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Time trends and socioeconomic variation in use of radiotherapy and radical surgery for prostate cancer in an English region 1995-2006

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Prostate cancer: Too many uncertainties



Prostate cancer: Too many uncertainties

Aetiological risk factors?

Which treatment?

Screening (asymptomatic diagnosis): Does it work?

Who gets treated and by which treatment?

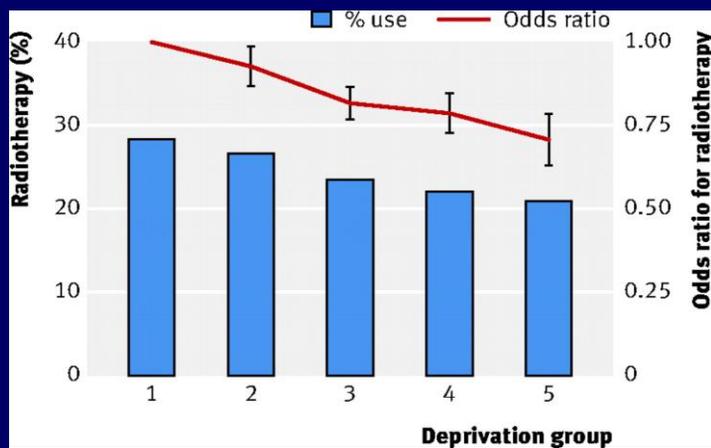
Data

- 35,171 men with prostate cancer; East of England; 1995-2006
- Information on
 - Socioeconomic status measured with small area of residence (IMD 2004, at LSOA)
 - Treatment use (radiotherapy and curative surgery)
 - Stage for 57% of patients (latter 9 years)

Analysis

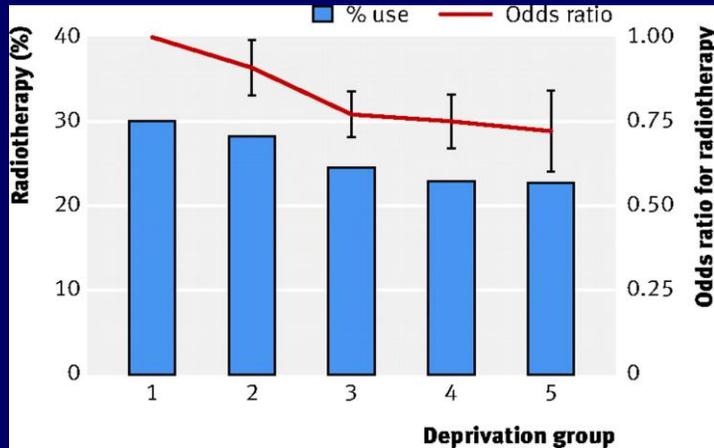
- Treatment use % by variable category
- Multivariate regression. Model 1
 - Treatment status as outcome variable
 - Adjusted for age, diagnosis period, morphology status, deprivation (and stage)
- Model 2. As for Model 1+ random effects for hospital of diagnosis
 - ‘recognising’ the clustered nature of the data

Socioeconomic variation in radiotherapy use – all cases (n=35,171)



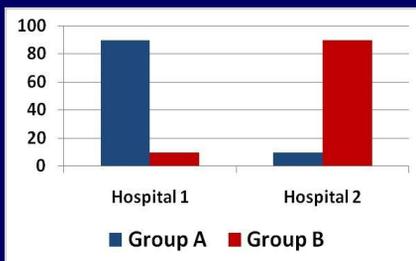
By increasing deprivation group OR: **0.92** (0.90-0.94), $p < 0.001$

Analysis restricted to 'staged' cases and adjusted for stage – radiotherapy (n=15,916)



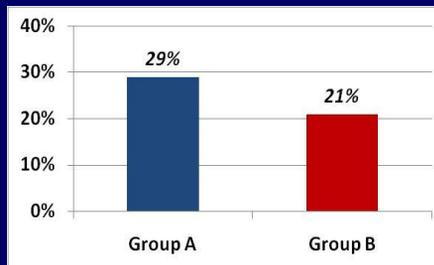
By increasing deprivation group OR: **0.91** (0.88-0.94), $p < 0.001$

Potential role of hospital – a hypothetical example

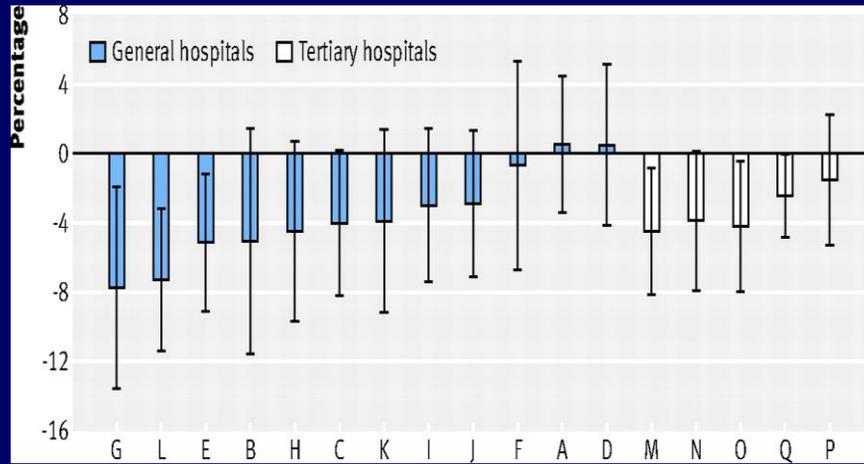


Assume **Hospital 1** has equitable treatment use of 30% and **Hospital 2** 20%

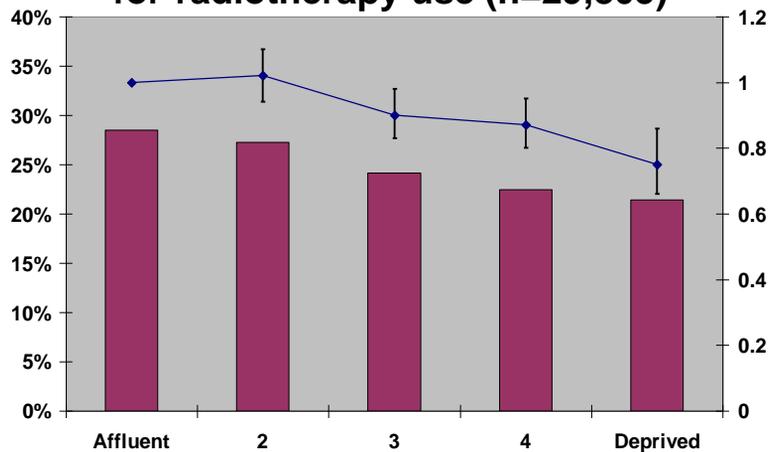
Treatment use differences between Groups A and B are artefactual



Deprivation differences in radiotherapy use, by hospital

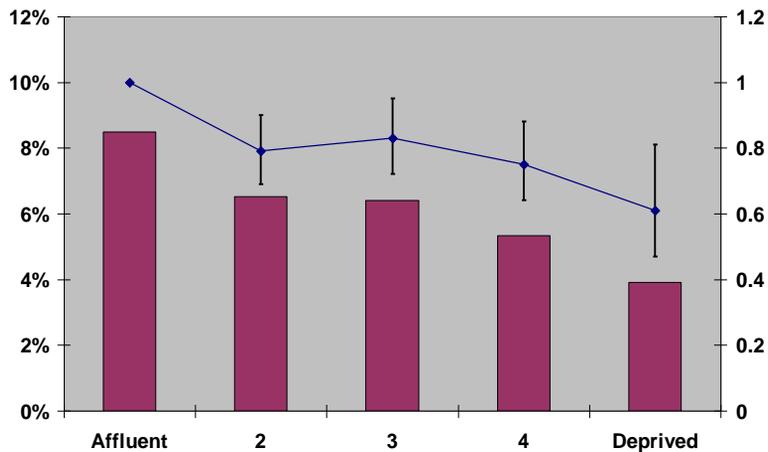


Multi-level regression model (cluster=hospital of diagnosis) for radiotherapy use (n=29,805)



By increasing deprivation group OR: **0.94** (0.92-0.96), $p < 0.001$

**Multi-level regression model
(cluster=hospital of diagnosis)
for radical prostatectomy use (n=29,805)**



By increasing deprivation group OR: **0.90** (0.86-0.95), $p < 0.001$

In summary

- (Historical) socioeconomic variation in use of radiotherapy and radical prostatectomy
- Association unlikely to be due to
 - Hospital differences (practice, case-mix)
 - Socioeconomic differences in stage
 (Fairley et al, BJC 2009)
- Ethnicity not adjusted for – but low % of 'non-White' in reference population
(Jack et al, BJUI 2009)

What could be responsible

- Co-morbidity – particularly for surgery
- A ‘cluster’ of factors relating to socioeconomic differences in
 - Healthcare literacy
 - Patient risk attitudes and treatment choices
 - Communication with clinicians
 - Decision-making interactions between patients and treating clinicians

(Cykert et al., JAMA 2010)



Acknowledgements



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Clement Brown

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Uro-oncology group

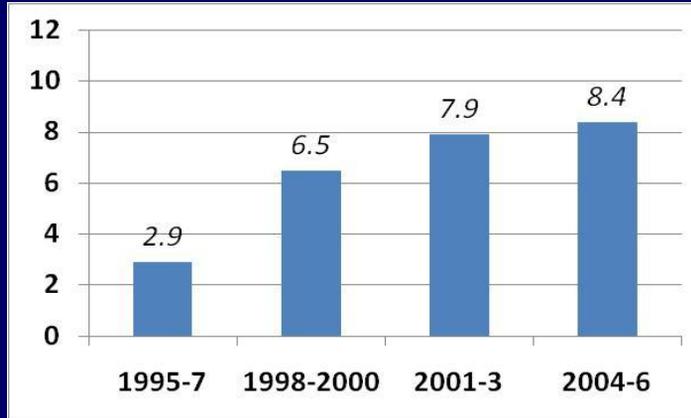
Professor David Neal

**Health Services
Research Group**

Josephine Barbieri

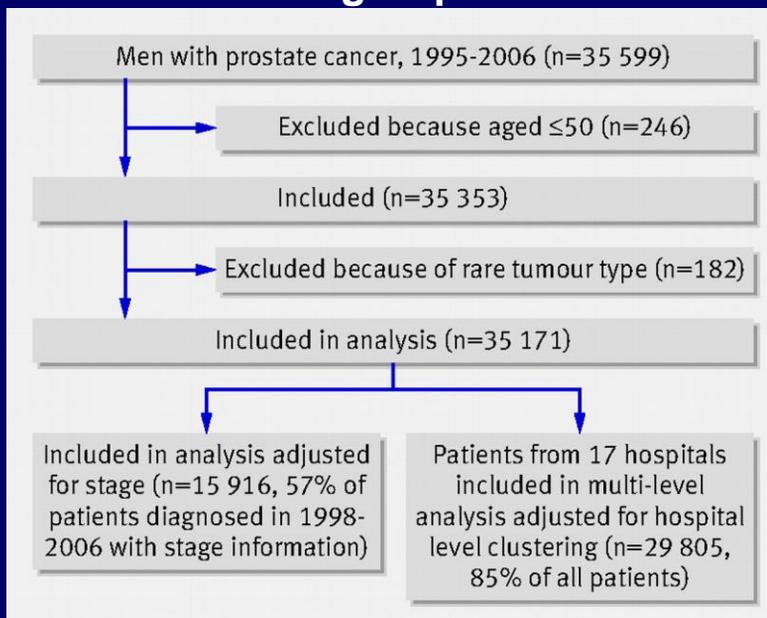
Georgios Lyratzopoulos

Time trends in radical prostatectomy use, 1995-2006

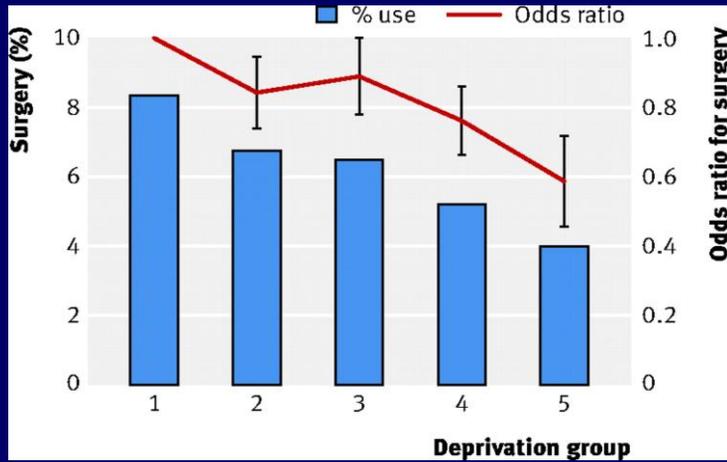


No apparent time trends in radiotherapy use:
~25% throughout study period

Flow chart of study population and analysis groups

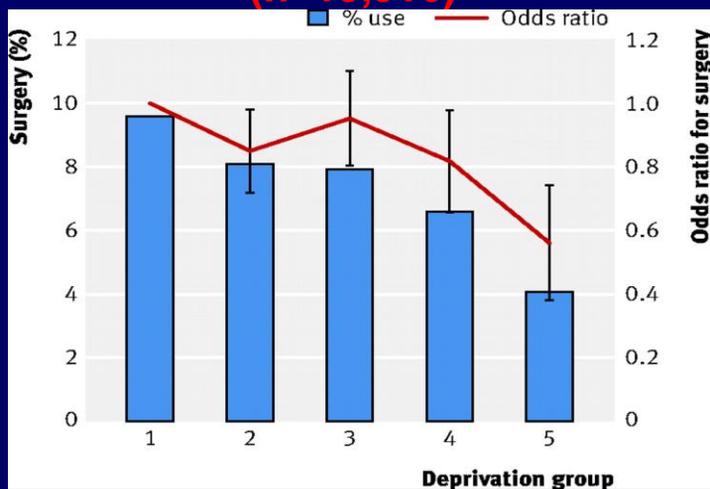


Socioeconomic variation in radical prostatectomy use (n=35,171)



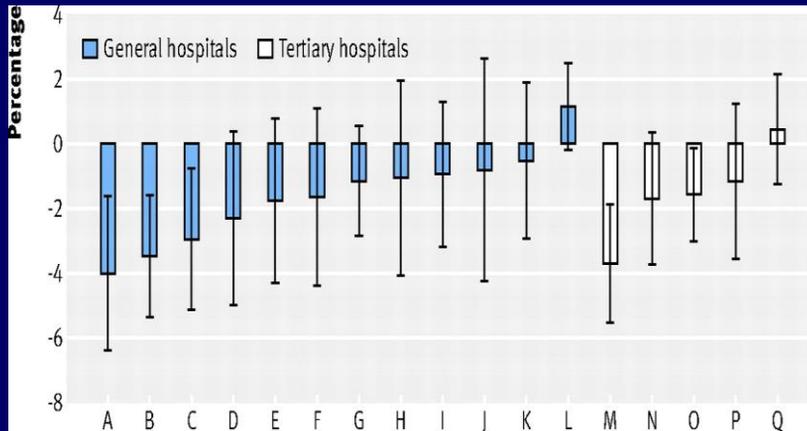
By increasing deprivation group OR: **0.91** (0.87-0.94), $p < 0.001$

Could it be stage? Analysis restricted to 'staged' cases – surgery (n=15,916)



By increasing deprivation group OR: **0.92** (0.87-0.97), $p < 0.001$

Variation of deprivation differences by hospital – Radical prostatectomy



Treatment decisions by patients “....were independently associated with perceptions of communication and prognosis.....”

Factors Associated With Decisions to Undergo Surgery Among Patients With Newly Diagnosed Early-Stage Lung Cancer

Samuel Cykert, MD

Peggy Dilworth-Anderson, PhD

Michael H. Monros, MD

Paul Walker, MD

Franklin R. McGuire, MD

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LUNG CANCER REMAINS THE LEADING cause of cancer death in the

Context Lung cancer is the leading cause of cancer death in the United States. Surgical resection for stage I or II non-small cell cancer remains the only reliable treatment for cure. Patients who do not undergo surgery have a median survival of less than 1 year. Despite the survival disadvantage, many patients with early-stage disease do not receive surgical care and rates are even lower for black patients.

Objectives To identify potentially modifiable factors regarding surgery in patients newly diagnosed with early-stage lung cancer and to explore why blacks undergo surgery less often than whites.

Design, Setting, and Patients Prospective cohort study with patients identified by pulmonary, oncology, thoracic surgery, and generalist practices in 5 communities through study referral or computerized tomography review protocol. A total of 437 patients with biopsy-proven or probable early-stage lung cancer were enrolled between December 2005 and December 2008. Before establishment of treatment plans,

Patient decision-making and perceived quality of communication with clinician, Cykert et al., JAMA 2010

Iatrogenic morbidity post-prostate cancer diagnosis and treatment

Smith, D. P et al. BMJ 2009;339:b4817

