age at diagnosis and period in women and men of the Region of Murcia, Spain.



# Conclusions: Incidence

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- The incidence of pancreatic cancer in the Region of Murcia has significantly increased by 2.2-fold in the last 30 years, without any change-point in the trend.
- Age-stratified incidence trends were similar across age groups in men, whereas women showed the highest increment in annual percent change (APC) at younger ages (15-54 age groups).
- Risk factors such as tobacco consumption could be influencing these results.

# Conclusions: Survival

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- The age-adjusted net survival at five years in the Region of Murcia was 7.2%.
- Although net survival increased slightly from 6 to 7.7% in the last two decades, it nevertheless remains very low in both sexes (<10%).
- A slight improvement in survival in the 2000-2010 decade was observed, especially in the middle age groups.
- Poor prognosis is related to the aggressive nature of this cancer and the lack of early detection tools.

MUCHAS GRACIAS.

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