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## ABOUT THE UNIT

AUHE was established in 2007 to create a health economics research and education centre with a portfolio of applied and methodological research.

The research includes:

- *economic evaluations alongside clinical trials*
- *value of information studies*
- *valuation of health, health care and wellbeing*
- *priority setting in health care*
- *health care policy*
- *early stage efficiency in research and development*
- *applied health econometrics*

## Welcome... from Dan Howdon



The introduction to our Summer newsletter referred to talk of a prospect of 'significant normality' by the time this, our Winter newsletter, was circulated. For those who rely on the AUHE newsletter as their main source of news, we have to break it to you that things have not gone as well as we hoped.

As a famous economist said, however: people make their own history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves. As such, research – affected by COVID-19, centring on COVID-19, and unrelated to COVID-19 – has continued.

Aside from work, we've tried to continue social events, with Judy Wright hosting the annual AUHE Bake-off Social over Microsoft Teams. In the biggest news of all, everyone at AUHE sends their congratulations to Sam Frempong and his wife on the birth of their twins!

As recent months have shown, predictions and projections on the future trends of COVID-19 have proven extremely effective in creating hostages to fortune, but have often been of little further use. We'll leave this introduction with, this time, crossed fingers for that talk of significant normality by the time our next Summer newsletter is circulated.

Dan Howdon

## COVID-19 PROJECTS

While a huge amount of data is produced every day on COVID-19, it is less clear which data is most informative, or indeed how to interpret it. A number of articles on the Centre for Evidence Based Medicine website, co-authored by **Dan Howdon** (AUHE) and others from the University of Oxford, have sought to interpret administrative data and draw out important trends and messages contained within them. These have included highlighting the use of out-of-date modelling of future COVID-19 deaths used in the government's 31st October press conference, drawing attention to increases in probable healthcare associated infections, and estimating the COVID-19 case and infection fatality ratios in England.

Dan also produced an article for the Independent with Jonathan Portes of King's College London, offering some rough calculations on the cost-effectiveness of extending statutory sick pay (SSP) for the duration of the pandemic. These back-of-envelope figures suggested that an extension of SSP that paid £1,000 per person to isolate was likely to be cost-effective when set against the then £12bn (now £22bn!) allocated to test and trace programmes in the UK.

**The HESG Winter 2022 Meeting will be hosted  
by the University of Leeds**

More details coming soon...

# COVID-19 PROJECTS

## At what times during infection is SARS-CoV-2 detectable using RT-PCR-based tests?

At the start of the lockdown in March, there were a lot of unknowns about the accuracy of reverse transcription polymerase chain reaction (RT-PCR) based tests and importantly, when in the disease course the virus is detectable. These factors are important to better understand how and when we should be using RT-PCR based tests, but also to better understand how long individuals remain infectious. Studies reporting longitudinal RT-PCR results for individuals with confirmed COVID-19 were starting to appear in the literature, the majority from China.

Professor Susan Mallett (UCL) quickly formed a team of test evaluation experts, including **Bethany Shinkins** (AUHE, and Associate Director of the NIHR Leeds MIC) and scientists to rise to the challenge of systematically reviewing the emerging evidence, identifying relevant studies and painstakingly extracting all of the individual test results reported. The study has since been published in BMC Medicine (<https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-020-01810-8>).

Thirty-two studies were included in the review (of 5078 screening), consisting of 1023 SARS-CoV-2 infected participants and 1619 test results. Virus detection was highest from nasopharyngeal sampling compared to other types of samples and early sampling (0-4 days from symptom onset) minimised the proportion of false-negative results. This was a truly collaborative exercise and a nice opportunity to work with old and new colleagues when we were all stuck at home – a big thanks to Sue for leading the piece.

## CONDOR Platform: Unmet clinical needs for COVID-19 tests in UK health and social care settings

Testing has played and continues to play an integral role in the response to the coronavirus pandemic. Innovation within the diagnostics industry has been remarkable – by July 2020, there were 746 COVID-19 tests either developed or under development. Identifying which of these tests should be used in the UK, how and where is an enormous task and the COVID-19 National Diagnostic Research and Evaluation Platform (CONDOR) platform was established earlier this year to tackle this challenge. One of the initial tasks of the platform, consisting of multiple UK collaborators including all four NIHR MedTech and In Vitro Diagnostic Co-operatives, was to establish current testing capabilities across UK health and social care settings and to identify which settings were in most need of COVID-19 tests and the priority role(s).

**Bethany Shinkins** and Joy Allen (NIHR Newcastle MIC) led a survey towards the end of May 2020 of UK health and social care professionals and policymakers. **Paola Cocco** (PhD student, AUHE) also contributed to the study. The survey was developed to help prioritise and refine MHRA TPP development, make plans for testing needs during the winter season, and inform the economic modelling exercise being carried out by the NICE diagnostics assessment programme.

Results indicated that hospitals and care homes had the greatest unmet clinical need for novel COVID-19 diagnostics, despite reporting to have more access to laboratory molecular testing than other settings. The time to test results was a consistent problem across all settings. There was a need for new tests for symptomatic hospital workers and patients, whereas in care homes there was an urgent need for tests to allow screening of workers, visitors and new or returning residents to limit transmission. Upon completion of the survey, the results were shared with the Department of Health and Social Care (DHSC) and NICE and have since been published in PlosOne (<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0242125&type=printable>).

## Procalcitonin: Evaluation of Antibiotic use in COVID-19 Hospitalised patients. (PEACH)

During the pandemic there has been an increase in use of antibiotics in patients with severe COVID-19. This is because doctors worry that there might be a bacterial infection on top of the viral infection, despite a lack of evidence to guide the use of antibiotics in these patients. This NIHR-funded study will investigate if a procalcitonin blood test (PCT) - used in many hospitals to help diagnose bacterial infections and guide antibiotic treatment – is effective in COVID-19 patients.

Researchers will analyse retrospective data from 7,000 COVID-19 patients across 11 NHS acute hospitals – half who will have used PCT testing during the first wave of the COVID-19 pandemic - to determine whether and how PCT testing should be deployed to protect patients from antibiotic overuse if the NHS experience a second wave of COVID-19 infection.

They aim to find out if use of the procalcitonin test in COVID-19 patients reduced antibiotics and/or improved patient outcomes, such as time in hospital or on intensive care, death rates, and infections with superbugs and will also assess its cost effectiveness (**Bethany Shinkins, Dan Howdon, Ed Webb**). They will produce guidelines for doctors on how best to use the procalcitonin test in patients with COVID-19, so that antibiotics are started early if needed and stopped promptly if unnecessary, thus reducing side effects, antibiotic resistance and infections with superbugs.

## NEW PROJECTS

### Setting International Standards of Patient-Reported Outcomes and Quality of Life Endpoints in Cancer Clinical Trials – Innovative Medicines Initiative (ISAQOL-IMI)

**Florien Boele** (AUHE) and Prof Galina Velikova are part of an international consortium that has won an EU IMI2 grant (worth €5M). The project is due to start in January 2021.

This is a global multi-stakeholder consortium, involving patient-reported outcomes experts, statisticians, regulators, and representatives from international academic societies, industry, cancer institutes, and patient organisations. Florien and Galina will contribute to a work stream to develop templates to graphically present patient-reported outcomes data to different stakeholders (e.g., patients, clinicians, statisticians). Templates will be incorporated within a dynamic web-tool through close collaboration with Industry co-investigators.

### Evaluation of the NHS Low Calorie Diet Programme

In collaboration with colleagues at Leeds Beckett University (PI Professor Louisa Ells) and four other universities in the North of England, the AUHE (**Adam Martin, Sam Frempong**) have been awarded £1.5m NIHR funding to evaluate the NHS Low Calorie Diet Programme. This intervention is a three-year initiative of NHS England and NHS Improvement which will run in ten areas of the country and provide targeted support to adults living with obesity who have recently been diagnosed with type 2 diabetes.

The work will include health economic analyses using primary and routinely-collected datasets as well as economic modelling using the UKPDS model to estimate the longer term impact of the programme. Together with the other mixed methods work packages, the project will inform decisions about the value and feasibility of making the intervention available more widely across England.

## AUHE'S GROWING PORTFOLIO

### Improving pain management for patients in Yorkshire

This £350,000 study funded by Yorkshire Cancer Research (YCR) and called CAPTURE is a feasibility trial with a cost-effectiveness element that will investigate whether an existing pain assessment tool can be successfully introduced into oncology outpatient services across Yorkshire. The trial will be supported by the Leeds Institute of Clinical Trials Research, and the principal investigator is Matthew Mulvey, Senior Research Fellow in Palliative Care at the University of Leeds. **David Meads** (AUHE) will be the lead health economist.

## AUHE TEACHING

**David Meads** taught a (virtual) session entitled 'The Costs of Obesity and Establishing the Value of Obesity Interventions' on the PhD course 'Obesity: courses and consequences - the complex interplay between behavior, society, genes and the environment' at the University of Copenhagen.

Delivering teaching in 20/21 has been very different for the Information Specialists this year but the new arrangements have given **Judy Wright** and **Natalie King** the opportunity to rethink how they deliver their literature searching and reference management training and strip it back to basics to ensure the key messages were clearly conveyed. Using a mix of pre-

recorded videos, workbooks and live support using Blackboardchat, they have delivered training to students in MSc Health Informatics, Computing CDT, Doctorate Clinical Psychology and 1st Year medical students. The sessions have been well received but they are looking forward to when they can return to campus and meet their students in person!

In January around 200 second- and third-year undergraduate economics students at the University of Leeds Business School (LUBS) will begin our Introduction to Health Economics or Health Economic Evaluation modules led by **Daniel Howdon, Adam Martin** and **Ed Webb**.

## AUHE TALKS & WEBINARS

**Roberta** delivered an online lecture for the MSc in Healthcare Management of the Department of Economics and Management at the University of Pisa. The lecture focused on the English NHS and the role of NICE.

**John** presented work from his NIHR doctoral research fellowship 'Estimating health-related quality of life for adults with Learning Disabilities' at ISOQOL2020 (virtual conference). The work presented was from Phase I and II of his project. Phase I was a systematic review of Self-reported Quality of Life Measures for Adults with Mild to Moderate Learning Disabilities. Phase II consisted of systematically examine the wording, content and format of EQ-5D for use in adults with mild to moderate LD using qualitative methods and develop an adapted version of the EQ-5D for adults with mild to moderate LD.

**Alison** gave an online seminar to the Public Health Statistics group at the University of Oxford entitled "Exploring the impact of test measurement uncertainty on clinical and health-economic outcomes", in which she presented findings from her recently completed NIHR Doctoral Fellowship project.

**Adam** discussed Portuguese hospital strikes as part of the EuHEA seminar series.

**Daliya** delivered a one hour webinar hosted by High School of Economics, KAZGUU (Kazakhstan). The webinar titled "An Introduction to Geospatial Data Analysis using R" was designed to provide an introduction to handling, analysing and visualising geospatial data using various R packages. It was catered to Master's students, young researchers, and anyone interested in data analysis with R.

**Florien** co-organised and co-chaired two CME accredited webinars for the European Association of Neuro-Oncology. The first focused on psycho-social support interventions for patients and caregivers and the second on Clinical Outcome Assessments. With internationally recognised expert speakers, the webinars were attended by an audience representing clinicians, nurses, allied health professionals, and researchers from across Europe and further afield.

**Judy** and **Natalie** delivered Zoom training sessions for international project partners funded by NIHR Global Health Research Group IMPACT S. Asia, NIHR Global Health, Policy and Systems Research Programme AMIPS and the joint MRC / ESRC / DFID / Wellcome Health Systems Research project RESPONSE. These sessions were part of a wider series of capacity building training on systematic review methodology. Recordings of the sessions are freely available and can be found here: <https://information-specialists.leeds.ac.uk/information-specialists/selected-conference-papers-and-publications/>.

## AUHE AT HESG 2021

Several AUHE members attended this year's HESG Winter Meeting which was hosted online by the Centre for Health Economics in London, LSHTM, from 6th-8th January 2021.

**Nasir Rajah** and **Adam Martin** participated with a paper titled "Do childhood ADHD symptoms affect earnings during adulthood? Evidence from the British Cohort Study". In this paper, they looked into the effects of non-cognitive skills on labour market participation in the British Cohort Study, using more than 36,000 observations of over 8,500 individuals. Specifically, they looked at how childhood traits of inattention and hyperactivity/impulsivity might affect participation in the labour market and earnings in adulthood over a 20 year period.

**Pedro Rodrigues, Silviya Nikolova, and David Meads** also participated with their paper "Estimating costs and quality of life impact of caring for people living with frailty: a secondary analysis of prospective cohort data". In this paper, they performed a secondary analysis of prospective cohort data from two large nationally representative community based studies in England: CARE75+ study and ELSA. The aim of this study was to estimate the impact of the provision of informal care to frail people on the caregiver's productivity and quality of life to inform incorporation of spillovers into economic evaluations.

## HESG SPECIAL INTEREST GROUP IN FRAILITY

**Silviya Nikolova** organised a Special Interest Group meeting in Frailty at the LSHTM HESG. Following productive initial discussions, several areas of common interest and further work within Frailty were identified. These include resilience, nutrition, and public health policy. The group includes health economists from Glasgow Caledonian University, Universities of Sheffield and Oxford, and King's College London.

## REALIST SYNTHESIS WORK

In recent years the popularity of Realist syntheses has grown considerably as a method for understanding "what works for whom, and under what circumstances". The AUHE Information Specialists are becoming recognised experts, co-authoring the first realist search methodology journal articles, a book chapter and conference abstract, all within the last 2 years. They have scoped out realist search methods, compared them to conventional review methods, and started to explore alternative methods to retrieve literature most useful for realist reviews efficiently.

**Judy** and **Natalie** are having a 'bumper' year with three ongoing realist reviews Youth offend-

ing (Nuffield Foundation), RESPONSE (Joint MRC / ESRC / DFID / Wellcome) and Falls risk assessment and prevention (NIHR HS&DR) and a new project starting in 2021 REcruiting and RetAining nurses, and carers in Care Homes (NIHR HS&DR).

Their work on realist reviews and realist search methodology has led to fruitful collaboration with colleagues from Sheffield, Exeter, Loughborough and Bradford Universities, plus country partners in Vietnam and Ghana (RESPONSE project). Judy and Natalie are looking forward to exploring realist search methods further and working on new projects in the future.

## MEMTAB AWARDS

**Alison Smith** and **Paola Cocco** have won the two top prizes at the Methods for Evaluating Tests and Biomarkers (MEMTAB) conference held in early December. MEMTAB is an international conference which attracts researchers, healthcare workers, policy makers and manufacturers involved in the development, evaluation and regulations of tests and biomarkers. Paola won the Douglas Altman award for best presentation for her work on the use of Target Product Profiles for new tests, and Alison won the best poster award for her work on assessing the impact of test measurement uncertainty on clinical and cost outcomes.

## AUHE SEMINARS SERIES

Wednesday January 27th

Social care costs for community-dwelling older people living with frailty

*Dr Silviya Nikolova*

Academic Unit of Health Economics, University of Leeds

Wednesday February 10th

Going beyond the mean in examining relationships of adolescent non-cognitive skills with health-related quality of life and biomarkers in later-life

*Rose Atkins*

Division of Population Health, Health Services Research & Primary Care, University of Manchester

Wednesday February 24th

How Do Childhood Symptoms of ADHD Affect Labour Market Performance? Insights from British Cohort Data

*Dr Nasir Rajah*

Academic Unit of Health Economics, University of Leeds

Wednesday March 10th

*Dr Bethany Shinkins, Dr Alison Smith, Dr Samuel Frempong*

Academic Unit of Health Economics, University of Leeds

Wednesday 17th March

*Dr Koen Pouwels*

Health Economics Research Centre, University of Oxford

Wednesday 24th March

*Emma Tassie*

Health Economics Research Unit, University of Aberdeen

AUHE Seminars are open to all and usually take place on Wednesdays from 1-2 pm.

## OTHER SEMINARS

Monday 25th Jan, 1pm, Leeds Institute for Transport Studies

Determinants of bicycle commuting and the effect of bicycle infrastructure investment in London: Evidence from UK census microdata

*Dr Adam Martin*

Academic Unit of Health Economics, University of Leeds

### AUHE Resources has its first birthday!

At the start of 2020 we launched AUHE Resources as our outlet to share outputs and information about more of the things we do.

At the time, we didn't know that this year our lives would become more virtual than ever making online outlets to share our work more important than ever before. A year on, as AUHE Resources has its first birthday we look back on some of the things we've shared.

In a year that has certainly not gone as expected we have still used this platform to share the things we've been working on, including a working paper by Ed Webb, several presentation slides, news articles and even teaching materials.

We hope you've found these interesting and useful, and we're looking forward to sharing more with you next year!

To find AUHE Resources go to: [https://medicinelinehealth.leeds.ac.uk/downloads/download/170/auhe\\_resources](https://medicinelinehealth.leeds.ac.uk/downloads/download/170/auhe_resources)

## GREAT AUHE BAKE OFF

Congratulations to **Florien** who won the Great AUHE Bake Off and **Claire Mills** (Tear and Share Christmas Cupcakes). Off! This year's annual bake off couldn't go ahead in person but the team were keen to keep baking (and eating cake) so we had a virtual bake off.

Ten people made cakes and all were invited to join and vote for the best cake. We really missed the challenge of trying so many cakes, but instead we did webcam close ups of cake and described them in depth. We still managed to eat a lot of cake. It was a fun evening and after two rounds of voting, Florien was crowned the winner with her Pistachio Raspberry Cake, closely followed by **Ed** (Cherry Frangipane Tart)



## RECENT SELECTED PUBLICATIONS

- Barton, M., Batumalai, V. & **Spencer, K.** 2020. Health Economic and Health Service Issues of Palliative Radiotherapy. *Clin Oncol.* 32(11), pp.775-780.
- Beevers, Z., Hussain, S., **Boele, F.W.** & Rooney, A.G. 2020. Pharmacological treatment of depression in people with a primary brain tumour. *Cochrane Database Syst Rev.* 7(7).
- Bhadhuri, A., **Kind, P.**, Salari, P., Jungo, K.T., et al. 2020. Measurement properties of EQ-5D-3L and EQ-5D-5L in recording self-reported health status in older patients with substantial multimorbidity and polypharmacy. *Health Qual Life Outcomes.* 18(1), p317.
- Birch, R.J., Taylor, J.C., Downing, A., **Spencer, K.**, et al. 2019. Rectal cancer in old age -is it appropriately managed? Evidence from population-based analysis of routine data across the English national health service. *Eur J Surg Oncol.* 45(7), pp.1196-1204.
- Candio, P., **Meads, D.**, Hill, A.J. & Bojke, L. 2020. Cost-effectiveness of a proportionate universal offer of free exercise: Leeds Let's Get Active. *J Public Health.*
- Candio, P., **Meads, D.**, Hill, A.J. & Bojke, L. 2020. Modelling the impact of physical activity on public health: A review and critique. *Health Policy.* 124(10), pp.1155-1164.
- Coleman, S., **Wright, J.M.**, Nixon, J., Schoonhoven, L., et al. 2020. Searching for Programme theories for a realist evaluation: a case study comparing an academic database search and a simple Google search. *BMC Med Res Methodol.* 20(1), p217.
- Earl H, Hiller L, Vallier A-L, Loi S, McAdam K, Hughes-Davies L, Rea D, Howe D, Raynes K, Higgins HB, Wilcox M, Plummer C, Mahler-Araujo B, Provenzano E, Chhabra A, Gasson S, Balmer C, Abraham JE, Caldas C, Hall P, **Shinkins B**, McCabe C, Hulme C, Miles D, Wardley AM, Cameron DA, Dunn JA. 2020. Six versus 12 months' adjuvant trastuzumab in patients with HER2-positive early breast cancer: the PERSEPHONE non-inferiority RCT. *Health Technology Assessment Vol. 24 No. 40: National Institute for Health Research.*
- Jones, C.M. & **Spencer, K.** 2020. Nurturing a Research-active Clinical Oncology Workforce: A Trainee Perspective. *Clin Oncol.*
- Lamb SE, Bruce J, Hossain A, Ji C, **Longo R**, Lall R, **Bojke C**, Hulme C, Withers E, Finnegan S, Sheridan R, Willett K, Underwood M; Prevention of Fall Injury Trial Study Group. Screening and Intervention to Prevent Falls and Fractures in Older People. *N Engl J Med.* 2020 Nov 5;383(19):1848-1859. doi: 10.1056/NEJMoa2001500. PMID: 33211928.
- Martin, A.**, Morciano, M., Suhrcke, M. 2020 Determinants of bicycle commuting and the effect of bicycle infrastructure investment in London: evidence from UK Census microdata. *Economics & Human Biology.*
- Melhuish, A., **Vargas-Palacios, A.**, **Yaziji, N.**, Selfridge, J., Pisavadia, M., **Sagoo, G.S.** & Minton, J. 2020. Cost evaluation of point-of-care testing for community-acquired influenza in adults presenting to the emergency department. *J Clin Virol.* 129, p104533.
- Nikolova, S.**, Hulme, C., West, R., Pendleton, N., et al. 2020. Normative Estimates and Agreement Between 2 Measures of Health-Related Quality of Life in Older People With Frailty: Findings From the Community Ageing Research 75+ Cohort. *Value Health.* 23(8), pp.1056-1062.
- Pompili, C., **Boele, F.**, Absolom, K., Holch, P., et al. 2020. Patients' views of routine quality of life assessment following a diagnosis of early-stage non-small cell lung cancer. *Interact Cardiovasc Thorac Surg.* 31(3), pp.324-330.
- Price, S., Spencer, A., Zhang, X., Ball, S., Lyrtzopoulos, G., **Mujica-Mota, R.**, Stapley, S., Ukoumunne, O.C. and Hamilton, W. 2020. Trends in time to cancer diagnosis around the period of changing national guidance on referral of symptomatic patients: A serial cross-sectional study using UK electronic healthcare records from 2006-17. *Cancer Epidemiol.* 69.
- Shinkins B**, Harris M, Lewington A, Abraham S, Snaith B. 2020. Kidney function testing prior to contrast-enhanced computed tomography: a comparative cost analysis of a personalised risk-stratified pathway vs a test all approach. *Clinical Radiology.*
- Spencer, K.L.** & Tree, A.C. 2020. Commentary on Cost-Effectiveness of Metastasis-Directed Therapy in Oligorecurrent Hormone-Sensitive Prostate Cancer. *Int J Radiat Oncol Biol Phys.* 108(4), pp.927-929.
- Sutton, A.J., **Sagoo, G.S.**, Jackson, L., Fisher, M., Hamilton-Fairley, G., Murray, A. & Hill, A. 2020. Cost-effectiveness of a new autoantibody test added to Computed Tomography (CT) compared to CT surveillance alone in the diagnosis of lung cancer amongst patients with indeterminate pulmonary nodules. *PLoS One.* 15(9), pe0237492.
- Uphoff, E., Pires, M., Barbu, C., Barua, D., Churchill, R., Cristofalo, D., Ekers, D., Fottrell, E., Mazumdar, P., Purgato, M., Rana, R., **Wright, J.** & Siddiqi, N. 2020. Behavioural activation therapy for depression in adults with non-communicable diseases. *Cochrane Database Syst Rev.* 8
- Webb, E.J.D.**, **Meads, D.**, Al-Janabi, H., **Kind, P.**, et al. 2020. UK General Population Utility Values for the SIDECAR-D Instrument Measuring the Impact of Caring for People With Dementia. *Value Health.* 23(8), pp.1079-1086.
- Webb, E.J.D.**, **Meads, D.**, Eskyte, I., Ford, H.L., et al. 2020. The Impact of Reproductive Issues on Preferences of Women with Relapsing Multiple Sclerosis for Disease-Modifying Treatments. *Patient.* 13(5), pp.583-597.
- Webb, E.J.D.**, Stamp, E., Collinson, M., Farrin, A.J., Stevens, J., Burton, W., Rutter, H., Schofield, H. & Bryant, M. 2020. Measuring commissioners' willingness-to-pay for community based childhood obesity prevention programmes using a discrete choice experiment. *BMC Public Health.* 20(1), p1535.
- White, B.E., Druce, M.R., Grozinsky-Glasberg, S., Srirajakanthan, R., Gamper, E.M., Gray, D., **Mujica-Mota, R.** & Ramage, J.K. 2020. Health-related quality of life in neuroendocrine neoplasia: a critical review. *Endocr Relat Cancer.* 27(7), pp.R267-R280.
- Zamanipoor Najafabadi, A.H., van der Meer, P., **Boele, F.**, Taphoorn, M.J.B., Klein, M., Peerdeman, S.M., van Furth, W.R. & Dirven, L. 2020. Long-term disease burden and survivorship issues after surgery and radiotherapy of intracranial meningioma patients. *Neurosurgery.*