2018 May 4th

# Ultrasound af testes

- An epidemiological approach

PhD fellow Malene Roland Pedersen

Department of Radiology Vejle Hospital

# Testicular microlithiasis?

- Calcification of 1 - 3 mm in size
- Incidental finding during US
- Pain and symptomless
- Prevalence mellem 0.9 -18 %
- Testicular microlithiasis is often bilateral
- Suggested associated with testes cancer

Eur Radiol (2015) 25:223–230
DOI 10.1007/s00330-014-3437-x

ULTRASOUND

# Testicular microlithiasis imaging and follow-up: guidelines of the ESUR scrotal imaging subcommittee

**Jonathan Richenberg · Jane Belfield · Parvati Ramchandani · Laurence Rocher · Simon Freeman · Athina C. Tsili · Faye Cuthbert · Michal Studniarek · Michele Bertolotto · Ahmet Tuncay Turgut · Vikram Dogra · Lorenzo E. Derchi**

Received: 8 July 2014 / Revised: 25 August 2014 / Accepted: 8 September 2014 / Published online: 15 October 2014


**Abstract**

*Objectives* The subcommittee on scrotal imaging, appointed by the board of the European Society of Urogenital Radiology (ESUR), have produced guidelines on imaging and follow-up in testicular microlithiasis (TML).

*Methods* The authors and a superintendant university librarian independently performed a computer-assisted literature search of medical databases: MEDLINE and EMBASE. A further parallel literature search was made for the genetic conditions Klinefelter's syndrome and McCune-Albright syndrome.

*Results* Proposed guidelines are: follow-up is not advised in patients with isolated TML in the absence of risk factors (see Key Points below); annual ultrasound (US) is advised for patients with risk factors, up to the age of 55; if TML is found with a testicular mass, urgent referral to a specialist centre is advised.

*Conclusions* Consensus opinion of the scrotal subcommittee of the ESUR is that the presence of TML alone in the absence of other risk factors is not an indication for regular scrotal US, further US screening or biopsy. US is recommended in the follow-up of patients at risk, where risk factors other than microlithiasis are present. Risk factors are discussed and the

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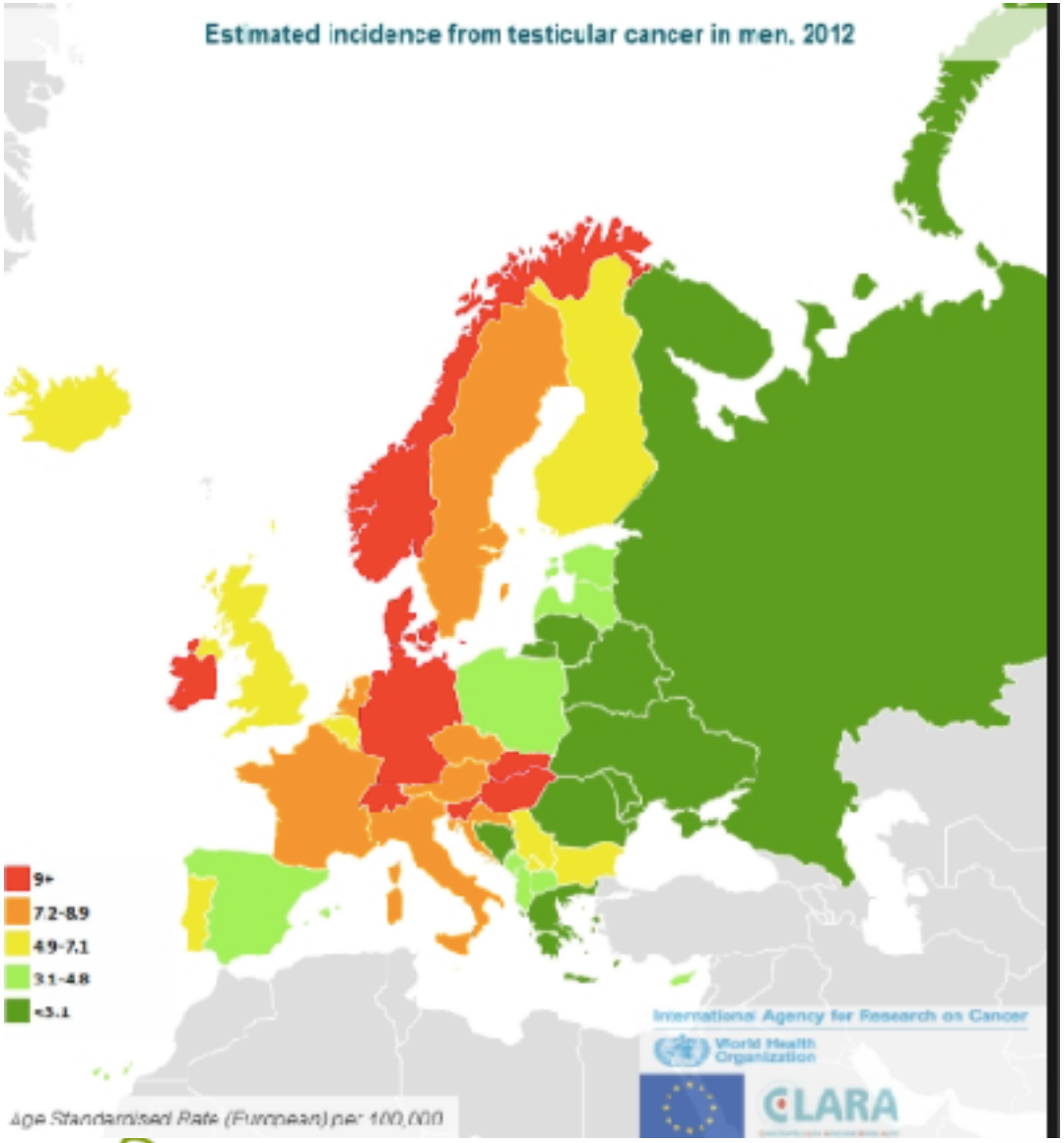
# Testicular microlithiasis and risk factors

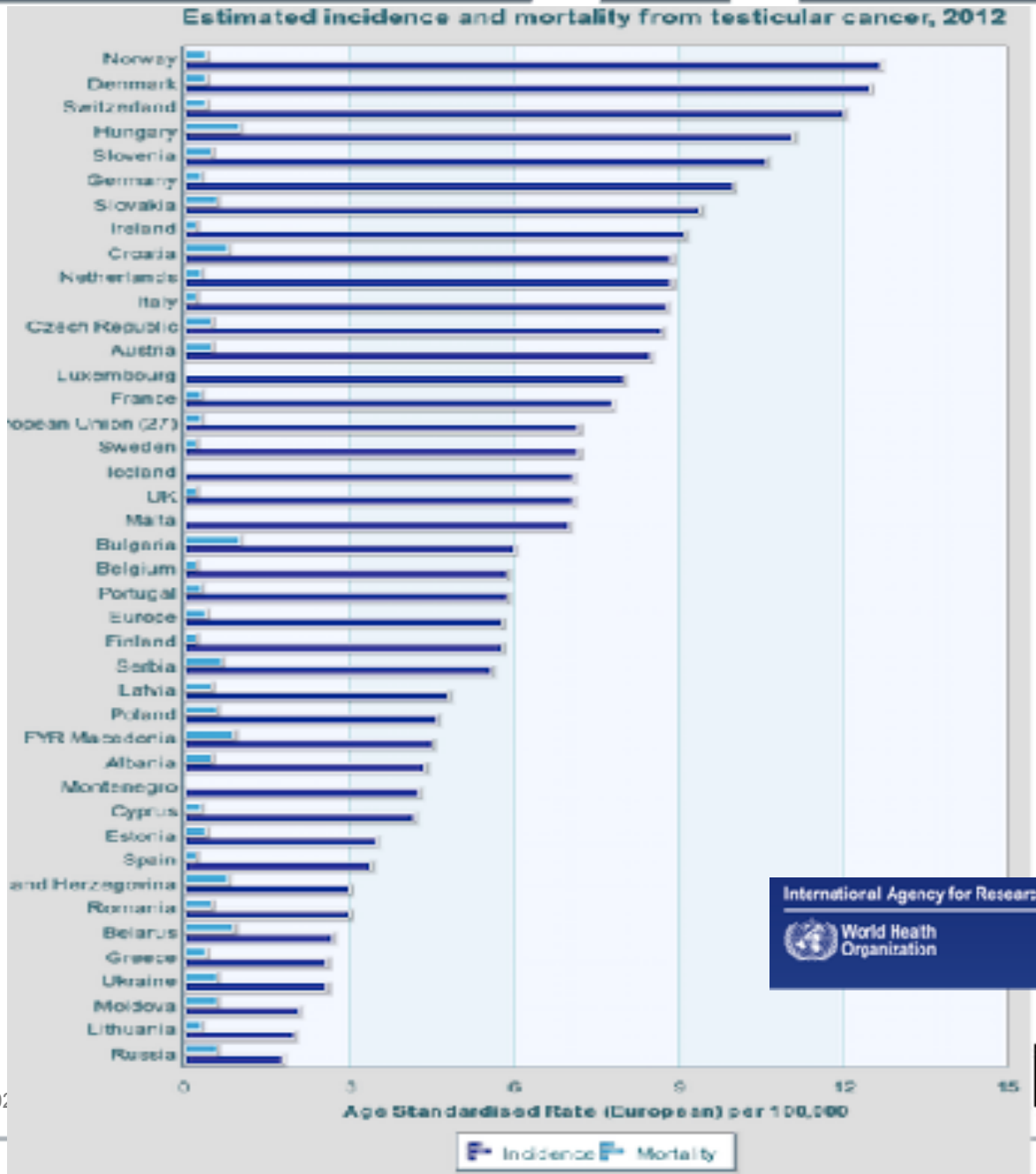
- Previously diagnosed with T. C
- History of maldescent
- History of Orchidepexy
- Atrofi (testis less than12 ml)
- T. C in 1 generation relative (e.g. father, brother)

Follow-up US

- Up to the age of 55
- Yearly if risk factors




WHO EUCAN factsheet



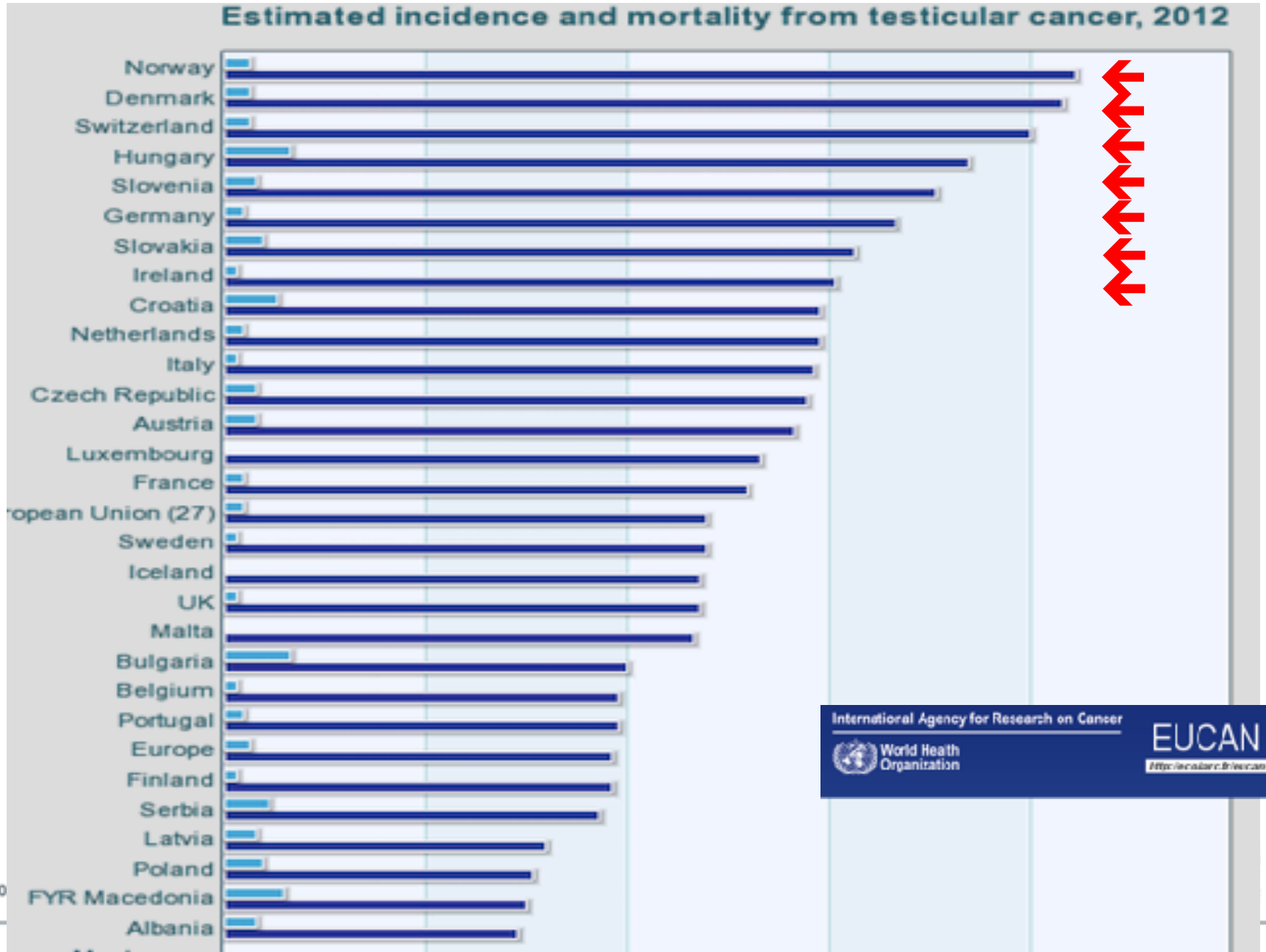

International Agency for Research on Cancer

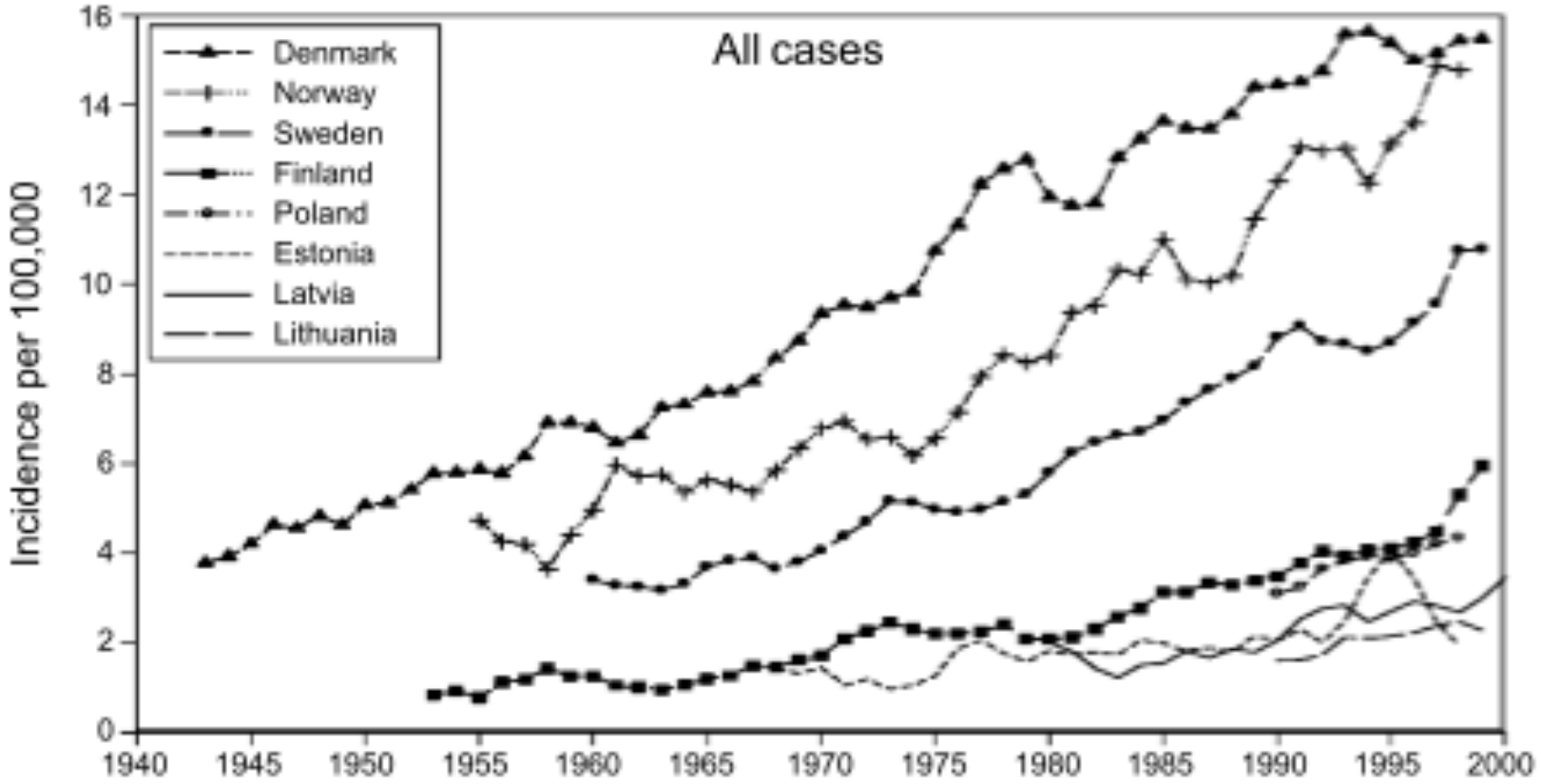
World Health Organization

EUCAN

Region Syddanmark

Lillebælt


Estimated incidence and mortality from testicular cancer, 2012
Norway
Denmark
Switzerland
Hungary
Slovenia
Germany
Slovakia
Ireland
Croatia
Netherlands
Italy
Czech Republic
Austria
Luxembourg
France
opean Union (27)
Sweden
Iceland
UK
Malta
Bulgaria
Belgium
Portugal
Europe
Finland
Serbia
Latvia
Poland
FYR Macedonia
Albania
International Agency for Research on Cancer
World Heath Organization
EUCAN




Kilde: Trends in testicular cancer incidence and mortality in 22 European countries:

Continuing increases in incidence and declines in mortality

Freddie Bray, Lorenzo Richiardi, Anders Ekbom, Eero Pukkala, Martina Cuninkova and Henrik Møller

Int. J. Cancer: 118, 3099–3111 (2006)

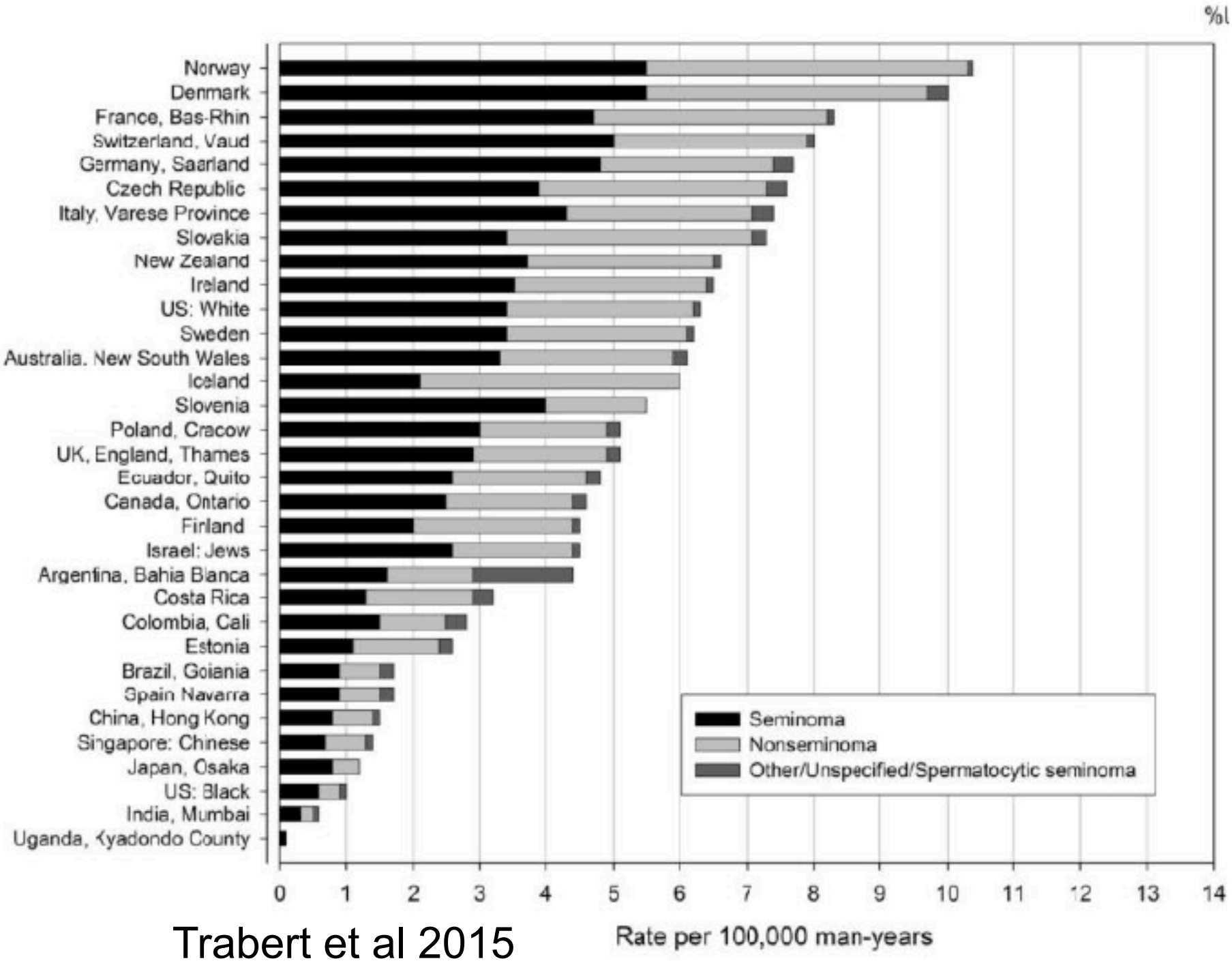
Region Syddanmark

Sygehus Lillebælt

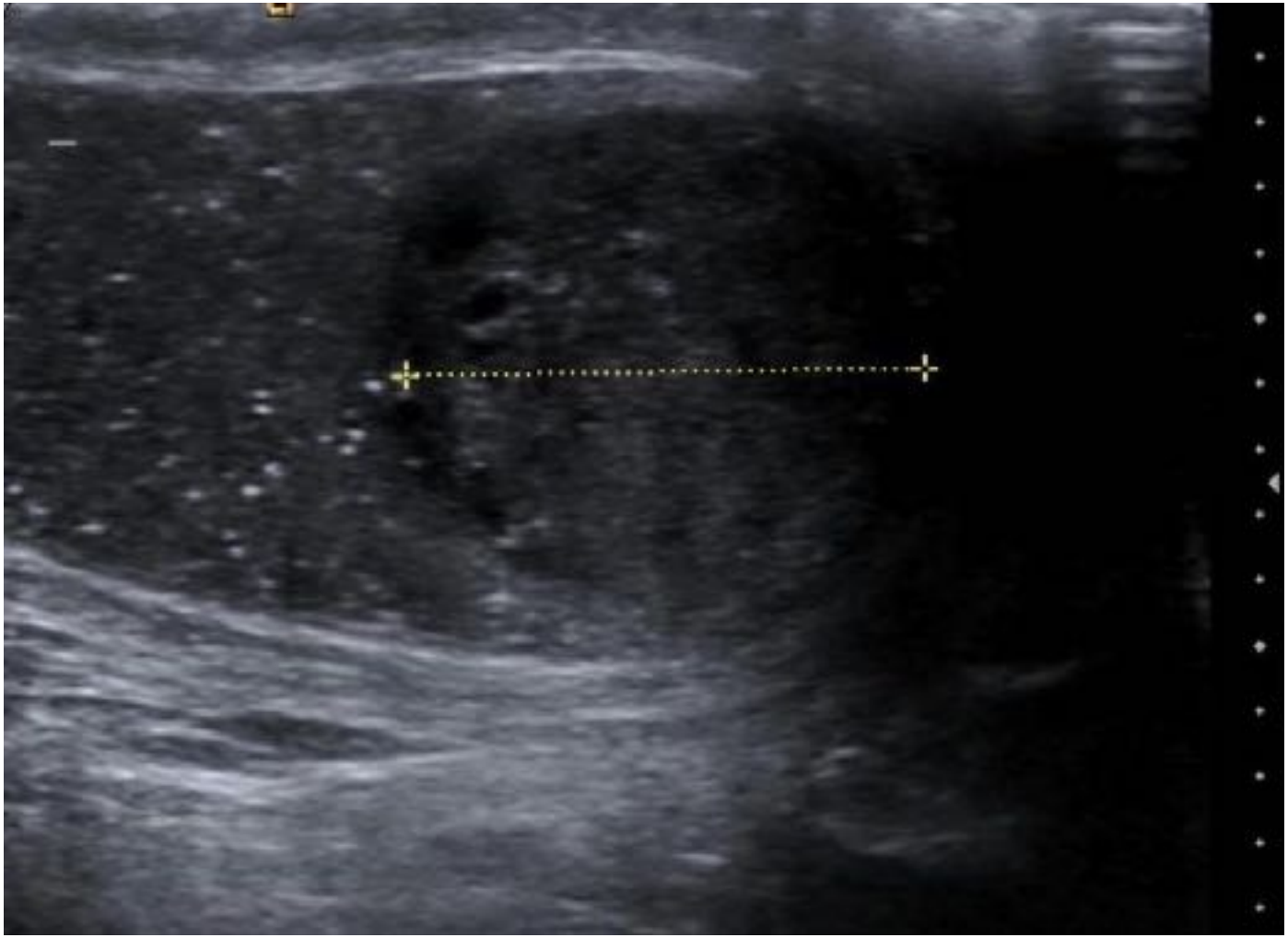
**Table 2** Distribution of registered cancers from 2001-2007 in England by ethnic group and missing ethnicity values (percentages in brackets)

| Cancer | White | | Indian | | Pakistani | | Bangladeshi | | Black African | | Black Caribbean | | Chinese | | All other ethnic groups | | No ethnicity recorded | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prostate | 132278 | (62.5) | 934 | (0.4) | 491 | (0.2) | 90 | (0.0) | 867 | (0.4) | 3185 | (1.5) | 226 | (0.1) | 10624 | (5.0) | 63068 | (29.8) | 211757 |
| Testes | 50133 | (81.2) | 223 | (0.4) | 117 | (0.2) | 42 | (0.1) | 69 | (0.1) | 186 | (0.3) | 62 | (0.1) | 3135 | (5.1) | 7762 | (12.6) | 61729 |
| Kidney | 7890 | (65.7) | 88 | (0.7) | 65 | (0.5) | 8 | (0.1) | 17 | (0.1) | 28 | (0.2) | 18 | (0.2) | 831 | (6.9) | 3064 | (25.5) | 12009 |
| Bladder | 32775 | (74.4) | 246 | (0.6) | 170 | (0.4) | 58 | (0.1) | 146 | (0.3) | 239 | (0.5) | 57 | (0.1) | 2465 | (5.6) | 7873 | (17.9) | 44029 |
| All four cancers | 223076 | (67.7) | 1491 | (0.5) | 843 | (0.3) | 198 | (0.1) | 1093 | (0.3) | 3638 | (1.1) | 363 | (0.1) | 17055 | (5.2) | 81767 | (24.8) | 329524 |

Maruthappu et al . BMC Cancer (2015) 15:753.

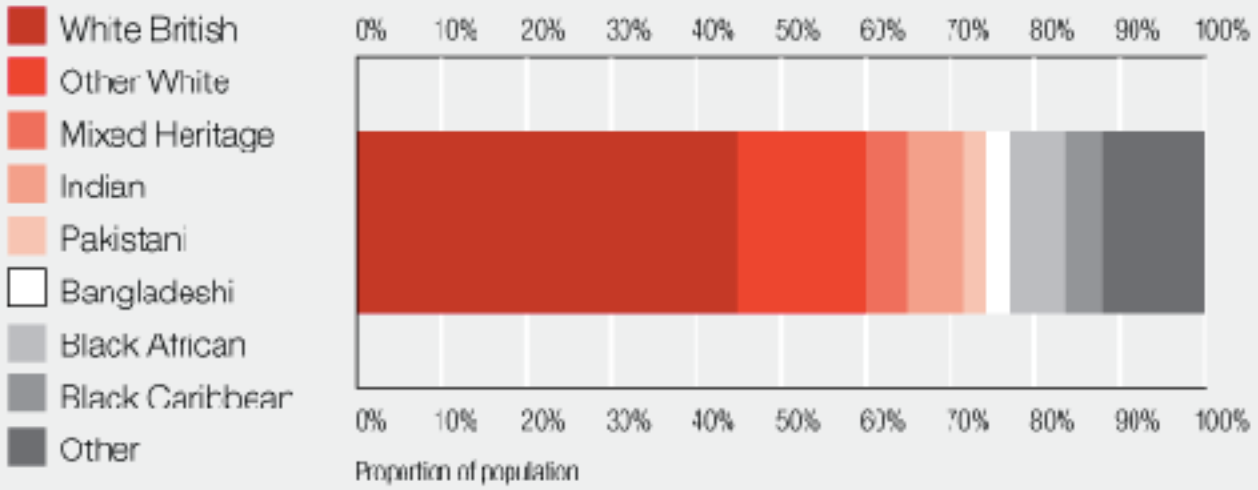



Trabert et al 2015



## Ethnicity in London and the rest of England

Download Chart | Download Data




Source: Census 2011

http://www.londonspovertyprofile.org.uk/indicators/topics/londons-geography-population/londons-population-by-ethnicity/

KING'S College LONDON

HOME RESEARCHERS RESEARCH GROUPS RESEARCH OUTPUTS RESEARCH FUNDING INTERNAL

Professor Henrik Møller: Biography Research Students and Staff Research Outputs Research funding Thesa

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Professor of Cancer Epidemiology

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**E-mail:** henrik.moller@kcl.ac.uk

**Department**
Cancer Epidemiology & Population Health

**Clinical Academic Group**
Cancer Clinical Academic Group

**Research Interests**
Cancer epidemiology; health services research; population health.

Clinical Radiology 67 (2012) 862–867

Contents lists available at SciVerse ScienceDirect

Clinical Radiology

journal homepage: www.clinicalradiologyonline.net

# Scrotal calcification in a symptomatic paediatric population: Prevalence, location, and appearance in a cohort of 516 patients

A. Deganello, D. Svasti-Salee, P. Allen, J.L. Clarke, M.E.K. Sellars, P.S. Sidhu*

*King's College London, Department of Radiology, King's College Hospital, London, UK*

Clinical Radiology 67 (2012) 862–867

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Eur Radiol (2007) 17: 363–369
DOI 10.1007/s00330-006-0296-0

UROGENITAL

Scrotal c
populati
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A. Deganell

*King's College Lond*

Fiona N. A. C. Miller
Shantini Rosairo
Jane L. Clarke
Seshadri Sriprasad
Gordon H. Muir
Paul S. Sidhu

# Testicular calcification and microlithiasis: association with primary intra-testicular malignancy in 3,477 patients

Received: 4 November 2005
Revised: 28 March 2006
Accepted: 10 April 2006
Published online: 18 May 2006


F. N. A. C. Miller · S. Rosairo · J. L. Clarke · P. S. Sidhu (✉)
Department of Radiology,
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Denmark Hill,
London SE5 9RS, United Kingdom

**Abstract** The prevalence of all forms of scrotal and testicular calcification and their association with testicular tumour in a symptomatic paediatric and adult population was investigated. A retrospective study of all testicular ultrasound examinations performed at a single centre over a 5-year period was undertaken. All studies were performed by experienced operators, recorded in a standard method, was 2.0%, and the prevalence of other non-microlithiasis testicular calcification (non-TM calcification) was 1.7%. Testicular tumour was associated with TM (odds ratio 9.5, $P<0.001$) and non-TM calcification (odds ratio 11.4, $P<0.001$) but not with other types of scrotal calcification. A total of 198 paediatric examinations were analysed. Prevalence of TM was 2.0% and the prevalence of non-TM

Clinical Radiology 67 (2012) 862–867

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Clinical Radiology

68 Original Article

# Testicular Microlithiasis: Is Sonographic Surveillance Necessary? Single Centre 14 Year Experience in 442 Patients with Testicular Microlithiasis

## Testikuläre Mikrolithiasis: Ist die sonografische Überwachung notwendig? 14 Jahre monozentische Erfahrung bei 442 Patienten mit testikulärer Mikrolithiasis

**Authors** K. V. Patel[1], S. Navaratne[1], E. Bartlett[1], J. L Clarke[1], G. H Muir[2], M. E. Sellars[1], P. S. Sidhu[1]

**Affiliations**
[1] Radiology, King's College Hospital, London, United Kingdom
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Department of Radiology,
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London, SE5 9RS, United Kingdom

was undertaken. All studies were performed by experienced operators, recorded in a standard method,

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## Search results

Items: 1 to 20 of 333

<< First < Prev Page 1 of 17 Next > Last >>

1. Fertility preservation in testicular cancer - predictors of spermatogenesis.

Moody JA, Ahmed K, Horsfield C, Pedersen MRV, Yap T, Shabbir M

BJU Int. 2018 Apr 17. doi: 10.1111/bju.14214. [Epub ahead of print]

PMID: 29667332

Similar articles

2. Is Testicular Macrocalcification a Risk for Malignancy?: Tumor Development on Ultrasonographic Follow-up of Preexisting Intratesticular Macrocalcification.

Pedersen MR, Bartlett EC, Brown C, Rafaelsen SR, Sellars ME, Sidhu PS

J Ultrasound Med. 2018 Apr 17. doi: 10.1002/jum.14557. [Epub ahead of print]

PMID: 29665033

Similar articles

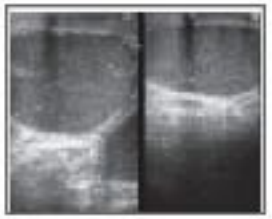
3. Sonography and Magnetic Resonance Imaging Characteristics of Testicular Adrenal Rest Tumors.

Yilmaz R, Şahin D, Aghayev A, Erol OB, Poyrazoğlu Ş, Saka N, Yekeler

Results by year

Download

PMC Images search for *testicular microlithiasis*



0022-5347/01/1666-2061/0
THE JOURNAL OF UROLOGY®

Vol. 166, 2061–2064, December 2001
*Printed in U.S.A.*

# THE PREVALENCE OF TESTICULAR MICROLITHIASIS IN AN ASYMPTOMATIC POPULATION OF MEN 18 TO 35 YEARS OLD

ANDREW C. PETERSON, JOHN M. BAUMAN, DAWN E. LIGHT, LEAH P. MCMANN AND RAYMOND A. COSTABILE*,†

*From the Department of Surgery, Urology Service and Department of Radiology, Madigan Army Medical Center, Tacoma, Washington*

ABSTRACT

Purpose: Testicular microlithiasis is an imaging entity of the testicle thought to be a marker of testicular cancer. To our knowledge the prevalence of testicular microlithiasis in an asymptomatic population at risk for testicular cancer is unknown. We report an ultrasound screening study done to establish the prevalence of testicular microlithiasis in an asymptomatic population.

Materials and Methods: Healthy men 18 to 35 years old from the annual Army Reserve Officer Training Corps training camp volunteered for study. A screening genitourinary history was obtained, and physical examination and screening scrotal ultrasound were performed. We defined testicular microlithiasis as more than 5 high intensity signals on ultrasound with each signal larger than 2 mm. We categorized testicular microlithiasis into microcalcifications that were scant—5 to 25 per side, moderate—greater than 25 per side but no areas of near confluence and too numerous to count. In all subjects with testicular microlithiasis tumor markers were also

0022-5347/01/1666-2061/0
THE JOURNAL OF UROLOGY®

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*From the Department of Surgery, Urology Service and Department of Radiology, Madigan Army Medical Center, Tacoma, Washington*

sults: Of 1,504 evaluated men with a mean age of 22.4 years, 84 (5.6%) had test
olithiasis, including 45 of 1,053 white (4%), 21 of 149 black (14.1%), 6 of 71 Hispanic (8
54 Asian or Pacific Island (5.6%) men and 9 of 174 (5.2%) who claimed no race affili

Training Corps training camp volunteered for study. A screening genitourinary history was obtained, and physical examination and screening scrotal ultrasound were performed. We defined testicular microlithiasis as more than 5 high intensity signals on ultrasound with each signal larger than 2 mm. We categorized testicular microlithiasis into microcalcifications that were scant—5 to 25 per side, moderate—greater than 25 per side but no areas of near confluence and too numerous to count. In all subjects with testicular microlithiasis tumor markers were also


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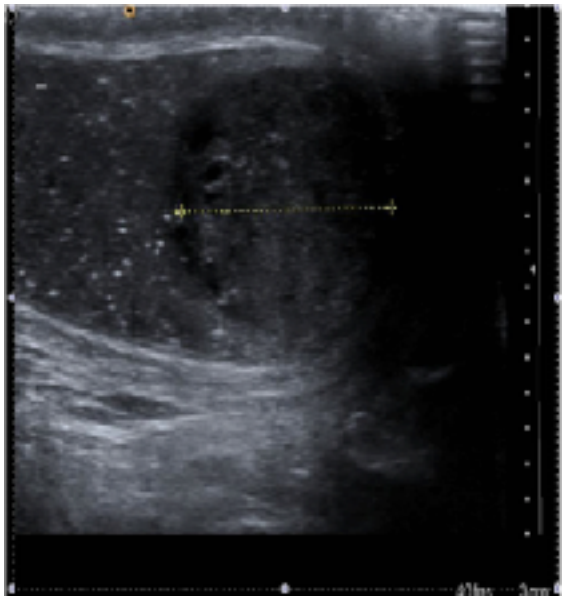
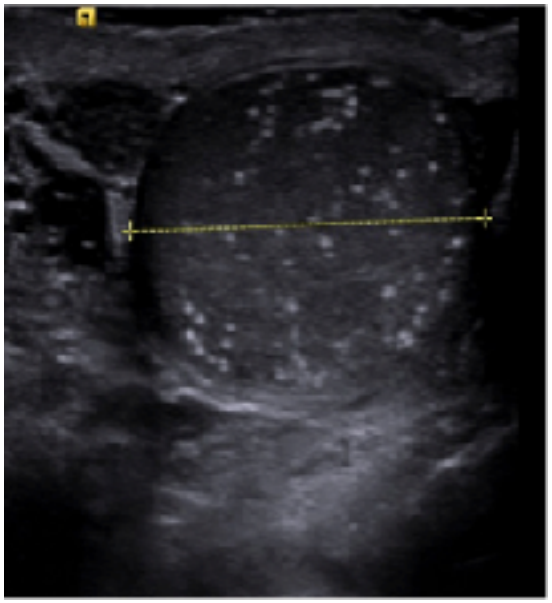
# Research question

Is Testicular Microlithiasis associated with etnicity and socio economic status in symptomatic men?





# Materials and Methods

- Retrospective study

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- PACS: 39.961 scrotum investigations (1998-2015)

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- 1105 TML cases

# Materials and Methods

- Retrospective study
- PACS: 39.961 scrotum investigations (1998-2015)

- 1105 TML cases
- 1105 random controls (NO TML!)

# DATA

- Age

# DATA

- Age
- Etnicity

**Table 5. Description of grouped ethnic categories used in Hospital Episode Statistics**

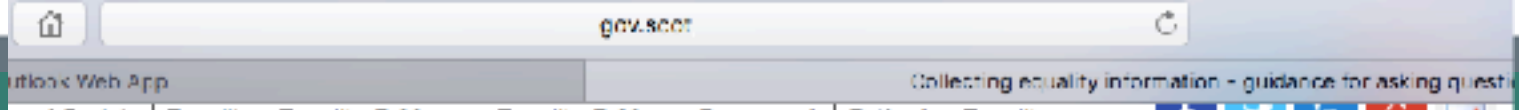
| Inpatient 1995-2000 | Inpatient 2001 onwards | Outpatients 2003 onwards and A&E 2008 onwards |
|---|---|---|
| 0 White | A British (White) | An = British (White) |
| 1 Black Caribbean | B Irish (White) | Bn = Irish (White) |
| 2 Black African | C Any other White background | Cn = Any other White background |
| 3 Black Other | D White and Black Caribbean (Mixed) | Dn = White and Black Caribbean (Mixed) |
| 4 Indian | E White and Black African (Mixed) | En = White and Black African (Mixed) |
| 5 Pakistani | F White and Asian (Mixed) | Fn = White and Asian (Mixed) |
| 6 Bangladeshi | G Any other Mixed background | Gn = Any other Mixed background |
| 7 Chinese | H Indian (Asian or Asian British) | Hn = Indian (Asian or Asian British) |
| 8 Any other ethnic group | J Pakistani (Asian or Asian British) | Jn = Pakistani (Asian or Asian British) |
| 9 Not given | K Bangladeshi (Asian or Asian British) | Kn = Bangladeshi (Asian or Asian British) |
| X Not known | L Any other Asian background | Ln = Any other Asian background |
| | M Caribbean (Black or Black British) | Mn = Caribbean (Black or Black British) |
| | N African (Black or Black British) | Nn = African (Black or Black British) |
| | P Any other Black background | Pn = Any other Black background |
| | R Chinese (other ethnic group) | Rn = Chinese (other ethnic group) |
| | S Any other ethnic group | Sn = Any other ethnic group |
| | Z Not stated | Zn = Not stated |
| | Z Not known | X = Not known |

# Availability and use of UK based ethnicity data for health research

Rohini Mathur, Pathways, LSHTM

Emily Grundy, Pathways, University of Cambridge

Liam Smeeth, Pathways, LSHTM






## Collecting equality information

This page contains the guidance notes on the recommended questions to ask when collecting information on:

age, disability, ethnic group, gender, religion or belief and sexual orientation.

Currently, there is no fully tested recommended question with which to collect information on gender identity in surveys or other data sources. A recent project carried out for the Equality and Human Rights Commission began work into this and the Scottish Government is considering future work in this area.

Collecting equality information - guidance for asking questions

### Downloadable documents:

| | |
|---|---|
| **Title:** | Collecting equality information - guidance for asking questions |
| **Description:** | Guidance on collecting information on equality characteristics. |
| **File:** | Collecting Equality Information Guidance on Asking Questions on: Age [PDF, 20.9 kb: 18 May 2012]<br>Open \| Open in new window |
| **File:** | Collecting Equality Information Guidance on Asking Questions on: Disability [PDF, 34.4 kb: 18 May 2012]<br>Open \| Open in new window |
| **File:** | Collecting Equality Information Guidance on Asking Questions on: Gender [PDF, 20.8 kb: 18 May 2012]<br>Open \| Open in new window |
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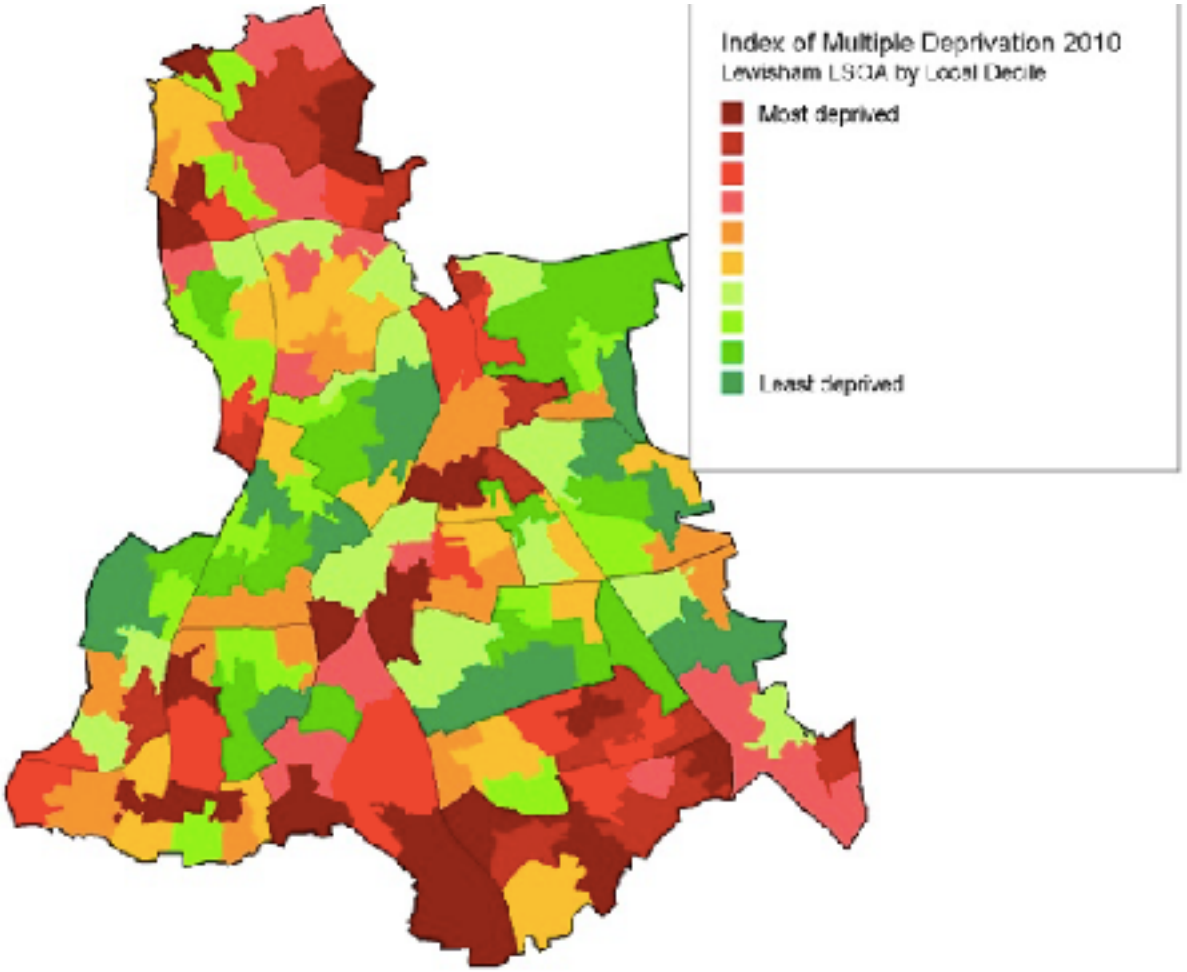
| **File:** | Collecting Equality Information Guidance on Asking Questions on: Sexual Orientation [PDF, 86.1 kb: 18 May 2012]<br>Open \| Open in new window |
| **File:** | Collecting Equality Information Guidance on Asking Questions on: Ethnic Group [PDF, 71.5 kb: 31 May 2012]<br>Open \| Open in new window |

# DATA

- Age
- Etnicity
- Post codes

# Post nummer – IMD – Index of Multiple Deprivation



# Post nummer – IMD – Index of Multiple Deprivation

## Basic concepts

The Index of Multiple Deprivation (IMD) 2010 data released by the Esri UK education team is mapped at Lower Super Output Area (LSOA) for England and Wales.

The data is made available in regional areas (South West, South East etc.) and can be used in ArcGIS Online with either the free single user Public Account or a Subscription Account (£100 + VAT per year for schools)

The deprivation data contains the overall index of deprivation as well as the different indices that make up the index. These include:

- Income deprivation
- Employment deprivation
- Health deprivation
- Education deprivation
- Crime deprivation
- Barriers to housing and services deprivation
- Living environment deprivation

The data is structured in a relative ranking system that compares the relative deprivation for each LSOA. For example, in England, there are 32,482 LSOA's where 1 is the most deprived and 32,482 is the least deprived.

Department For
Communities and
Local Government

# English indices of deprivation 2015

## Postcode Lookup

Use this tool to obtain deprivation data for up to 10,000 post codes at a time.

**Enter Postcodes (one per line)**

Enter one postcode per line

**and / or upload a file of postcodes**

Vælg fil Ingen fil valgt

Tip: Upload a single column Excel spreadsheet or CSV file with one postcode per line, eg
*M1 1EA*
*M1 2EA*

Get Deprivation Data

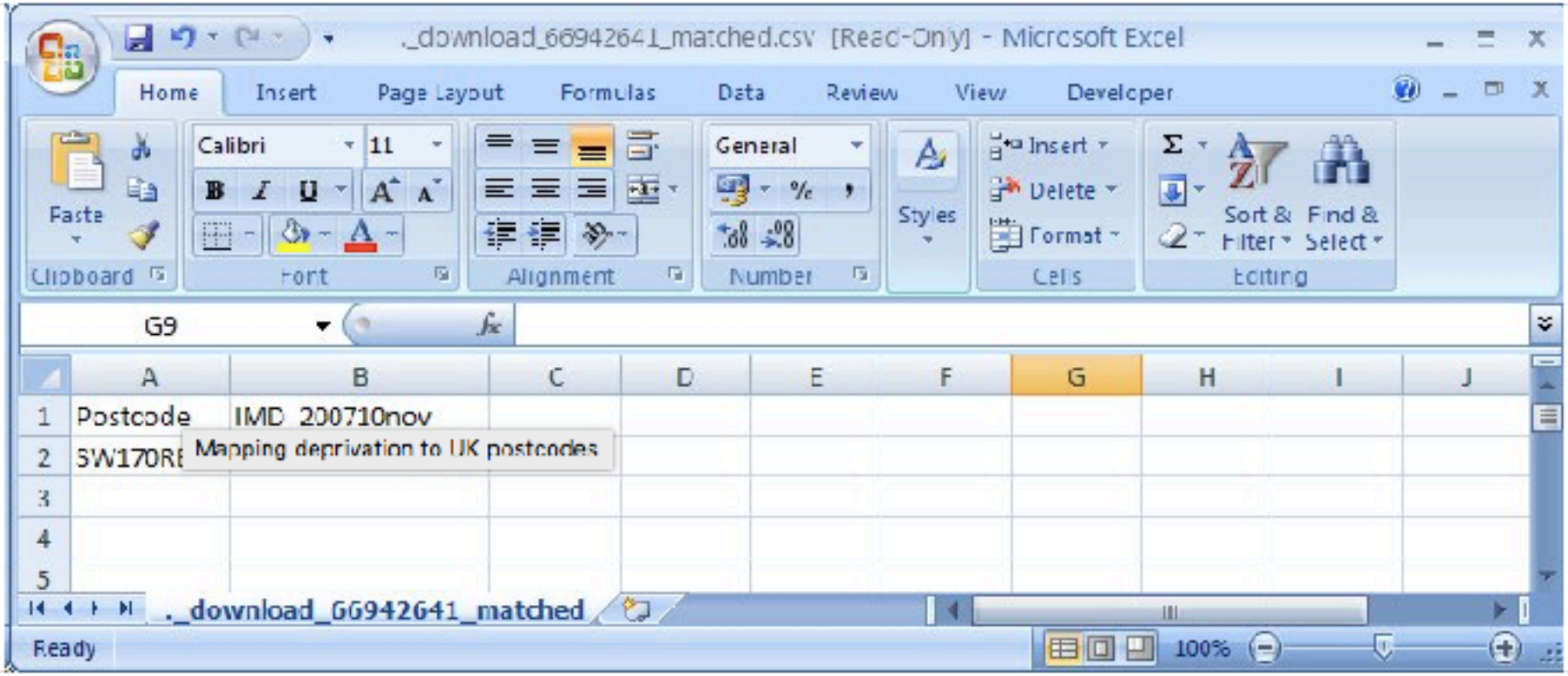
File Formats

Results are returned in Excel format or as **Comma Separated Values** (CSV) for easy re-use in your preferred application, e.g. spreadsheet, GIS system or database.

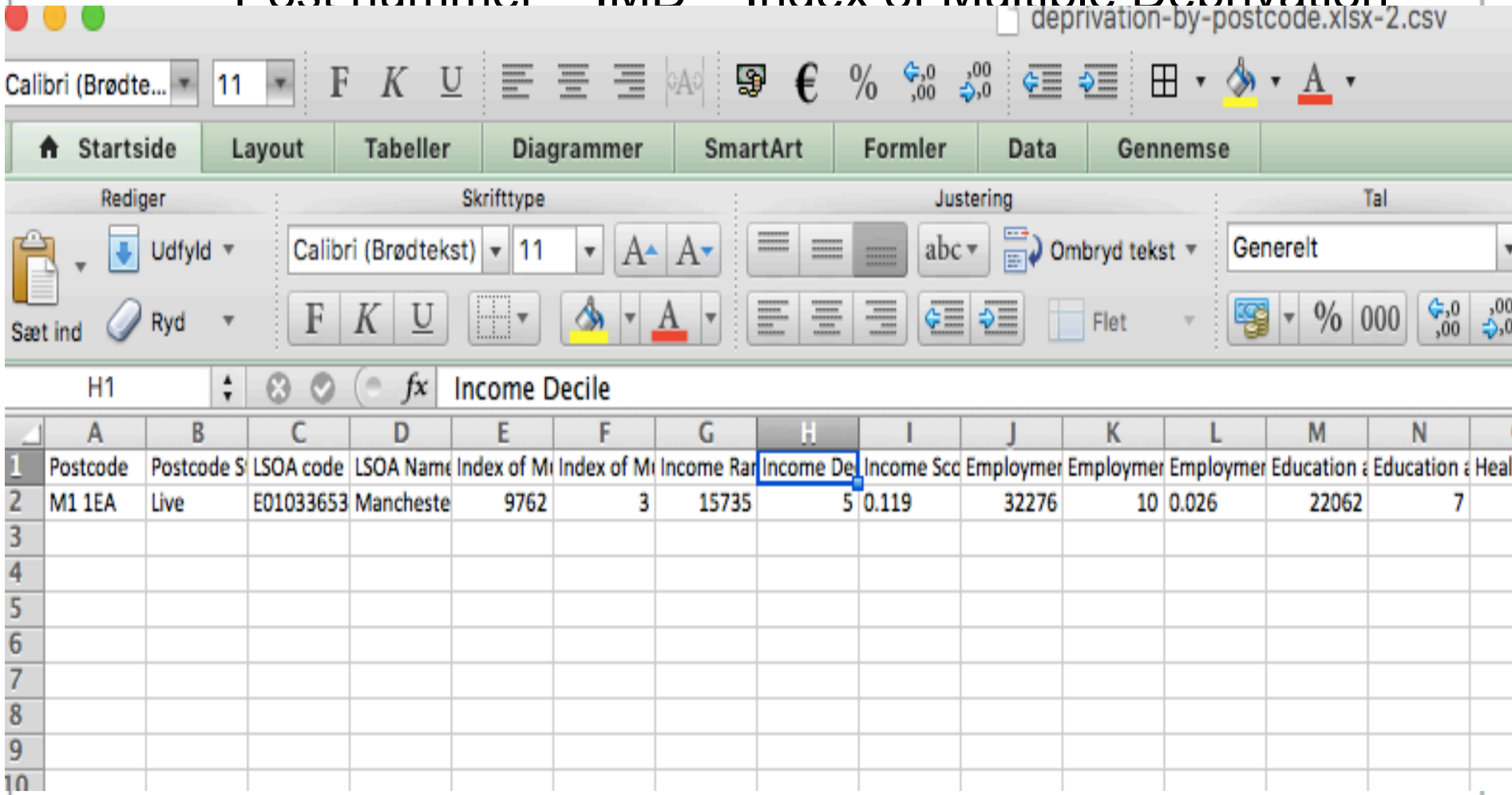
Data Output

# Mapping deprivation to UK postcod

« Previous / Next »  Robert / 24 August, 2012 / learning, noticeboard

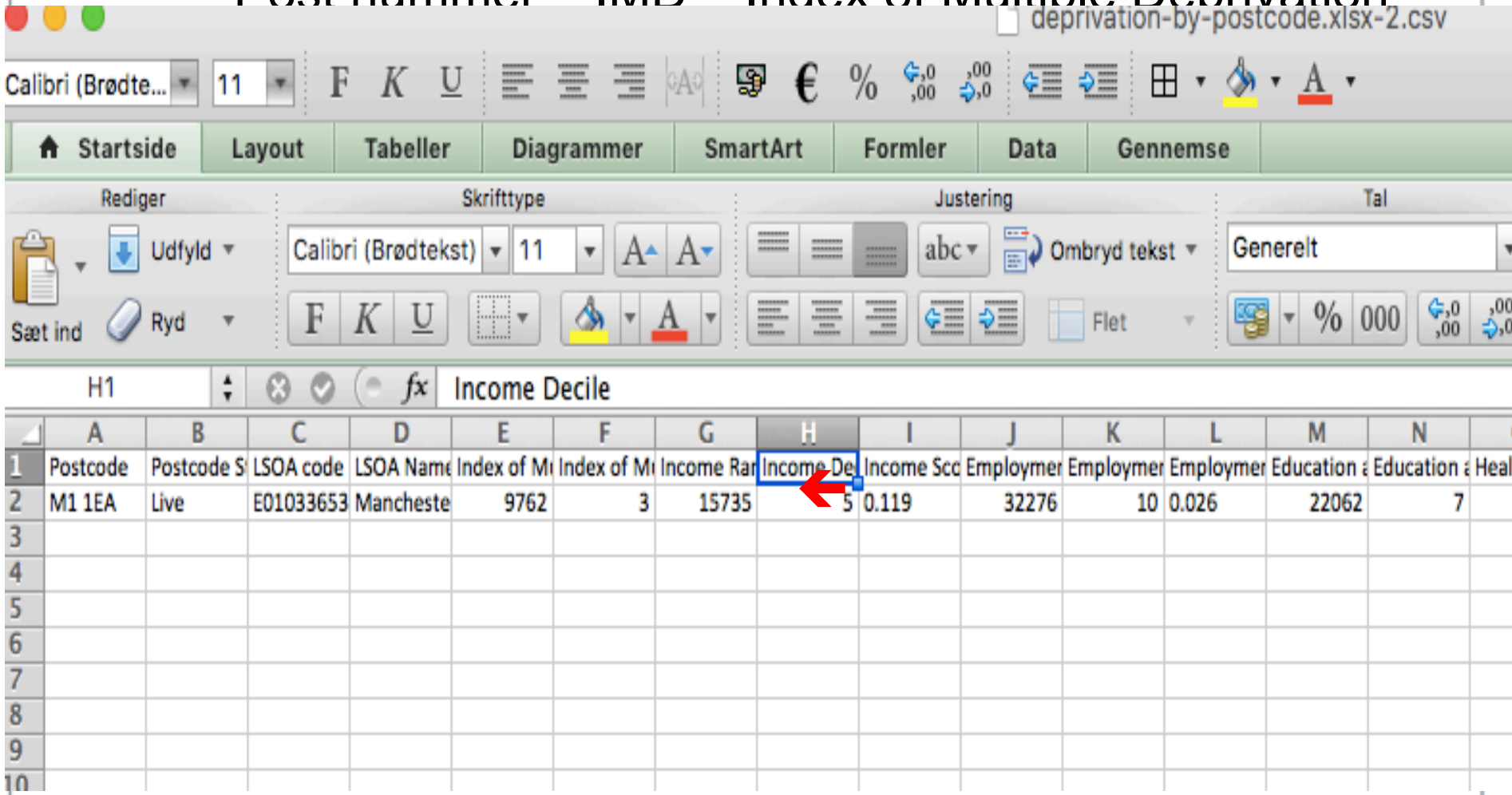


# Post nummer – IMD – Index of Multiple Deprivation




| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Postcode | Postcode S | LSOA code | LSOA Name | Index of Mu | Index of Mu | Income Ran | Income De | Income Sco | Employmer | Employmer | Employmer | Education a | Education a | Heal |
| 2 | M1 1EA | Live | E01033653 | Mancheste | 9762 | 3 | 15735 | 5 | 0.119 | 32276 | 10 | 0.026 | 22062 | 7 | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

# Post nummer – IMD – Index of Multiple Deprivation




| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Postcode | Postcode S | LSOA code | LSOA Name | Index of Mu | Index of Mu | Income Ran | Income De | Income Sco | Employmer | Employmer | Employmer | Education a | Education a | Heal |
| 2 | M1 1EA | Live | E01033653 | Mancheste | 9762 | 3 | 15735 | 5 | 0.119 | 32276 | 10 | 0.026 | 22062 | 7 | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
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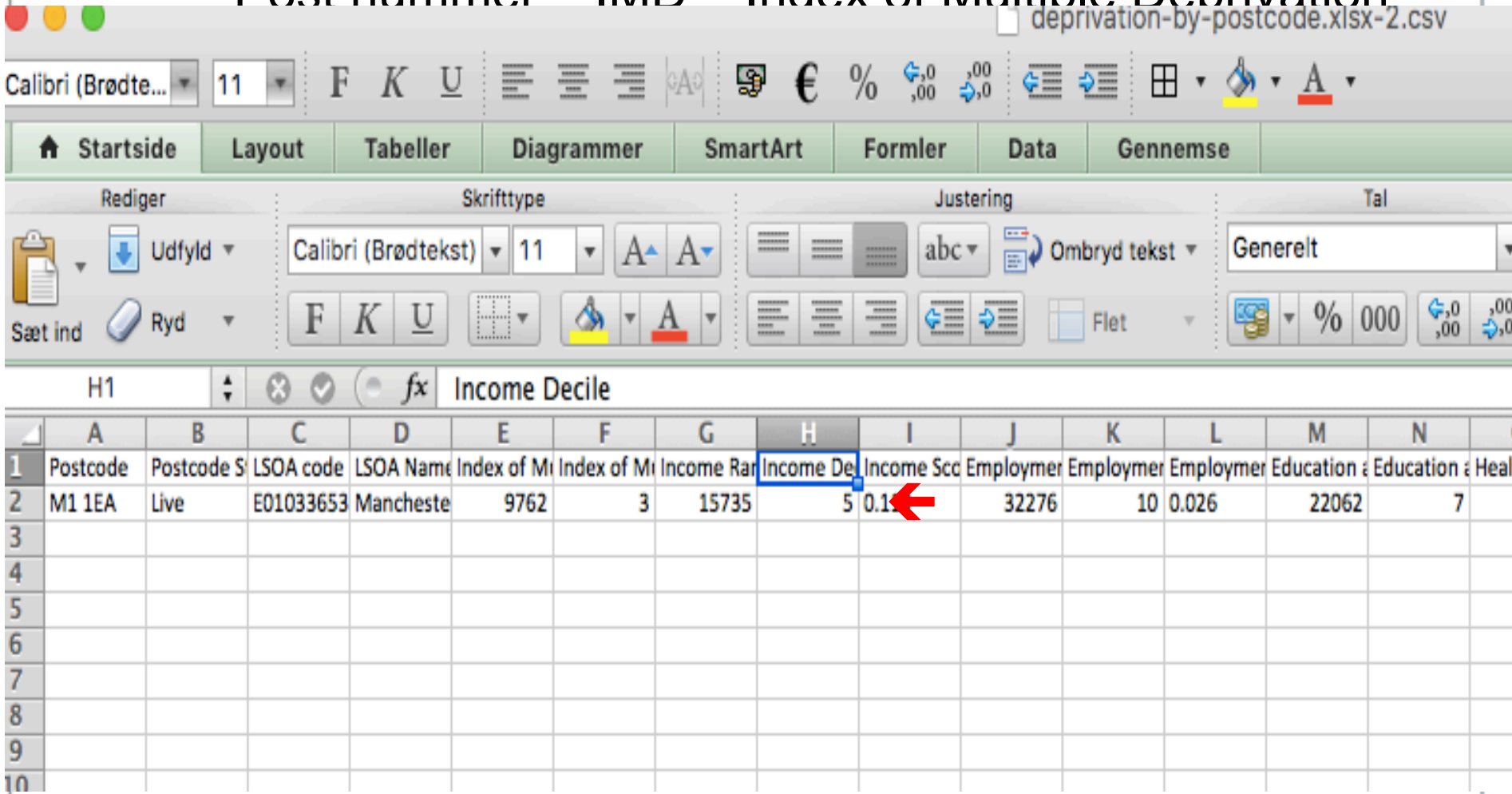
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

# Post nummer – IMD – Index of Multiple Deprivation




| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Postcode | Postcode S | LSOA code | LSOA Name | Index of M | Index of M | Income Ran | Income De | Income Sco | Employmer | Employmer | Employmer | Education a | Education a | Heal |
| 2 | M1 1EA | Live | E01033653 | Mancheste | 9762 | 3 | 15735 | 5 | 0.1 | 32276 | 10 | 0.026 | 22062 | 7 | |
| 3 | | | | | | | | | | | | | | | |
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| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

# DATA

- Age
- Etnicity
- Post code
- TML
  - right/left
  - Limited/Classic
  - Macro calcifications

# Resultats

Median age

TML : 37 years

Control: 38 years

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TML : 37 years

Kontrol: 38 years

Makro calcifications in 159 TML patienter (14.4%)

# Resultats

**Table 1.** The distribution of ethnicity and socioeconomic status between the TML cases and the control group.

| Characteristics | TML (%) n = 1105 | Controls (%) n = 1105 | OR[1] | 95% CI | OR[2] | 95% CI |
|---|---|---|---|---|---|---|
| White | 423 (38.3) | 560 (50.7) | 1.00 | | 1.00 | |
| Black | 273 (24.7) | 171 (15.5) | 2.17 | 1.72–2.75 | 1.73 | 1.35–2.21 |
| Other | 152 (13.7) | 111 (10.0) | 1.86 | 1.39 2.46 | 1.61 | 1.20 2.15 |
| Not known | 257 (23.3) | 263 (23.8) | 1.11 | 0.89 1.39 | 1.04 | 0.83 1.32 |
| IMD 1 (least deprived) | 25 (2.3) | 123 (11.1) | 0.19 | 0.12 0.30 | 0.22 | 0.14 0.35 |
| IMD 2 | 43 (3.9) | 137 (12.4) | 0.28 | 0.19 0.41 | 0.32 | 0.22 0.46 |
| IMD 3 | 175 (15.8) | 154 (14.0) | 0.93 | 0.71–1.21 | 0.99 | 0.76–1.30 |
| IMD 4 | 425 (38.5) | 344 (31.1) | 1.00 | – | 1.00 | – |
| IMD 5 (most deprived) | 385 (34.8) | 296 (26.8) | 1.05 | 0.86–1.30 | 0.99 | 0.80–1.23 |
| Not known | 52 (4.7) | 51 (4.6) | 0.75 | 0.49–1.14 | 0.75 | 0.49–1.15 |

IMD quintile 1 is the most affluent and IMD quintile 5 the most deprived.
IMD, index of multiple deprivation; OR[1], adjusted for age and year; OR[2], adjusted for age and year and mutually adjusted.

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## Conclusion

- Black men had increased prevalence of Testicular Microlithiasis compared to White men.

- Men from the most deprived socioeconomic groups had higher prevalence of Testicular Microlithiasis than men in the most affluent groups.

*Research*

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# Testicular microlithiasis is associated with ethnicity and socioeconomic status

**Malene R Pedersen[1,2,3], Emily C Bartlett[4], Søren R Rafaelsen[1,2], Palle J Osther[2,3], Peter Vedsted[5,6], Maria E Sellars[4], Paul S Sidhu[4] and Henrik Møller[5,7]**

## Abstract

**Background:** There are limited studies about testicular microlithiasis (TML) and background information such as health, lifestyle, and socioeconomic status.

**Purpose:** To assess the prevalence of TML in relation to socioeconomic status and ethnicity.

**Material and Methods:** From a database of scrotal ultrasound examinations in a single institution, all men who underwent routine ultrasound examinations for a variety of symptoms from 1998 to 2015 were included. Skilled observers performed all examinations, and presence of any form of intra-testicular calcification, including TML, was recorded on the examination report and a representative image obtained and stored. A total of 1105 cases with TML


Thank you!