

# Hormone Replacement Therapy and Long-term Mortality of UK Women



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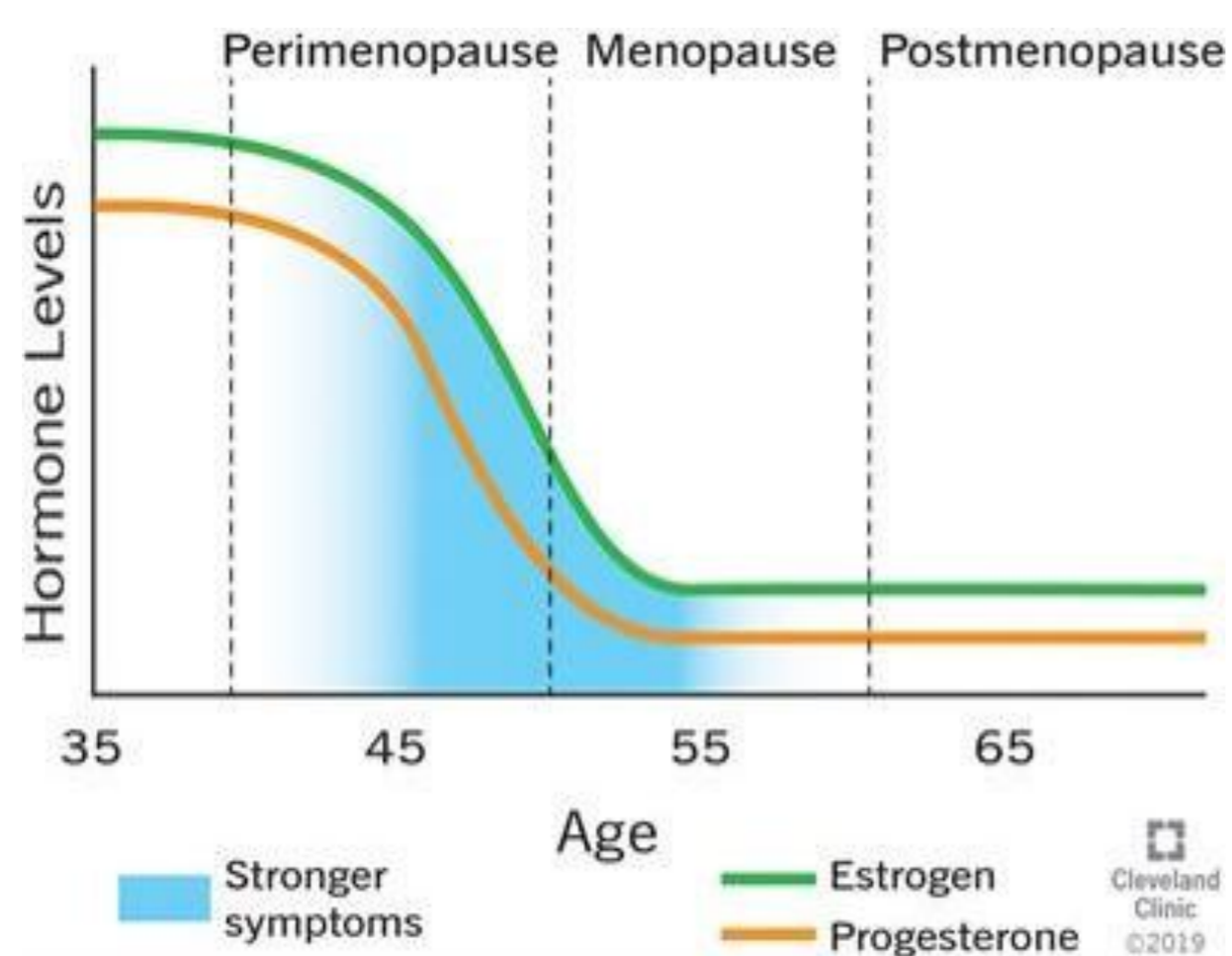
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## INTRODUCTION

### Background

- Around 80% of women in the western countries suffer from menopausal symptoms.
- Each year, approximately 1.5 million women suffer from intolerable menopausal symptoms in the United Kingdom (UK) [1].
- The total cost of only hospital stays to the National Health Service (NHS) for postmenopausal osteoporotic women is in excess of £400 million per year [2].



### About HRT

- HRT is mainly used to relieve women from menopausal symptoms.
- It contains female sex hormones estrogen and/or progesterone.
- It has been used for more than sixty years.
- First available in the United Kingdom in 1965.
- Existing research of HRT are contradictory [3].

## STUDY DESIGN

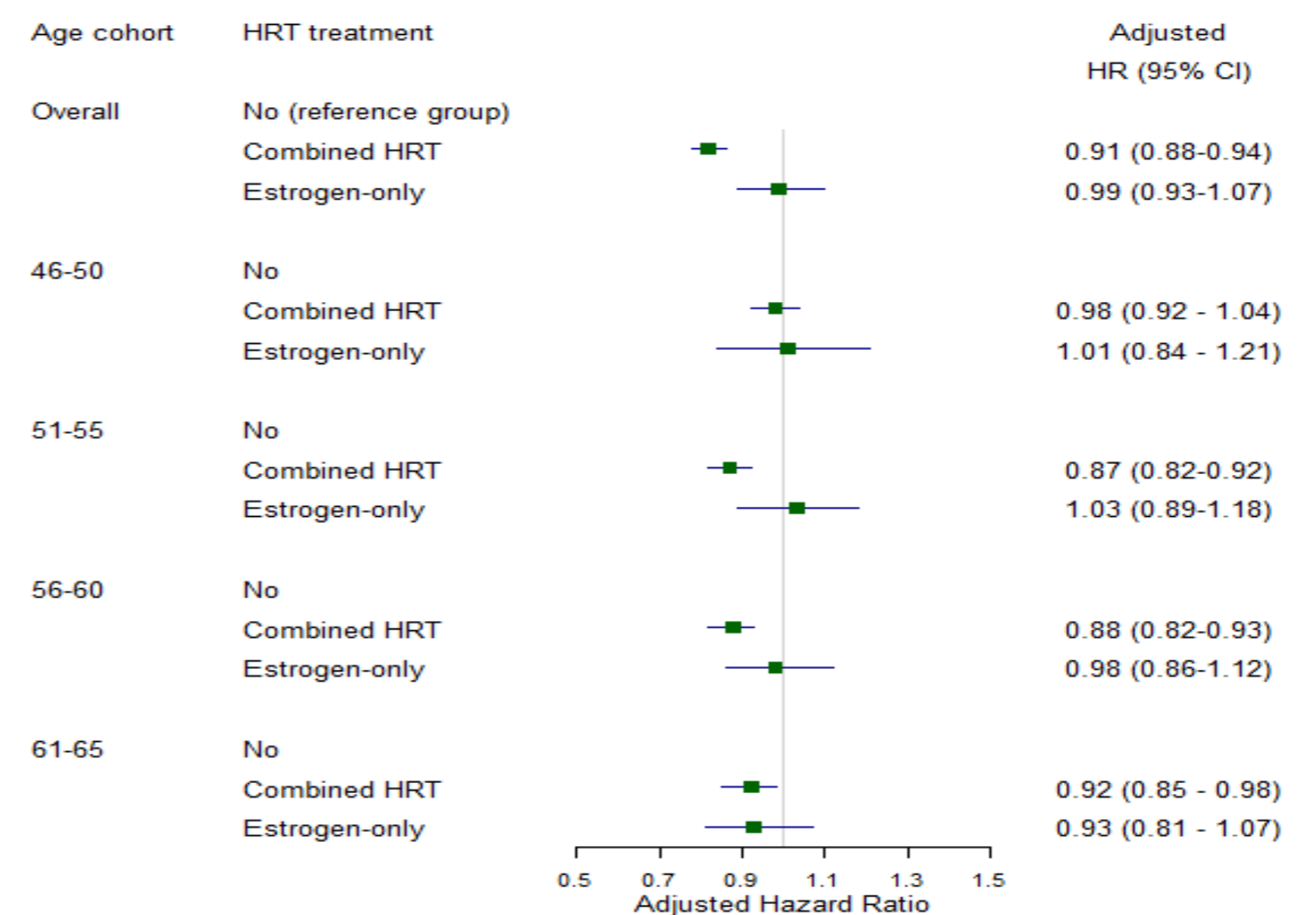
- A subset of The Health Improvement Network (THIN) database has been used to extract patients information for this study.
- Cases are healthy patients of age 46 years and above who received their first HRT between 1984 and 2017, and matched with healthy controls by birth year and general practice (GP).
- Length of follow-up was upto 31 years.
- Working data consists of 112,354 cases and 245,320 matched controls.

## STATISTICAL ANALYSES

- A parametric Weibull-Cox proportional hazard model was fitted to estimate the hazards of all-cause mortality.
- The significant covariates were selected at 5% level of significance.
- Both shape and scale parameters were estimated for the variables with time varying hazard.

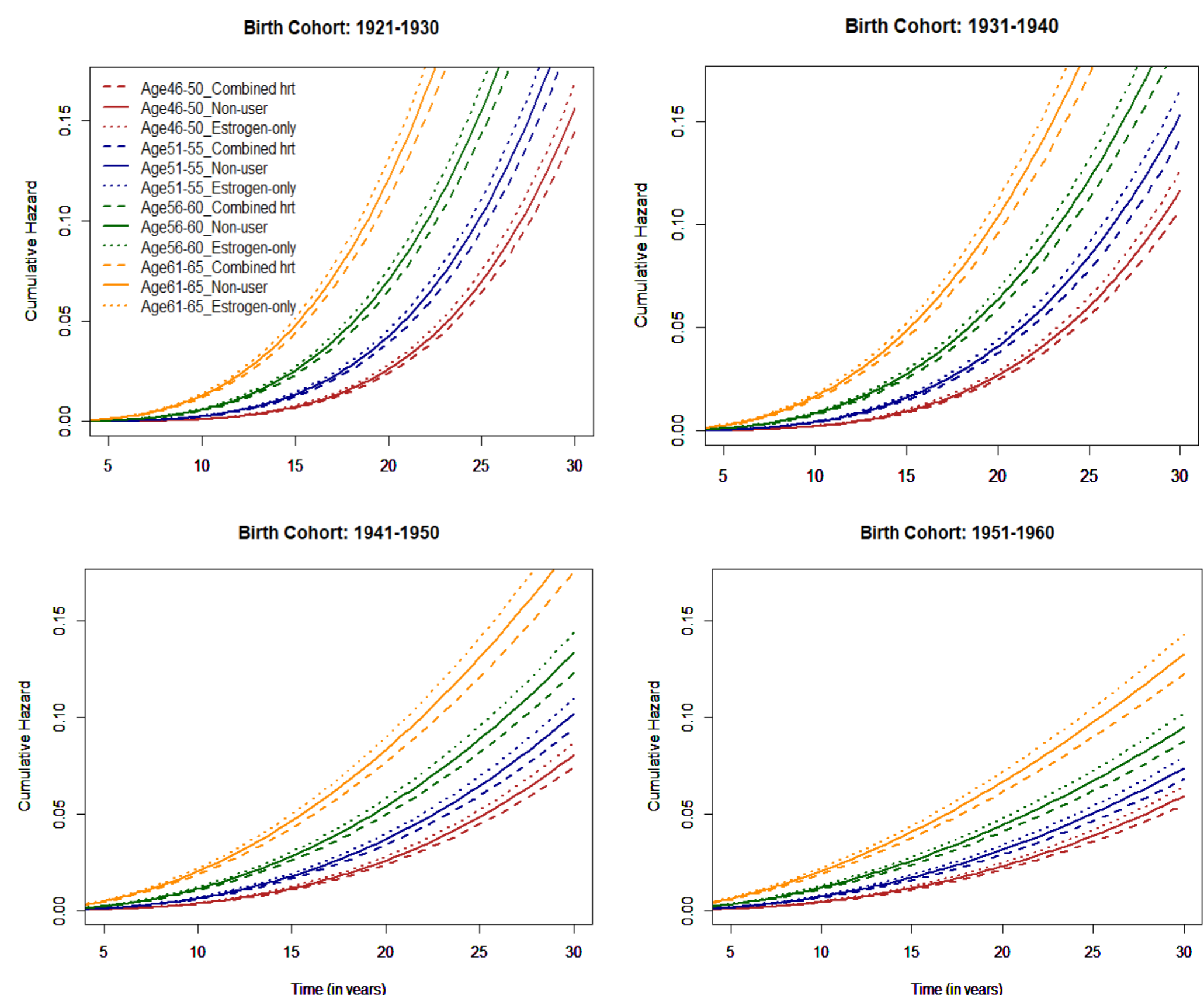
## RESULTS

### Adjusted hazard ratios of all-cause mortality associated with the use of HRT by age at first treatment:



- Overall, combined HRT reduces the hazards of all-cause mortality by 9% in UK women compared to the non-users of the same age.

### Cumulative hazards by age group at first treatment and its type in four birth cohorts:



- Longevity increases subsequently in women born in later birth cohorts than the earlier.

## REFERENCES

1. NICE (2015). Putting NICE guidance into practice. <https://www.nice.org.uk/guidance/ng23/resources/costing-report-pdf-556376653>. Accessed: 2018-03-06
2. ILCUK (2010). Osteoporosis in the UK. <http://www.ilcuk.org.uk> Accessed: 2018-03-06.
3. Cagnacci, A., & Venier, M. (2019). The Controversial History of Hormone Replacement Therapy. *Medicina*, 55(9), 602.