Preventing Overdiagnosis Conference

Abstracts

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Abstract#1 - THE MARMOT REPORT AND THE HAZARDS OF THE OVER-DIAGNOSIS OF BREAST CANCER

Introduction: There are only two meaningful outcome measures in the practice of medicine and these are quality of life (QOL) and length of life (LOL).
The purpose of this paper to estimate these two outcomes based on data that has accumulated since the RCTs on screening were completed. [1].

Methods: As no direct measure of QOL in screening trials are available then mastectomy rates were used as a surrogate. All cause mortality (LOL) was estimated by comparing survival from breast cancer treated with modern adjuvant endocrine therapy [2] with a group of patients recruited at the same time as those in the mammography screening trials [3] and then calculating the extra deaths expected from the toxicity of radiotherapy amongst over-diagnosed cases.[4]

Results: The hazard ratio for mastectomy of 1.20 favors the unscreened population. [5]
If we accept the Marmot estimate of reduction in cause specific mortality of 20% [1], then with modern adjuvant systemic therapy you would have to screen 2,500 women for 10 years to avoid one breast cancer death. The recent estimate of over-diagnosis in the USA, was published in the New England Journal of Medicine a few weeks after the Marmot report appeared. [6] In absolute terms this comes to 70,000 cases a year of women told that they have breast cancer yet their pathology is not programmed to develop into a life threatening disorder. The EBCTCG overview of trials involving radiation estimated a relative risk of 1.27 for deaths from myocardial infarction and 1.78 for deaths from lung cancer in the irradiated group. [4]

Conclusion: QOL in a screened population is impaired as a result of an increased rate of mastectomy and for every 10,000 women invited for screening 3-4 breast cancer deaths are avoided at the cost of 2.6 – 9.0 deaths from the long term toxicity of radiotherapy.

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Abstract # 3 - DO PHYSICIAN SEARCHES FOR CLINICAL INFORMATION HELP TO AVOID UNNECESSARY DIAGNOSTIC TESTS, TREATMENTS OR SPECIALIST REFERRALS?

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Background: The avoidance of diagnostic testing, treatment or specialist referral has been reported in 13 studies of the impact of information searches at point of care. All of these studies are limited by self-reports of physician behavior and benefits for patient care. We propose to objectively confirm the avoidance of tests, treatments or referrals for specific patients, associated with physician searches for clinical information. Study findings will be used by our stakeholders to support the development of educational initiatives to strengthen Continuing Professional Development (CPD).

Aims: To strengthen CPD initiatives by demonstrating that point of care searching is associated with avoidance of unnecessary tests, treatments or referrals.

Methods:
Study design: Sequential explanatory mixed methods research
Participants: 50 family physicians in Ontario, Canada
Stakeholders: Director of CPD, College of Family Physicians of Canada and Associate Director, Center for Continuing Education, The Cleveland Clinic

Intervention/Instrument: Participants will access their usual knowledge resources and retrieve clinical information for specific patients, within the OSCAR EMR. Phase 1: A validated tool called the Information Assessment Method (IAM©) will allow participants to rate their searches. We will identify searches where 'something was avoided' as a result of a search. Phase 2: Through physician interviews, we will produce a list of cases, describing specific tests, treatments or referrals avoided for specific patients. Phase 3: To confirm that tests, treatments, or referrals were avoided for specific patients, case specific outcomes will be compared against data from EMRALD, the Electronic Medical Record Administrative data Linked Database. EMRALD data will be added to each case to produce clinical vignettes. Phase 4: To be more certain that avoiding a test, treatment, or referral was beneficial for that patient; an expert panel will rate each clinical vignette with respect to the benefits.

Expected Results: Clinical information retrieved by physicians will be associated with objectively documented benefits for patients, such as avoiding unnecessary diagnostic tests.

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Abstract #4 - REDUCING OVERDIAGNOSIS BY ELICITING PATIENTS' PREFERENCES ABOUT ACCEPTABLE REGRET OF DIAGNOSTIC TESTING

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Background: there is increasing evidence that incorporation of patients' preferences in decision-making leads to better health outcomes. One way to reduce overtesting and in turn, overdiagnosis is to incorporate patient preferences regarding benefit and harms of testing.

Aims: to develop a method, which will help determine when to never order a diagnostic test consistent with patients' values; in turn, this would help avoid overtesting and overdiagnosis.

Methods: We have previously described the concept of acceptable regret to show that under certain conditions, making a wrong diagnostic or therapeutic decision is not particularly burdensome to the decision maker (MDM 2008;28:540;2009;29:320;29:323).We now extend the theory of acceptable regret to determine under which situations a patient is willing to forgo small amount of benefits or incur harm, in order to never have a diagnostic/screening test even if, in retrospect, such a decision may be wrong. We showed that testing is never acceptable to a decision-maker when acceptable regret (Rg0) satisfies the following relation:
$Rg_0 - H_{te} < \min(FN \cdot B, FP \cdot H)$
(FN: false negatives; FP: false positives of a diagnostic test; Hte: harms caused by testing itself; B: treatment benefits; H:treatment harms)

Results: we illustrate the method in the setting of screening mammography (SM) for a 45 year old woman with an average risk of developing of breast cancer. Adopting the data from recent systematic reviews on the effect of SM on breast cancer, we found that a woman should never accept SM is she is willing to tolerate no more than 8% of treatment harms due to screening or forgo ≤1% of treatment benefits associated with screening.
Conclusions: by eliciting the patients' values on acceptable regret related to diagnostic testing, we showed that under some treatment and test characteristics, the testing is never acceptable. This, in turn, may help avoid overtesting and overdiagnosis.

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Abstract # 5 - DRIVERS FOR DIAGNOSIS OF MENTAL ILLNESS - AN ETHICAL ANALYSIS

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Background: Identifying the signs and symptoms of mental ill health and arriving at a diagnosis are key skills required of psychiatrists. However, the presence of relevant clinical features may not be the only reason why diagnoses are made; other drivers are also important. There are ethical aspects to making diagnoses and we have a moral and legal obligation to understand all the factors involved and come to an appropriate decision.

Aims: To explicitly identify and analyse the various factors that influence diagnosis making in psychiatrists; using an ethical framework. To use the understanding gained to promote a transparent and reflective clinical practice based on sound ethical principles, leading to better patient related outcomes.

Methods: The various factors influencing diagnosis-making were identified through a process of deliberation, reflection and clinical experience; and categorised into patient-related, doctor-related and contextual factors. The information was analysed using the four principles of medical ethics- autonomy, beneficence, non-maleficence and justice. Hypothetical case scenarios and references from literature were used to illustrate these principles.

Results: A detailed analysis of diagnostic behaviours demonstrates that apart from clinical signs and symptoms, various factors like clinician training and attitudes, patient and family expectations, perceived stigma and economic drivers influence diagnosis making. There is an inherent conflict in the diagnosis of mental illness as, perceived economic benefits (for patients and clinicians) may lead to over -diagnosis whereas the stigma of mental illness may lead to under-diagnosis.

Conclusions: The initial diagnosis determines much of the future course for patients and families. Some of the drivers for diagnosis remain implicit rather than being explicitly stated. It is important for clinicians to be open and transparent with themselves as well as their patients about the reasons for diagnoses so as to protect the interests of patients, build trust and maintain professional integrity.

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Abstract #6 - OVERDIAGNOSIS OF GONORRHOEA IN TREATMENT GUIDELINES FOR PELVIC INFLAMMATORY DISEASE (PID) – A RECIPE FOR RESISTANCE?

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Introduction: Diagnosis of PID is problematic: symptoms and signs do not determine an infectious cause but antimicrobial therapy (including ceftriaxone) is usually started before confirmation of specific bacterial aetiology; UK and USA guidelines recommend anti-gonococcal therapy de novo; widespread use of the (now very limited) treatment options is likely to encourage development of antimicrobial resistance.

Aims: To determine the prevalence of gonorrhoea in PID diagnosis in specialist clinics in UK and relate this to guideline treatment recommendations

Methods: Review of UK National guidelines for PID management;
Analysis of the UK's Health Protection Agency's (HPA) published cases of PID for 2011.

Results:
- UK Guideline statement (2011): "Neisseria gonorrhoeae (NG) and Chlamydia trachomatis (CT)... account for only a quarter of PID cases in the UK1" = 25%
- 2011 NG and CT isolation in 1,978 of 17,746 UK PID cases: (HPA 20122) = 11.14%
- 2011Neisseria gonorrhoeae isolated in 210 of 17,746 cases (HPA 20122) = 1.18%

Conclusions: On both sides of the Atlantic National Guidelines recommend ceftriaxone in cases of suspected pelvic infection. Cephalosporins of this class are the last simple treatment left in the antimicrobial armamentarium against gonorrhoea and reduced sensitivity is increasingly reported worldwide. USA does not record equivalent figures but the UK numbers from specialist genitourinary clinics are accurate and fairly complete. This study suggests that not only do UK guidelines overestimate combined chlamydial and gonococcal numbers but that actual cases of gonococcal PID constitute a tiny minority of the total. Given that non-specialists also follow guideline recommendations this diagnostic bias will encourage development of antimicrobial resistance in gonococci.

1. BASHH Guidelines 2011. http://www.bashh.org/guidelines/ and GC-update June 2011
2. HPA http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1215589015024 Table 1

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Abstract # 7 - PSA-TESTING AND PROSTATIC CANCER IN DIFFERENT COUNTIES IN NORWAY – VARIATION AND OVERDIAGNOSIS

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Background: This study focus on the evolution of PSA tests in Norway and how it may influence diagnosis and treatment. The incidence of prostatic cancer varies from 72 to 139/100 000 between different counties in Norway with Sogn & Fjordane (S&F) on top. The attitude and practice regarding PSA-testing of the general practitioners (gatekeepers) are important in this.

Material and method: Data on incidence, survival, mortality and surgical procedures for prostatic cancer in the 19 counties in Norway were obtained from national public records and number of PSA tests in all laboratories. Correlation of PSA-tests with the incidence of prostatic cancer, and the development of incidence, survival and mortality in S&F were studied. A web-based survey among primary care physicians were performed in this rural county with 108 000 inhabitants.

Results: The number of PSA tests increased by 120% from 1999 to 2011with a significant difference between the counties. Up to the level of S&F the correlation between number of PSA-tests and incidence was strong (r=0.83). Occurrence and survival of prostatic cancer has increased dramatically, especially in the years after introduction of PSA-testing in S&F. Mortality has, however, not changed neither in S&F nor at the national level. As expected the incidence was correlated with the number of surgical procedures (r=0.69). The patients´ primary care physicians find it difficult to decline from patients´ requests for PSA testing, and find it hard not to refer for further treatment if values above cutoff are shown.

Interpretation: The increase and variance in occurrence of prostatic cancer is related with the extent of PSA testing. As the mortality rate has not changed; it is likely that overdiagnosis and overtreatment are probable. Better compliance with the official guidelines for PSA-testing, and a generally more hesitant attitude towards further active treatment seems necessary.

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Abstract #8 - OVERCOMING OVERTREATMENT IN THYROID CANCER

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There is currently an epidemic of thyroid cancer without a corresponding increase in thyroid cancer deaths. Despite their indolence, clinicians treat these patients aggressively. We propose an approach to mitigate the overdiagnosis and overtreatment of this form of thyroid cancer by identifying low risk lesions, renaming them, and engaging patients in making treatment decisions.

Identifying low risk thyroid cancer lesions

These are patients without family history of thyroid cancer or personal history of radiation exposure who have a small (<1.5 cm) lesion compatible with papillary thyroid cancer (the most indolent form) on cytology with no evidence of extraglandular extension. Given the large contribution of small lesions < 2 cm to the epidemic of thyroid cancer, this group, at high risk of overdiagnosis, is likely to be quite prevalent.

Renaming: microPLIC

“Cancer” falsely implies lethality and raises fear and anxiety in patients with indolent papillary thyroid lesions and in their clinicians. We propose for these low-risk lesions a term that unambiguously conveys their favorable prognosis, microPapillary Lesions of Indolent Course or microPLICs.

Engaging patients to avoid overtreatment

Iit is imperative for clinicians to inform patients about the available options and work with patients in choosing the “right” treatment for them. For patients with microPLIC, management options include thyroid surgery or active surveillance. Each one offers favorable and unfavorable features such that none emerges as the best choice for all patients. However, empirical evidence in a similar setting - prostate cancer- suggests that patients engaged in shared decision making may make more conservative judgments and that many with microPLIC will opt for active surveillance.

Conclusion

Risk stratification, renaming, and shared decision making may help overcome overtreatment of microPLICs. If proven effective, this approach may serve to mitigate overdiagnosis and overtreatment in healthy people harboring these lesions.

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Abstract #10 - AN APPROACH TO CURB THE OVER-ORDERING OF AST, A DIAGNOSTICALLY NONSPECIFIC ENZYME

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Background: While alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are tests of hepatocellular damage, ALT is far more specific. ALT and AST are highly correlated and are frequently ordered together, especially to rule out hepatocellular disease. Alcoholic liver disease where AST often exceeds ALT, may be the only indication for ordering AST.

Aims: To reduce the simultaneous testing of AST and ALT, we suggest testing AST only when ALT exceeds a predetermined limit.

Methods: We assembled paired AST and ALT performed over 12 months in Edmonton hospitals (inpatient) and the only outpatient clinical laboratory, DynaLife Laboratory (DL). We used either the hospital or DL enzyme data to compute, based on the ALT limit for initiating AST testing, the proportions of elevated ASTs that would be missed (either exceeding 35 IU/L or 50 IU/L) and the percentage reduction in AST testing.

Results: The number of AST/ALT pairs performed over 12 months ranged from 5300 at Misericordia Hospital to 63,800 at University Hospital (UAH) to 68,400 at DL. At UAH, a 35 U/L cutoff would result in the non-detection of 4% of AST's that exceed 50 U/L and about 10% of AST's exceeding 35 U/L. This 35 cutoff would reduce AST testing by 60%. For DL outpatients, the 35 U/L ALT cutoff would miss fewer elevated AST (1% and 3% of the AST's exceeding 50 and 35 U/L, respectively) with AST testing reduced by over 70%.

Conclusions: Conditional testing could be offered to clinicians who require AST testing in addition to ALT testing. Limits for follow up testing should be adjusted for inpatient and outpatient environments. The end result of such conditional testing would be reductions of AST testing from between 60 to 75%.

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Abstract # 12 - DIAGNOSTIC IMPRESSIONS SUPPORTED BY TRANSPARENT CLINICAL REASONING CAN REDUCE OVERDIAGNOSIS

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Introduction: Diagnoses and decisions are usually based on subjective impressions. However, there is also a transparent 'patient's evidence-based' thought process that specifies which of the patient's findings were used. This reasoning process can be put in writing and represented in a summarising diagnostic table [1]. It involves a process when one finding is used to suggest a differential diagnosis and others that occur commonly in one diagnosis and infrequently in others are used to form highly predicitive combinations of findings.

Aims: To show that when an evidence-based transparent thought process is used in conjunction with a non-transparent impression, overdiagnosis is reduced and diagnostic accuracy increases.

Methods: The subjective diagnoses of experienced surgeons were provided on 300 patients presenting with acute abdominal pain in whom the eventual diagnoses were known. The same symptoms and signs were examined in a different 'training set' of patients to identify findings that suggested short lists of differential diagnoses or findings with strong sensitivity ratios. These were used to construct a diagnostic table, which was also applied to the 300 case histories.

Results: The surgeon's impressions alone were correct in 235/300=78% of cases and the diagnostic table alone was correct in 230/300=77% of cases. Both agreed in 221 cases of which 200 diagnoses (91%) were correct When there was no agreement only 14/79=44% of diagnoses were correct.

Conclusions: When an expert's non-transparent impression can be confirmed in an evidence-based, transparent way by specifying in writing which of the 'patient's findings were used, diagnostic accuracy increases. If a non-transparent impression cannot be supported with a transparent logical diagnosis, this signals a low probability of success and that further information should be sought

Reference

Llewelyn H, Ang AH, Lewis K, Abdullah A. The Oxford Handbook of Clinical Diagnosis, 2nd edition. Oxford University Press, Oxford, 2009

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Abstract # 13 - THE USE OF LIKELIHOOD RATIOS TO REPRESENT THE USEFULNESS OF DIAGNOSTIC FINDINGS CAN LEAD TO OVERDIAGNOSIS

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Introduction: In order to increase the probability of a diagnosis (and to decrease the probability of others in a list of possibilities) clinicians look for findings that occur frequently in one diagnosis but infrequently in its differentials (giving a strong 'sensitivity' ratio [1]). However, standard teaching is that we should combine likelihood ratios with pre-test probabilities to calculate post-test probabilities.

Aims: To show that likelihood ratios as indices of diagnostic usefulness can lead to overdiagnosis.

Methods: If 200 patients had right lower quadrant (RLQ) abdominal pain in a community of 100,000 and 100 patients had appendicitis of which 75 had RLQ pain, then the likelhood ratio is 75/100 divided by 125/99,900 = 599.4. The post-test probability of appendicitis given RLQ pain would be 1/{1+[99,900/100 x 1/599.4]} = 75/200=0.375. If all these patients were admitted to the community hospital as part of a total of 1000 admissions in a defined period, then the pre-test probability of appendicitis in the hospital would be 100/1000.

Results: If it is assumed that the likelhood ratio is similar in both populations then the post-test probabiility of appendicitis given RLQ pain in hospital is 1/{1+[900/100 x 1/599.4]} = 0.985. However, because all 200 patients with RLQ pain and all 100 with appendicitis in the community were admitted, the actual probability of appendicitis for those with RLQ pain in the hospital is 75/200 = 0.375 – the same as in the community. So the calculated post-test probability of appendicitis given RLQ pain of 0.985 is a gross overestimate.

Conclusions: If it assumed that a likellihood ratio is the same in different populations, then this may lead to overdiagnosis. We should consider using sensitivity ratios instead.

Reference

1. Llewelyn H, Ang AH, Lewis K, Abdullah A. The Oxford Handbook of Clinical Diagnosis, 2nd edition. Oxford University Press, Oxford, 2009.

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Abstract # 14 - THE FIRST INTERNATIONAL DAYS ON MEDICAL INDEPENDENCE (IDMI)

Dr Philippe de Chazournes
Med'Ocean

Introduction: The first International Days on Medical Independence (IDMI), in partnership with UNESCO took place in St Denis de la Réunion (Indian Ocean, France) on the 1st December 2012 and the 1st June 2013. Since the Mediator affair (hundreds of deaths in France due to PAH) patients became very suspicious vis-à-vis doctors and health authorities.

Aims: The influence of the pharmaceutical lobby on the everyday environment of doctors and patients is ever-present. This poses a real problem for the quality of the prescription. Faced to this situation, what is and what should be the stance of health professionals? Patients? Health authorities? Legislators?

Methods: These conference days were free access. No speakers received financial support neither for their allocution nor for their trip, even the CEO of the French Health Authority or the director of the French independent journal, Prescrire. Health professionals, lawyers, ethnologists, anthropologists, philosophers, patients, consumer groups, legislators took turn giving their point of view. Some were physically present, others via Skype, like our colleagues from Australia and Canada who spoke about the comparison between our "medical cultures and habits".

Results: In different ways, all agreed that prescribers could be more or less conscious to be under multiple influences, and that the benefit / risk balance of many drugs was not sufficiently known. This could explain why France has one of the biggest medicine consumption in the world.

Conclusions: These two days were very successful at a very limited cost, and highlighted the issue of the dependency of medical decisions of health professionals, health authorities and patients. Legislators and health authorities in France and in the world have now to stand courageously to guarantee the independence of the physician, who is, in the end, the only one accountable for his prescription.
Dr Philippe de Chazournes

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Abstract # 16 - ATTENDING TO OUR FIRST OBLIGATION: THE DO NO HARM PROJECT

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Background: Harms from overuse and preference misdiagnosis are a threat to the health of our patients. Considering harms from 'too much medicine' have not traditionally been a focus of medical education and there are few incentives to minimize overuse.

Aims: Facilitate the recognition of potential harms that can result from overuse in daily medical practice; promote discussion and scholarship among medical trainees and faculty which highlight individual examples of harm from overuse.

Methods: Trainees learn about overuse from readings on our website then draft a narrative about a patient exposed to harm from overtesting, overdiagnosis, overtreatment, or preference misdiagnosis. They are offered a writing day to complete a first draft then collaborate with faculty to submit a final draft to our website. Judges then determine quarterly and annual winners. Trainees are encouraged to submit their vignettes to conferences and journals for publication.

Results: Since inception in August 2012, 21 trainees have submitted vignettes. The first quarterly winner presented her vignette at a state-wide conference. Vignettes have highlighted harm from incidental findings and low-value testing as well as benefits of incorporating patient preferences. We have presented abstracts of this project at two local conferences and will be presenting at the Society for General Internal Medicine national conference in April 2013. Ongoing developmental efforts include: expanding the project to the University of North Carolina, getting feedback from participants, developing a Do No Harm curriculum, establishing the project as a way to fulfill residency quality improvement requirements and developing a survey to measure attitudes about overuse as well as perceived self-efficacy to avoid overuse.

Conclusions: Narratives humanize the harm that can result from overuse. The Do No Harm Project attempts to counteract entrenched cultural beliefs that 'more is better' through vignettes that remind us of our first obligation – to do no harm.

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Abstract # 19 - OVERTREATMENT FUELED BY OVER-OPTIMISM AND TERROR MANAGEMENT AT THE END-OF-LIFE (EoI): THE CROSSROADS OF HEALTH SERVICES AND PSYCHOLOGY

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Background: Many cancer patients succumb to their illness after receiving aggressive, burdensome EOL care (e.g., resuscitation) that compromises their quality of life and emotionally scars their family caregivers. Theories of decision-making and human motivation can yield greater clarity about the psychological drivers of overdiagnosis, overtreatment and the inattention to patient's preferences at the EOL. More broadly, these theories could suggest interventions to mitigate the human, financial and societal costs associated with overdiagnosis, overtreatment and medicalization.

Aims: Provide an overview of select psychological theories that could explain overdiagnosis and describe an ongoing clinical trial that illustrates the applicability of psychological theories to the provision of clinical care at the EOL.

Methods: We will review theories of human decision-making (prospect theory, terror management theory) and motivation (self-determination theory; socioemotional selectivity theory) to explain how the prospect of death can influence clinical practice, clinical decision-making and patient engagement in care. The NCI-funded clinical trial aims to determine whether a health communication intervention can improve the diagnosis of patients' preferences and thereby improve patient (N=280) EOL outcomes and caregiver (N=256) bereavement outcomes.

Stratified block-randomization is used to assign oncologists (N=40) to the intervention or usual care. Patients/caregivers of intervention oncologists receive a tailored communication intervention; patients/caregivers of control oncologists receive usual care. One oncology consultation is audio-recorded to assess communication regarding patient preferences; oncologists, patients, and caregivers are interviewed on multiple occasions. Health services data will be extracted from charts. Outcomes data will be available in 2017. This talk will focus on theories, particular design decisions, and early experiences implementing the trial.

Conclusions: Psychological theories of decision making and motivation can be leveraged to a) improve health services at the EOL, b) communicate information about optimism-fueled overdiagnosis and overtreatment to clinicians and the public, and c) mitigate the problems of overdiagnosis, overtreatment, and medicalization.

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Abstract #20 - OFF-LABEL USE OF ATYPICAL ANTIPSYCHOTIC MEDICATIONS IN CANTERBURY, NEW ZEALAND

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Background: Licensed indications for medicines were designed to regulate the claims that can be made about a medicine by a pharmaceutical company. Off label prescribing (i.e. prescribing a drug for an indication outside of that for which it is licensed) is legal and an integral part of medical practice. In psychiatry, off label prescribing is common and gives clinicians scope to treat patients who are refractory to standard therapy or where there is no licensed medication for an indication. However efficacy or safety of such off-label use may not be established. Pharmaceutical companies in particular have promoted atypical antipsychotic medications (AAPs) for off label indications to increase sales and consequently fined by the FDA and other regulatory authority for this.
There are a number of potential problems with the expanded use of AAPs outside of schizophrenia and related psychoses. These include weight gain, type two diabetes mellitus, sudden cardiac death and increased mortality rates in the elderly with dementia.

Aim: To estimate the frequency and characteristics of “off-label” use of AAPs by psychiatrists in Canterbury, New Zealand.

Methods: Data on “off-label’ prescribing of AAPs including the choice of medication, frequency of prescribing, and the indications for its use was collected using a postal survey of psychiatrists registered with the NZ Medical Council in the Canterbury region.
Results Forty eight psychiatrists (71%) completed the survey. Forty six (96%) prescribed AAPs “off-label”. By far the most common agent was quetiapine (94%). Twenty eight respondents (58%) prescribed “off-label” at least once a week. The most common reasons for the use of these agents was: anxiety (89%), sedation (79%), post-traumatic stress disorder (57%), treatment augmentation of another antipsychotic agent (48%) and behavioural and psychological symptoms of dementia (33%).

Conclusion: “Off-label” prescribing for non-specific diagnosis and symptoms, particularly of quetiapine is very common in the Canterbury region, despite little scientific evidence for this kind of use, increasing evidence of abuse and likelihood of significant side-effects.

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Abstract # 22 - IS THERE “A LARGE RESERVOIR” OF OVERDIAGNOSED LUNG CANCERS?

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Introduction: Although there is evidence that some solid organ cancers will not cause symptoms or death during normal anticipated life-span i.e are overdiagnosed (ODB), there is little evidence of overdiagnosed lung cancers (ODB LC) in clinical or research screening practice.

Aims: Retrospective review.

Methods: Computer search of Pub Med, Legacy Tobacco Documents Library and court transcripts.

Results:LC ODB was first postulated in Mayo Lung Project (MLP) publications to explain paradoxical finding of improved LC-survival but no LC-mortality reduction. Multiple articles by Yale University senior author A.R. Feinstein describing previously undiagnosed LC seen at post-mortem, were cited as evidence. Feinstein hypothesized that post-mortem “surprise” LC represented “a large reservoir of undetected cancers”. A subsequent necropsy study from Duke University showed similar findings. Multiple later publications and media comments inaccurately assume that the LC ODB hypothesis is established fact. Concern over treatment of LC ODB has justified delay of LCS implementation.

Little direct evidence supports the ODB LC hypothesis. Retrospective studies of untreated LC patients and individuals diagnosed with LC by chest radiographic (CXR) and CT screening show few long-term survivors.

The hypothesis that MLP results were attributable to ODB is refuted by PLCO study results, showing zero excess of LC diagnoses with CXR-LCS. NLST results show a small excess of LC in the CT arm but, when a diagnostic lead-time of two years is considered, there are equal numbers of LC in the CT and CXR arms and accordingly, no evidence of substantial ODB LC.

Conclusions: Current evidence suggests that ODB LC represents a clinical entity only in a small percentage of LCS-detected, slow-growing carcinoids and in-situ, lepidic adenocarcinomas. Overtreatment of slow-growing LC presenting as non-solid nodules is effectively managed by guideline-based LCS practice in the context of validated screening diagnostic and treatment algorithms.

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Abstract #24 - OVERDIAGNOSIS DUE TO IMPROPER ASSESSMENT AND MANAGEMENT OF OROPHARYNGEAL DYSPHAGIA.

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Introduction: Joint Commission National Quality Core measures require a swallow screen be performed on stroke patients before giving oral intake. Facilities act with urgency to comply to these requirements by commonly referring to speech language pathologists' services, although these referrals have not been shown to produce effective outcomes. Replicating the stroke victim service model to all dysphagia diagnoses, along with inadequate physician education and oversight on dysphagia, leads to over-diagnosis. Although a common side effect of medications is dysphagia, altering medications is usually overlooked. Videofluoroscopy Swallow studies are overused; usually ordered for the wrong reasons; do not replicate a real meal; risk harmful radiation; and dramatically increase cost burden. Thick liquids, the most common treatment for dysphagia, have been shown to cause dehydration; escalating risk for blood pressure compromise, falls, pneumonia and death.

Aim: Physicians will recognize the need for increased participation in dysphagia assessment and management to prevent over-diagnosis and ineffective service provision for patients with dysphagia.
Method: Literature will be displayed in poster format to substantiate topic points. Abstract handouts will be available.

Results: Increased Physician education on swallowing assessment and management will decrease ineffective dysphagia practices. Careful medication adjustment will ameliorate dysphagia symptoms. Physicians will recognize the few instances when Videofluoroscopy is indicated and overuse of the procedure will be curtailed. Eliminating overuse of thick liquids will increased hydration and decrease harmful sequelae. Strategies such as the Frazier Water protocol will be considered and Nurses will feed patents with increased confidence. Unnecessary billing for outside referrals will be eliminated.

Conclusions: The common standards of practice for persons with dysphagia are inappropriate, contribute to over-diagnosis, and increase dehydration and malnutrition. Increased Physician responsibility for careful diagnosis and management for oropharyngeal dysphagia is indicated.

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Abstract # 25 - OVERDIAGNOSIS SIGNIFICANT NEGATIVE IMPACT ON HEALTHCARE AND THE HEALTHCARE SYSTEM.

Jose A Hernandez, MD

Overdiagnosis has a significant negative impact on healthcare and the healthcare system. It has many roots, including widespread illiteracy of simple statistic concepts, call it numeracy illiteracy. This ignorance leads many to embrace detrimentally “relative risks” in favor of “absolute risks” and “five year survival rates“ over “mortality rates.” Furthermore this same weakness foments the misunderstandings of rudimentary statistics concepts such as: “lead-time bias,” “overdiagnosis-bias,” “length bias” and others. Correction of the misinterpretation of these terms could eliminate many health hazards caused by overdiagnosis.

However, a stubborn mindset, fostered by the need for certitude in healthcare decision making, prevents rectification. After considering these statistical flaws, this presentation will examine a view that may help us to overcome this obstinacy.

Specifically, the presentation will look into the history of science to outline competing views of science: one is universal, causal (mechanistic), deterministic and certain; while a competing and equally respectful alternative, albeit not as popular, considers science as contingent on experience, skeptical about mechanisms, rooted on probabilistic concepts, and justified by results.

In addition to these historical perspectives, the presentation will address modern philosophical views including the idea of Emergence.

These views of science should make it clear that statistical concepts are not an expression of our ignorance of diseases; instead, this probabilistic conceptualization is a reflection of the nature of Nature, hence the reality of diseases

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Abstract # 26 - PROPOSED FINANCIAL REWARD FOR EARLY DIAGNOSIS OF DEMENTIA: A RECIPE FOR OVERDIAGNOSIS.

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Introduction: The Social Market Foundation in the UK has said doctors and commissioners should be financially rewarded for diagnosing dementia. It is noteworthy that the term “dementia” has come to be synonymous with Alzheimer disease. These financial incentives are very likely to lead to an increase in the current over-diagnosis of Alzheimer disease and the prescription of donepezil and other medications for individuals who do not have AD.

Aims: If all doctors, including GPs, as is proposed by the British think tank, are to be financially rewarded for diagnosing dementia, then the proposal is that medical training and graduate education must include directed teaching with examples of various dementias and similar disorders such as delirium or medication side effects and require a knowledge of the differentiating signs of AD, Lewy Body disease, Pick disease, Jakob-Creutzfeld disease and other disorders.

Methods: Tests such as the Mini-Mental and clock-drawing must be identified as merely showing that an impairment exists, not what it is. This presentation will show some short video clips of persons with autopsy-proven different dementias, including AD, Pick disease, ALS-Parkinson-Dementia and right hemisphere stroke who were misdiagnosed in life and treated mainly with antipsychotics. New information about reading comprehension present in AD but absent in other dementias, will be discussed.

Results: There are several significant differences, mainly associated with reading and confrontation naming, that differentiate AD from other dementing disorders. Demonstration of the clearly significant different signs in reading resonse are readily recognized when compared to one another.

Conclusion: Rewarding for diagnosis will result in even greater overdiagnosis and prescription of medications such as donepezil if adequate training is not provided.

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Abstract # 28 - DO EMERGENCY DEPARTMENT PATIENTS RECEIVE A DIAGNOSIS? A STUDY OF THE PREVALENCE OF DIAGNOSIS AT ED DISCHARGE IN A NATIONALLY-REPRESENTATIVE SAMPLE

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Background: Understanding the cause of patients' symptoms often requires identifying a pathological diagnosis. Consistent with anecdotal reports, a recent pilot study at one institution found that many patients discharged from the Emergency Department (ED) do not receive a pathological diagnosis, but rather are given a "diagnosis" that reiterates their symptoms.

Aims: To use a nationally-representative sample to identify the proportion of patients who receive a pathological diagnosis at ED discharge.

Methods: Using the 1993-2009 National Hospital Ambulatory Medical Care Survey data, we analyzed visits of adult patients discharged from the ED, who had presented with the three most common chief complaints: chest pain, abdominal pain, and headache. Discharge diagnoses were coded as symptomatic versus pathological based on a pre-defined coding system agreed upon by two emergency physicians. We compared weighted annual proportions of pathological discharge diagnoses with 95% CIs and tested them for trend with logistic regression.

Results: Among the 299,919 sampled visits, 44,742 visits met inclusion criteria, leading us to estimate that there were 164 million adult ED visits during this period (95% CI, 151-178 million) presenting with the three most common chief complaints who were discharged home from the ED. For these patients presenting with chest pain, abdominal pain, or headache, the proportions of visits with pathological discharge diagnosis were 55%, 71%, and 70%, respectively (Table 1). The proportion of all three pathological discharge diagnoses decreased between 1993 and 2009.

Conclusions: According to our analysis of nationally-representative ED visits, many patients are discharged without diagnosis that explains the likely cause of their symptoms. Despite advances in diagnostic testing and technology, the proportion of pathological discharge diagnoses has decreased. Future studies should investigate the reasons for this trend towards "underdiagnosis", and examine whether provision of a pathological diagnosis is correlated with appropriate testing, patient satisfaction, and clinical outcomes.

Table 1. Proportion of pathological discharge diagnosis for those presenting with the three most common ED chief complaints

	% of pathological discharge diagnosis (95% CI), 1993-2009	% of pathological discharge diagnosis (95% CI), 1993	% of pathological discharge diagnosis (95% CI), 2009
Chest pain	55% (54-57%)	63% (58-69%)	52% (48-57%)
Abdominal pain	71% (70-72%)	79% (175-82%)	66% (62-70%)
Headache	70% (69-72%)	74% (70-78%)	70% (65-75%)
Total	66% (65-67%)	72% (69-75%)	63% (59-66%)

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Abstract #29 - HELICOBACTER PYLORI- FRIEND OR FOE?

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Background: Helicobacter pylori (HP) infection is common worldwide. HP infection is asymptomatic in 85% of patients, 15% develop symptomatic peptic ulcers and 1% gastric cancer. It is also linked to MALT lymphoma and recognized as a cause for iron-deficient anemia. HP is often tested for and found in unrelated conditions and subsequently treated(test and treat). It is not clear if there is an overall benefit to such practice

Aims: To review the possible consequences of wide scale eradication treatment of HP infection and its effect on public health.

Methods: Literature review- of English language literature from 1990 to 2012, including keywords helicobacter pylori and beneficial.

Results: HP is clearly pathogenic and requires eradication in many situations. There are consensus guidelines internationally regarding treatment. On the other hand it is a common pathogen and humans have been infected with HP for more than 58,000 years.
HP infection may have beneficial effects. There are negative correlations with asthma, eczema and GERD, as well as with inflammatory bowel disease and obesity
Unrestricted treatment of HP may have deleterious effects including allergic reactions, commensal bacterial resistance and clostridium difficile infection. In addition the success rate of HP eradication is currently around 75%. This also generates significant health care costs. HP eradication of population of the USA would cost over $1.5 billion.

Conclusion: Routine examination for HP infection results in overdiagnosis and consequent overtreatment of this chronic bacterial infection. There is a need for a serious assessment of the current test and treat policy.

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Abstract #33 - EXPANDING DISEASE DEFINITIONS AND EXPERT PANEL TIES TO INDUSTRY: A CROSS SECTIONAL STUDY OF COMMON CONDITIONS IN THE UNITED STATES.

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Background: Evidence suggests industry ties may unduly influence professional judgments and there is concern widening disease definitions may be one driver of over-diagnosis, bringing unnecessary labeling, harm and wasted resources.

Aims: To identify panels proposing changes to definitions, examine their decisions and industry ties.

Methods: We undertook a cross-sectional study of the most recent publication between 2000-2012 from panels proposing changes to definitions or diagnostic criteria for common conditions in the United States. We assessed whether proposed changes widened or narrowed disease definitions and the extent of disclosed financial ties between panel members and pharmaceutical or device companies.

Results: Of 15 publications on 14 common conditions, 9 proposed changes which widened and 1 which narrowed disease definitions. For 5, impact was unclear. Widening fell into 3 categories: creating ‘pre-disease’; lowering thresholds; proposing earlier or different diagnostic methods. Rationales for changes included standardising diagnosis criteria and evidence about risks for people previously considered normal. No publication included rigorous assessment of potential harms of proposed changes. Among 13 panels making disclosures, the average proportion of members with industry ties was 73%, and the average number of companies they had ties to was 6. For panels outlining different categories of tie, on average members with ties were a consultant/adviser for 4 companies, received speaker fees/ honoraria from 2 companies and research support from 3. Companies with ties to the highest proportions of members were active in the relevant therapeutic area. Limitations arise from reliance on disclosed ties and exclusion of conditions too broad to enable analysis of single panel publications. (e.g. pain)

Conclusions: For common conditions studied, a majority of panels proposed changes widening disease definitions and were dominated by professionals with industry ties. Given concerns about costs and harms of over-diagnosis, new processes for constituting panels and reviewing disease definitions are needed.

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Abstract # 35 - A SYSTEMATIC EVALUATION OF FACTORS CONTRIBUTING TO OVER-INVESTIGATIONS AND OVER-DIAGNOSIS

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Over-diagnosis results from either over-testing or utilizing over-sensitive test(s) in an inappropriate clinical setting, or from broadening the definition of a disease.

Advances in technology appear to be a major contributing factor to over-diagnosis in the past few decades. This often results in further testing/monitoring and over-treatment that perhaps may do more harm than benefit to the individual. This may also cause or worsen anxiety in the individual or their family members and increases potential for disability, in addition to increasing the cost of care.

Various factors are responsible, in addition to overuse and misuse of technology. We have identified many factors and categorized those into four categories based on the groups/parties responsible, that are, 1. The culture-based – that are driven by the culture of practice of medicine, 2. The system-based – that are often the results of local/regional policies based on political decisions, specialty associations or different disease-groups or, 3. The user-based – that are driven by the patient/population and, 4. The provider-based - that may be influenced by the primary care provider, the specialist(s) or the radiologist beliefs, attitudes or needs.

We feel that a systematic approach is important to understand these factors better so that appropriate strategies are implemented at appropriate levels to control these effectively.

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Abstract # 36 - COMPUTERIZED MEDICAL INFORMATION SYSTEMS TO CONFRONT EXCESSIVE DIAGNOSTIC TESTING

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Background: Taking medical history is a fundamental part of patient management. Properly obtained, it can prevent unnecessary and harmful use of laboratory and technological procedures.

Israel's medical services have been fully computerized for almost 20 years. All patients' interaction with the medical system is recorded and stored in database, including physician visits, laboratory and imaging data, medications, hospitalizations, etc. The use of computerized information has become an integral part of patient's care management.

Aim: To reduce the abundance of unnecessary investigations.

Methods: Utilization of computerized medical information systems (electronic medical records) for the reduction or prevention of unnecessary laboratory and technological procedures will be demonstrated in variety of actual clinical situations. Advantages of this approach over traditional approaches will be clarified.

Results: Clinical examples clearly indicate the advantages of using computerized medical data in preventing the referral of patients for unnecessary investigations.

However, the ease of computerized test requisition may be a particular disadvantage to this approach.

Conclusions: The proper use of computerized medical chart as a part of a medical history data-base can optimize patient care and prevent unnecessary procedures which could lead to overdiagnosis and consequent harm and anxiety to the patients.

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Abstract # 37 - Education - Back to Clinical Thinking

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Background: Use of technology with sparse connection to clinical context and ordering routine laboratory and imaging tests is one of the causes of overdiagnosis. Along with rapid development of new technologies we recognize the growing tendency to rely on technological findings more than on clinical judgment. However, daily practice shows that properly done, patients' interviews together with physical exams, can point to the correct diagnosis and limit the number of complementary tests to those benefiting patient care. Re-education for clinical judgment and wise use of complementary tests can reduce unnecessary investigations.

Aim: To demonstrate the role of clinical re-education in reduction of technology overuse among practicing physicians.

Methods: Part of my work as consultant and educator of more than 300 general practitioners in Meuhedet Sick Fund, is decreasing the amount of unnecessary tests through clinical education. This includes personal tutoring and consulting, workshops and lectures in which demonstrative cases are presented. Emphasis is placed on wise use of imaging and referral to narrow specializations along with avoidance of routine laboratory testing and treatment of "laboratory disease". The main focus is on various methods of interviewing patients as well as on physical exam as a cornerstone in decision-making and intelligent use of technology. The special attention is placed on that patient complain may be due to side effects caused by medication, and that a thorough check of patient medications should be initiated before referral for additional testing. Clinical cases from the education sessions will be presented.

Results: The personal re-education of practicing physicians, focused on clinical thinking and appropriate use of various tests seems to change their daily-work habits and leads to significant decrease in referrals for medical testing.

Conclusion: Accentuation of basic clinical skills in place of unnecessary investigations as a part of postgraduate training would be recommended.

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Abstract # 41 - OVERTREATMENT IN GASTROINTESTINAL ENDOSCOPY: SCOPE, CAUSES AND RISKS

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Gastrointestinal endoscopies and free standing endoscopy centers have multiplied tremendously in recent decades, with the major driver being American Cancer Society recommendation for screening colonoscopies for every American over age 50. The Affordable Care Act with its proscription against patient copays for screening tests may be anticipated to further increase this trend.

Recent studies have found that less invasive, less risky and less expensive procedures like fecal occult blood testing and flexible sigmoidoscopies detect as many cancers and save as many lives as colonoscopy. In addition they are more acceptable to patients and could be anticipated to increase compliance with screening for colorectal cancer.

However to the gastroenterologist, colonoscopy is still the gold standard and a screening flexible sigmoidoscopy is not offered.

The screening colonoscopy itself has become another focus of overtreatment. While the American Society for Gastrointestinal Endoscopy (ASGE) recommends meperidine and hydroxyzine for light sedation in most cases, endoscopy centers are rapidly adopting near universal use of propofol instead, with its attendant need for the services of an anesthesiologist, capnography, cardiac monitoring, oxygen administration, and a driver for the patient, requiring both patient and another person taking the day off work.

While gastroenterologists have reasoned that deeper sedation permits a more thorough examination, recent studies have identified utilization patterns suggesting that the drivers for the propofol trend are higher reimbursement per procedure and due to more rapid induction, the ability to perform more procedures per day.

Risk managers and other stakeholders have an interest in educating gastroenterologists on the professional liability risks associated with complications of unnecessary procedures and unnecessarily deep sedation for screening procedures. The by-product and consolation prize for endoscopists might be increased patient volume for lesser procedures and more cancers detected.

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Abstract # 42 - MEDICALIZATION OF SOCIAL PROBLEMS

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Medicalization of social problems:
Processes of medicalization of social problems take place on the background of the interactions between social factors, the influence of the medical system and the individuals with their concepts of health and disturbed wellbeing. In the paper this topic is discussed for the conditions and consequences of overdiagnosis and medical treatments as well as the activities of social institutions especially for psychic and psychosomatic disorders in Germany. A special focus is orientated on the psychosocial background of burnout syndroms and the situation of unemployment.

Aim: It will be shown that these processes are very attractive for individuals who are unsatisfied with their working situation or for unemployed people. Their styles of causal and control attribution are fixed by the judgments of physicians, psychologists and the public opinion and the processes of regression and chronification are fostered by secondary gains of illness.

Methods: Data are presented of studies which focus the psychiatric and psychosomatic assessment of probands which have proposed disability pensions or provisions for psychic disabilities by their retirement insurance or by private insurances. The sample included 100 persons. In the study the jugdements of the expert assessment (diagnosis, amount of suffering and symptoms, working capacity) was compared with the judgments of the physicians and psychologists of the probands.
The study was based on qualitative interviews as well as on psychometric tests for measuring symptoms and the motivation for psychotherapy (causal and control attribution, the motivation for receiving secondary gains of illness) and the judgment of working capacity by the expert opinion.

Results: We could show significant differences in the judgments of the (trained on the base of a specific half-structured guideline) experts in the assessment process and the physicians and psychologists, who treated the probands in the past.

Conclusions: It is necessary to train the sensibility and competence of physicians and psychologists who treat people with primary social problems to prevent maladaptive coping of social problems with the consequences of increasing processes of mental diseases and their chronification. Therefore it is necessary that the physicians and psychotherapists work in constructive manner with the lay concepts of their patients. Essential topics and skills for such a training will be discussed.

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Abstract #43 - PROSCRIBING HOSPITAL SPONSORSHIP OF LOW-VALUE TESTING BY DIRECT-TO-CONSUMER SCREENING COMPANIES: A CALL TO ACTION

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Background: Hospitals throughout the United States sponsor direct-to-consumer commercial screening companies (DTCSCs), which engage local communities in preventive testing while feeding patients to highly remunerative specialty services. DTCSCs promote non-indicated screening tests in the general population with targeted come-ons such as 'volume discounts' on cash pricing for tests that fall outside of conventional preventive guidelines. This is done without appropriate disclaimers because DTCSCs claim that they are not engaged in formal doctor-patient relationships. Thus, the claims of benefit advertised by DTCSCs are often overstated and potential harms are not disclosed. Consumers are encouraged to discuss abnormal test results with their physician, but only after test results are provided. Hospital sponsorship of low-value testing provides consumers with a false sense of reassurance that screening offers more benefit than harm.

Aims: We propose a 'call to action' to eliminate hospital sponsorship of DTCSCs offering low-value testing.

Methods: We reviewed local DTCSC advertisements with hospital co-sponsorship and examined statements of testing benefit and risk. We also reviewed the literature on tests offered by DTCSCs and compared it with both published guidelines and the harms of low-value testing in low-risk patients. Lastly, we have also examined the ethics of hospital sponsorship of low-value DTC screening tests. (Wallace EA, Schumann JH, Weinberger SW; Ethics of Commercial Screening Tests. Annals of Internal Medicine. 2012 Nov;157(10):747-748. url: http://annals.org/article.aspx?articleid=1355172).

Results: Low-value screening tests performed on low-risk individuals not comporting with published guidelines leads to increased cost and harm. In addition, non-indicated screening tests neither inspire behavior change nor lead to improved health.

Conclusions: Health care organizations and physicians who promote high-value, cost conscious care should actively encourage hospitals and health care organizations to cease and desist supporting/sponsoring DTCSCs that offer low-value testing.

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Abstract #44 - DEVIATIONS FROM THE COURSE OF EVIDENCE-BASED PRACTICE: UNDERSTANDING SOCIAL MEDIA CONTRIBUTIONS TO OVERDIAGNOSIS IN THE TWENTY-FIRST CENTURY

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Introduction: Through social media, the public has gained increasing knowledge of symptoms of disease and diagnoses. While social media is becoming a more popular means to obtaining medical information, little research exists to correlate social media interests with contributions to overdiagnosis.

Aims: Primary aims of this research are to show that social media may serve as a driving force to overdiagnosis by promoting patient curiosity and precipitating medical anxiety. Secondary aims are to show that social media puts pressure on the physician to meet increasing patient expectations which may alter the course of evidence-based practice and contribute to overdiagnosis.

Methods: There is a widening gap between the immense amount of medical information made available to the public and the limited amount of research on the correlation of social media with overdiagnosis. To date, one of the most effective ways to understand the potential impact of social media on overdiagnosis is through www.google.com/trends.

Results: Since 2004, the trends feature of google.com shows that the public is changing the way it acquires medical information from sources such as the National Institutes of Health or the Centers for Disease Control and Prevention to newer sources such as WebMD or media personality, Dr. Oz. The search tool can be used to reflect how media headlines can increase public interest toward particular diagnoses such as bipolar disorder, anal cancer, and breast cancer, potentially altering the focus of patient concerns and the way evidence-based medicine is practiced.

Conclusions: As social media has a tendency to create anxiety and curiosity amongst those who want to better understand alarming symptoms and unknown diagnoses, physicians need to make time in their practice to counsel patients. With increasing trends toward public reliance on social media, physicians should optimize health literacy and evidence-based practices so as to avoid contributing to overdiagnosis.

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Abstract # 45 - RE-ANALYSIS OF THE UNITED STATES PREVENTIVE SERVICES TASK FORCE SYSTEMATIC REVIEW ON SCREENING FOR DEPRESSION IN PRIMARY CARE

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Background: There is an increasing emphasis on reducing the use of tests and procedures that do not improve patient outcomes, but that can result in substantial expenditures of scarce healthcare resources. The United States Preventive Services Task Force (USPSTF) recommends depression screening of adults in primary care when staff-assisted depression management programs are available. This recommendation has been criticized, however, because the USPSTF evidence review did not differentiate between trials of collaborative care depression management programs for patients already identified as depressed and trials of screening programs to identify and treat previously unrecognized cases.

Aims: To re-evaluate randomized controlled trials (RCTs) included in the 2009 USPSTF evidence review, including only trials of depression screening and not trials of depression treatment services for patients already identified as depressed. RCTs from the 2009 USPSTF review were included if they (1) determined patient eligibility and randomized patients prior to screening; (2) excluded patients already diagnosed with a current episode of depression or who were being treated for depression at the time of trial enrollment; and (3) provided the same level of depression treatment services to patients in screening and non-screening arms of the trial.

Methods: The 9 RCTs included in the 2009 USPSTF evidence review on screening for depression in adult patients in primary care settings were re-evaluated. We also conducted a database search to update the USPSTF search.

Results: Of the 9 RCTs included in the 2009 USPSTF evidence review, none were classified as screening trials and included in the re-analysis. Only 2 RCTs randomized patients pre-screening, and both were negative trials. No depression screening trials were found in the updated database search.

Conclusions: The USPSTF should revise its recommendation on depression screening and should recommend against the practice in the absence of evidence from high-quality RCTs that depression screening benefits patients.

Abstract # 46 - CANCER SCREENING RECOMMENDATIONS OF THE USPSTF: THE IMPACT OF OVERDIAGNOSIS ON ESTIMATING BENEFITS AND HARMS.

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Introduction: US Preventive Services Task Force (USPSTF) recommendations influence health care practice and policy. Overdiagnosis and overtreatment due to cancer screening are important harms considered in USPSTF recommendations.

Aims: Describe how the USPSTF assesses and incorporates overdiagnosis in estimating net benefit of breast, prostate, and cervical cancer screening.

Methods: Summary of USPSTF breast, prostate, and cervical cancer screening recommendations, methods and data used to estimate overdiagnosis, impact on net benefit and final recommendation statements.

Results: The frequency of overdiagnosis, though difficult to assess, was high, and varied by cancer, screening test, intervals, thresholds of abnormality and patient age. Estimated overdiagnosis due to mammography was 1-10%, and due to PSA testing was 17-50%. Cervical cancer overdiagnosis was primarily due to detection of precancerous lesions. The harms of overtreatment must be balanced against treatment benefits. For breast and cervical cancer screening there was at least moderate certainty of net benefit, while for prostate cancer, there was net harm. Modeling studies were used to assess age to start, stop, intervals or types of screening tests to optimize net benefits-including reducing overdiagnosis and overtreatment. For all 3 cancers, the greatest harms impacting net benefit estimation were false positives and overdiagnosis that resulted in additional testing and overtreatment. Recommendation statements highlighted approaches to minimize overdiagnosis and overtreatment while maintaining benefits.

Conclusions: Overdiagnosis is an important but poorly quantified and reported harm associated with cancer screening. Overdiagnosis can alter the benefits to harm balance and affect recommendations on if and how to implement screening. Improved reporting, assessment and communication of overdiagnosis and overtreatment is needed. Altering intervals, thresholds of abnormality, and ages to start or stop may reduce overdiagnosis.

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Abstract # 48 - OVERUSE OF ENDOSCOPIC EXAMINATIONS FOR ASYMPTOMATIC PERSONS

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Background: In Japan, cancer screening is paid for by local governments. However, in clinical practice, asymptomatic subjects have undergone upper gastrointestinal endoscopy and total colonoscopy for cancer screening that has been charged to health insurance.

Methods: We estimated the appropriate number of asymptomatic individuals who underwent upper endoscopy and colonoscopy during 2008 based on the National Health Insurance Survey and the National Survey of Patients. The basic assumption of the model for estimating the real number of upper endoscopic examination for asymptomatic persons was 1) At admission, an endoscopic examination was performed once for each patient of all upper gastrointestinal disease. 2) For outpatient cases at the first visit, an endoscopic examination was performed once for gastric and esophageal cancer patients and 0.5 times for patients with another upper gastrointestinal disease. For outpatient follow-up, patients were examined once a year if they had a gastric cancer or esophageal cancer and 0.5 times a year if they had another upper gastrointestinal disease. The number of asymptomatic individuals who underwent colonoscopy was also estimated.

Results: Using the baseline assumptions, asymptomatic patients accounted for 33.5% of all cases undergoing upper endoscopy. On sensitivity analysis based on 8 scenarios changing examination time from 0.1 to 1.0 time, this ranged from 5.9% to 70.4%. The baseline assumption was that asymptomatic patients accounted for 5.4% of all patients who are examined colonoscopy. On sensitivity analysis based on 6 scenarios performed by changing the number of examinations from 0.1 to 0.6 times, this ranged from 1.5% to 20.8%.

Conclusions: The results suggest that a substantial number of upper gastrointestinal endoscopies are performed for asymptomatic patients in clinical practice, and this cannot be ignored. For appropriate use, the target group for cancer screening should be defined as asymptomatic persons, and it divided from symptomatic persons in clinical setting.

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Abstract # 49 - OVERDIAGNOSIS AND OVERTREATMENT OF INSOMNIA

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Overdiagnosis: Insomnia is a common complaint in primary and secondary care, with a prevalence of 6-10%. However, the diagnosis is subjective, and there is little correlation between the amount of sleep we think we are getting, and for how long we are actually asleep. A major difference between people who complain of insomnia and those who do not are their expectations of sleep. Thus sleep is substantially overdiagnosed. Having insufficient sleep is harmful, and it can lead to obesity and metabolic syndrome, but this can be a lifestyle choice, is not necessarily related to insomnia. There is a paradox: the more we try to sleep, the harder it is to achieve. If we think we are sleeping less than we are, that might not matter. However, anxiety about not sleeping can create the insomnia we are trying to avoid, which in turn can damage our health.

Overtreatment: The standard treatments for insomnia, benzodiazepines and “z-drugs”, do not increase sleep significantly. They are little better than placebo. They mostly stop the brain storing memories of the normal ups and downs of sleep. As a consequence they do not reduce the morbidity and mortality of insufficient sleep, and may well increase them.

Understanding and communicating: The ability to expose ourselves to artificial light is very recent, and we cannot adapt to it. Historical and anthropological studies suggest that, what we consider to be common diagnoses of sleep disorders are normal variations in sleep patterns. Successful management of insomnia is based on understanding sleep and working within rather than against our natural circadian rhythms. CBT has been shown to be helpful. We need to learn and educate about healthy sleep patterns and how best to achieve them.

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Abstract #50 - TOWARDS A DEFINITION OF DIAGNOSTIC FUTILITY

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Introduction (Background): It is argued that more than 40 % of the radiological examinations are unnecessary. However the study results vary from 0 to 85%, and there is no agreement on what is a futile examination. While there has been a broad and elaborate debate on therapeutic futility, there is no parallel on *diagnostic futility*.

Aims: The aim of the study is to elaborate a robust definition of *diagnostic futility* that can be used to assess the extent of excessive examinations.

Methods:
1: Literature search for existing concepts to address excessive examinations in the diagnostic imaging literature.
2: Conceptual analysis of 'therapeutic futility', as an analog for diagnostic futility.
3: Analysis of 2 and 3 in order to elaborate a definition of *diagnostic futility* that can be used for a more consistent assessment of excessive examinations.

Results: There is a disparate terminology in the debates on excessive examinations, and no clear concepts exist. The concept of therapeutic futility runs into major challenges when implemented in diagnostics. Six dimensions of unnecessary examinations are identified: Excess, utility, safety, morals, deference from a standard, and lack of control. On basis of a thorough analysis, the following definition is elaborated: *An examination is diagnostically futile if there is no documented evidence that the examination will corroborate or falsify a diagnostic hypothesis or where the expected findings do not have documented medical benefits to the patient that outweigh the documented or widely accepted risks of the examinations*.

Conclusion: A clear and applicable definition of diagnostic futility is needed in order to assess, discuss, and handle unnecessary examinations.

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Abstract #51 - FINANCIAL IMPACT OF A NATIONAL PROGRAM TO INFLUENCE ACUTE LOW BACK PAIN MANAGEMENT IN GENERAL PRACTICE

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Introduction: Low back pain affects one in every four adults in any point in time and is one of the common reasons for medical consultations. Although evidence shows that routine use of imaging scans does not improve the health outcomes for acute low back pain patients, the tests are frequently ordered. This not only increases the economic burden but exposes patients to potential harm from unnecessary radiation.

NPS developed and implemented a national educational program to promote evidence-based management for low back pain among general practitioners. The major intervention included providing general practitioners with individualised information about their test ordering activity to encourage reflective learning.

Aims: To assess the financial impact of the national program

Methods: Time series analyses of the national Medicare data were used to measure the impact on volume and cost to government of relevant computerised tomography (CT) tests. Comparative activities developed by other agencies in a similar period have been taken into account in the analysis. Aggregated monthly volume of GP test orders for CT was used for the analyses.

Results: We developed three time series models based on different scenarios. All of them showed significant relative reduction attributable to NPS program. The estimated financial savings from these three models ranged from AU$4.1 million to AU$7.8 million, with the average of AU$5.4 million over a 12 month period.

Conclusion: Individualised information about GP test ordering activity that encourages reflective learning has been effective in reducing CT scans requested in association with acute low back pain.

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Abstract #53 - USING A DISCRETE CHOICE EXPERIMENT TO COMMUNICATE OVERDIAGNOSIS IN PSA SCREENING

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Background: Communicating the risks of over-diagnosis in prostate specific antigen (PSA) screening is crucial for informed decision making. Discrete choice experiments (DCE) can help patients consider the relative value of different outcomes, including overdiagnosis.

Methods: We surveyed a sample of average risk men ages 50-70 who were recruited from online panels in the US and Australia. Participants completed a 16-question DCE along with pre- and post-task questionnaires. They received information about prostate cancer and prostate specific antigen (PSA) screening, including quantitative information on 4 key outcomes: chance of being diagnosed with prostate cancer, chance of dying from prostate cancer, chance of requiring a prostate biopsy from screening, and chance of developing impotence or incontinence from screen-detected cancer treatment. We used mixed multinomial logistic regression to derive attribute-level-specific weights for each participant and used these weights to estimate overall utility. We modelled the optimal DCE-derived screening decision as the option with highest utility. In the post-test questionnaire, participants directly selected their preferred strategy from an unlabelled question with two options described by the same attributes and levels as in the modelling, and indicated intent to undergo PSA testing (5-point Likert scale).

Results: We enrolled 302 participants. Mean age = 59.6 years; 81.8% were Caucasian and 39.7% college graduates. Nearly 40% reported a PSA test within 12 months. Participants attributed greater utility to the lowest risk of diagnosis, mortality, biopsy, and impotence/ incontinence. Based on the results of the DCE, 81.1% of participants had greater utility for the “no screening” option; on the direct unlabelled screening preference question, 79.8% selected the “no screening option” as well (79.5% agreement, kappa=0.35) In contrast, intent to have PSA screening was high: 73.5% expressed intent to be screened.

Conclusions: Informed participants’ values are consistent with not having PSA screening, but intent to be screened remains high.

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Abstract #55 - THE IMPACT OF THE GOVERNMENT LIMITING INDICATIONS FOR IMAGING LOW BACK PAIN IN ONTARIO

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Ontario with a health expenditure of over $CA45 billon faces the challenge of limiting spending on unnecessary procedures and treatments. Evidence suggests that imaging is of little value in the management of uncomplicated low back pain. The Government of Ontario announced in April 2012 that X-ray, CT or MRI studies of the lumbar spine would not be reimbursed when ordered for uncomplicated low back pain.

We analyzed numbers of completed spine imaging studies ordered by all Ontario physicians for 24 months before and 4 months after the restriction was introduced. As a control we studied ordering of CT and MRI scans of the head, which should have been unaffected. In the period before the intervention Ontario physicians ordered 35,000 – 38,000 lumbar X-rays/month, 6,000 – 7,000 CT spine and 12,000 to 16,000 single segment MRI studies.

The restriction had an immediate impact on numbers of lumbar spine X-rays, which fell by 30% and remained lower during the follow up period. The biggest effect was seen on X-rays ordered by general practitioners/family physicians (GP/FPs). The impact on spine CT scans was against an already declining use of this investigation. In the case of MRI ordering fell by 15% from a peak in late 2011; as with X-rays the biggest drop was seen in ordering by GP/FPs. For all imaging studies, including CT and MRI of the head an acute effect was seen in the month after the restriction, suggesting that its intention was not fully understood. However, for head and full spine studies ordering returned rapidly to pre-intervention levels.

The early data suggest that removal of insurance coverage is a crude instrument that has acute and relatively indiscriminate short-term effects on all test ordering, but a more sustained effect on targeted investigations, particularly those ordered by GP/FPs.

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Abstract #56 - WHAT DRIVES THE ACTIVITIES OF SPECIALIST PHYSICIANS UNDER FEE FOR SERVICE?

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Payments to specialist physicians from Ontario's publicly funded healthcare system have increased in the last 10 years as a result of a number of policy initiatives. These include a 'wait times strategy' to improve access to emergency services, cataract and joint replacement surgery.

We wished to characterize the main drivers of payment increases to selected specialty groups and to determine how much was aligned with the aims of the Wait Times Strategy.

We analyzed payments to physicians remunerated predominantly through fee for service (FFS). We calculated total FFS payments to each physician for FY 2005/06 and 2010/11 and created a model that assigned the payment increases to one of three categories: 1) an increase in patients/physician; 2) increased services/patient; 3) increased cost/service. The latter could be an increased price/service or a shift to more expensive services (eg CT scan rather than X-ray).

Between 2005/06 and 2010/11 payments to physicians working in 12 major specialty groups increased by CA$978 million, equivalent to a per physician increase of CA$84,000 annually (ranging from CA$28,000 to nephrologists to CA$154,000 to radiologists and CA$182,500 for ophthalmologists). The main drivers differed substantially between specialties. In the case of nephrology, 73% of the increase was attributable to increased number of patients/physician and 27% to increased cost/service. In the case of radiology 18% of the increase in payments was due to larger numbers of patients/physician, 47% to increased services/patient and 35% to increased cost/service. With ophthalmology the equivalent figures were 14%, 56% and 30% respectively.

In other words, in specialties with the largest per physician increases, about half was attributable to an increase in the number of services/patient. While this is not direct evidence of over-diagnosis or over-treatment it highlights a perverse impact of the FFS payment system that was not aligned with the policy objectives.

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Abstract #57 - ASTHMA DIAGNOSIS REVISED: OVERDIAGNOSIS REVEALED BY METACHOLINE BRONCHIAL CHALLENGE

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Background: The incidence of adults reporting a history of asthma is rising. Some studies have recently suggested that this may depend on an overall increase in asthma awareness by physicians resulting in overdiagnosis. One of the peculiar feature of asthma is bronchial hyperresponsiveness which can be easily assessed by metacholine bronchial challenge (MBC). Overdiagnosis may result in over- or mis- treatment of respiratory symptoms which may mimic asthma.

Aims: to describe the use of anti-asthmatic drugs in patients with respiratory symptoms before formal diagnosis of asthma by MBC.

Methods: retrospective study analyzing all MBCs performed by our Allergy Outpatients Clinic since 1st Jan 2009 until 31st Dec 2012; all the MBCs were performed to confirm/exclude the diagnosis of asthma in patients referred by general practitioners and complaining asthma-like symptoms. Patients' clinical records collected since the date of MBC have been revised in order to obtain information on anti-asthmatic drugs taken by patients.

Results: a total of 226 patients' clinical records and MBCs have been revised: 99 (43.8%) resulted positive at MBC test and 37 (37.4%) of these patients, compared to 65 out of 127 (51.2%) of those with negative MBC, were previously taking anti-asthmatic drugs (p=0.03). No differences in daily dose of inhaled corticosteroids (563,8 vs 456,3 mcg BDP equivalents in patients with positive and negative MBC respectively, p>0,05) or other anti-asthmatic drugs (LABA, LTRA), as well in duration of treatment before the assessment of bronchial hyperresponsiveness (25,3 vs 24,9 months in patients with positive and negative MBC respectively, p>0,05) were found.

Conclusion: A sizeable percentage of subjects who report physician-diagnosed asthma have a negative MBC. Nevertheless, a greater proportion of negative MBC patients were taking anti-asthmatic drugs compared to those with confirmed diagnosis of asthma, underlying that overdiagnosis of asthma may lead to over- and mis-treatment of respiratory symptoms.

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Abstract #58 - UNDERSTANDING PRIMARY CARE IN ARGENTINA: A SURVEY ABOUT PRIMARY CARE PHYSICIANS' VIEW ON THEIR PRACTICE.

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Background: General practitioners are the first contact providers of health care systems and contribute to improve access and continuity of care for patients and their families. Strong primary care is associated with better health outcomes and lower costs. Moreover, much of the current healthcare spending is unnecessary, and that there is also inequity. We believe there are patients receiving too much unnecessary and harmful medical care and other people receiving insufficient care, representing the case of the inverse care law. All of these suggest that better management could be possible in order to achieve better health results. The view of primary care physicians is important because they are in a unique position to monitor most of the care patients receive and also are responsible for initiating the cascade of health care utilization. In this context, we believe it is important to recognize the way physicians deliver health care and factors that influence their decisions in our setting.

Objectives:
- To recognize and learn about primary care physician´s view of their practice style and factors that influence it.
- To translate and adapt an original survey to understand factors that influence their practice.

Methods: We plan to translate from English to Spanish and adapt the original survey, from Sirovich BE, Woloshin S, Schwartz, LM. Too little? too much? Primary care physicians' views on us health care: a brief report.
Afterwards, we will conduct a national self-administered survey, in person or virtual (via e-mail or facebook), to a convenience sample of primary care physicians, pertaining to the three Argentine health care sub-systems.
The protocol has been approved by an Institutional Review Board.

Results: We obtained a Spanish version of this survey in order to recognize primary care physicians' practice style and factors that influence it. Until June 2013 we will be conducting the national survey. Research is in process and we expect to have processed results by August 2013.

Conclusions: The obtained information will be of great relevance for understanding and improving the efficiency of our health care system and the appropriateness of health care provided

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Abstract # 59 - CHARACTERISTICS OF SCREEN DETECTED BRONCHIOLOALVEOLAR CARCINOMA IN THE NLST.

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Background: Overdiagnosis of lung cancer with low-dose CT (LDCT) screening could contribute to harms of LDCT screening. In the National Lung Screening Trial (NLST), there were 1089 lung cancers in the LDCT arm versus 969 in the chest-radiograph (CXR) arm - an excess of 120 cases. For subjects with bronchioloalveolar carcinoma (BAC) and no other histologies, there were 69 excess cases in the LDCT arm (104 versus 35), so BAC is a major component of overdiagnosis with LDCT.

Aims: To examine characteristics of BAC in NLST, especially in LDCT screen detected cases.

Methods: Screen detected BAC was defined as diagnosis following a positive screen. Deaths and lung cancer progression were tracked.

Results: Of 104 LDCT arm BAC (only) cases, 91 were screen detected, comprising 14% of LDCT arm screen detected cancers. Of these 91, 73 (80%) were stage I and 14(15%) stage III/IV. 84/91 (92%) received surgical treatment, and 89 (98%) received surgery, radiation or systemic chemotherapy. 72/73 stage I cases received surgery.

9/91 (10%) died of lung cancer and 18 (20%) had lung cancer death or evidence of progressive disease; 5 year (lung cancer specific) survival was 89.6% (95% CI: 80.1-94.4). Of 73 stage I cases, 3 (4.1%) died of lung cancer, 6 (8.2%) had death or progressive disease and 5 year survival was 95.7% (95% CI:87.3-98.6).

Among all subjects with BAC and no other lung cancer histology, there were 10 deaths and 16 stage III/IV cases in the LDCT arm, versus 10 deaths and 14 stage III/IV cases in the CXR arm.

Conclusion: Almost all screen detected BAC cases received surgery. Survival rates were high, but deaths from lung cancer did occur, even in stage I cases. Based on very limited data, there was no evidence of a mortality benefit or stage shift for BAC from LDCT screening.

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Abstract # 60 - DIAGNOSING AND PREVENTING OVERDIAGNOSIS IN GERMANY

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Background: Diagnosing and preventing overdiagnosis and overuse in Germany is the objective of the Healthcare Fact Check (HCFC), a project originated by the Bertelsmann Foundation in late 2011. Overuse, underuse and misuse in the German health system have been debated by experts for years but only recently systematic data have been generated and published.

Aims and methods: The HCFC generates and interprets data on regional variations for 10 surgical procedures and 6 indicators for access to health care. The results are presented on a public website which offers reports, comments and interactive maps showing the variations on the district level. Further studies have been undertaken, e.g. to explore the indications for and the attitudes towards cesarean section. Past experience has shown that knowledge often is not enough to initiate determined endeavors for quality improvement. The strategy behind the HCFC builds on the assumption that the regulatory framework does not guarantee adequate care and that the intrinsic motivation of the profession has to be complemented by an extrinsic motivation that arises from the involvement and pressure of the general public. The communication strategy thus aims at the general public and involves the media instead of focusing solely on the “inner circle” of health policy makers and healthcare-related specialists. The goal is to include as many stakeholders as possible from the German healthcare system in a cooperative project to ensure evidence-based and demand-oriented care that respects the attitudes and values of well-informed patients.

Results: Taking cesarean sections as an example the results indicate that the sharing of evidence-based information with patients and their partners, care by midwives and training of gynecologists might reduce overuse of this surgical procedure. First anecdotal results show that obstetricians are willing to integrate these elements into their practice.

Conclusions: Reducing overdiagnosis and overuse by a strategy of disseminating information to professionals and to the general public appears to be promising.

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Abstract #61 - A NEW METHOD FOR ESTIMATING OVER DIAGNOSIS OF EARLIER DIAGNOSED DISEASE BY SCREENING EXAMS: APPLICATION TO BREAST CANCER.

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Overdiagnosis of earlier diagnosed disease by screening exams may be a major problem for some of the chronic diseases for which special exams are believed to diagnose disease earlier.

The evaluation of over diagnosis of disease must take into account residual follow up time (time from diagnosis by screening to maximum follow up time), the lead-time and length biased sampling.

In this paper, we present a new method of the evaluation of over diagnosis, which takes these characteristics into account. Our formulation of the problem assumes a data set having a finite follow up time. There exists a population, defined by age, say for example, 50 -69, exposed to a screening program. After a period of follow up, the incidence of this age group for age 70 and beyond is compared with a control population for the same age group. It is expected that the incidence beyond 70 will be lower for the screened population due to diagnosis at an earlier age by screening. If not, this would constitute evidence of over diagnosis.

The analysis method consists of considering all cases diagnosed by screening and to estimate the number that would have been incidence in the age group 70 and, beyond, if this group had usual care. Consequently we have an estimate of incidence of the screened population if they had usual care compared with a control population. The estimation procedure requires use of both the lead time and pre-clinical sojourn time probability distributions which depend on length biased sampling. Application is made to the Norwegian National Breast Cancer Screening Program.

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Abstract # 62 - PATIENT'S REASONS FOR PURSUING DIAGNOSIS OF HARMLESS AND UNTREATABLE DISEASES: INSIGHTS ON OVERDIAGNOSIS

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Background: Patients' desire for information about harmless and untreatable "diseases" may contribute to overuse and overdiagnosis, but we lack deep understanding of this phenomenon.
Aims: To assess what patients would want to know about 1) disease that would "never cause you physical harm" and 2) disease that "can be detected even though treatments wouldn't help you live longer or better".

Methods: We conducted semi-structured interviews with 50 patients at four primary care practices in a practice based research network. We purposively selected previously screened and unscreened patients. Two reviewers coded verbatim transcripts, arbitrated differences, and used ATLAS.ti 6.2 to facilitate analysis.

Results: A majority of patients (60%) expressed interest in knowing about a disease that would never cause them physical harm, and even more (83%) expressed interest in knowing about a disease even if no effective treatments existed. Patients' reasons for wanting to know about a harmless disease included curiosity, the desire to keep up with medical knowledge, and the desire to ameliorate risk through novel treatments, lifestyle change, or reduced transmission to offspring who may be more at risk for harm. Patients' reasons for wanting to know about untreatable diseases included the ability to prepare for what's ahead (e.g. readjust priorities, provide financially for others) and to personally investigate whether effective treatments are available. Patients noted that the word disease connotes harm; they also enumerated harms, including psychological harms (e.g. anxiety, depression, stress, and paranoia) and wasted time, money, and effort. Patients reported they'd rely on their physicians for guidance about testing.

Conclusions: Patients in this sample expressed many reasons for wanting to know about harmless and untreatable diseases. To reduce overuse and overdiagnosis, the medical community should re-consider their use of the term disease and address important misconceptions driving the desire for harmless and untreatable services.

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Abstract # 63 - HOW DO PRIMARY CARE PHYSICIANS WEIGH RECOMMENDATIONS TO STOP PSA SCREENING AND PATIENTS' REQUESTS TO BE SCREENED?

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Introduction: PSA screening for prostate cancer is associated with high levels of overdiagnosis, leading to greater harm than good. Although the US Preventive Services Task Force recommends against routine PSA screening, it is unclear how physicians approach men about PSA screening.

Aim: To gain a deeper understanding of factors physicians consider when deciding whether to recommend PSA screening.

Methods: We conducted in-depth interviews with a purposive sample of eight physicians at four Primary Care Research Consortium (PCRC) practices to understand screening decisions. We transcribed, coded, and entered interviews into ATLAS.ti. The results informed a paper survey among all primary care clinicians in 24 PCRC practices. The survey (response rate 80% from 158 distributed) focused on physicians' cancer screening discussions with patients, including potential benefits, harms, and screening recommendations.

Results: USPSTF guidelines strongly influenced screening recommendations in 90% of physicians. Physicians also considered factors like patients' age, health status, and preferences when making PSA screening recommendations, placing especially high importance on patients' preferences to be screened. When presented with a case study of a healthy 50-year-old patient who did not request PSA screening, 49% recommended PSA screening, compared to 73% if the patient requested it. For a healthy 70 year old, recommendations also changed to meet a patient's screening request; 28% versus 52%, respectively. Physicians' responses changed at advanced age: for a healthy 90 year old, only 7% would order screening even if the patient requested it. Physicians reported concerns about missing opportunities to diagnose cancer: 62% said they would regret not recommending screening to a patient later diagnosed with cancer.

Conclusion: Findings show that physicians strongly consider patients' requests for PSA screening despite the recent USPSTF recommendations. Addressing emotional factors such as regret may also be important to help physicians better address PSA screening and overdiagnosis.

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Abstract # 64 -DRIVERS OF OVERDIAGNOSIS IN PROSTATE CANCER SCREENING: AN AUSTRALIAN GP PERSPECTIVE

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Background: Overdiagnosis is a significant concern in prostate cancer screening. Although Australia does not have a formal prostate cancer screening programme, routinely collected data suggests ≥20% of men aged 45-74 receive a prostate specific antigen (PSA) test with screening intent per annum; self-report figures are much higher. Although most PSA tests occur in general practice, little is known about how GPs reason about PSA test ordering.

Aims:
1. To understand how and why GPs provide PSA testing to their male patients.
2. To understand the significance of overdiagnosis in GPs clinical reasoning about PSA testing.

Methods:
We are currently recruiting urban and rural GPs to participate in this qualitative study, including GPs of varying ages, clinical experience, and patient populations. We will purposively sample GPs who are enthusiastic about, opposed to, and ambivalent about PSA testing. We are using a well-established and systematic approach to qualitative research, grounded theory, to guide our sampling and analysis.

Results: Interviews will focus on GPs' current approaches to, and reasoning about, PSA testing. We will collect GPs' de-identified accounts of recent clinical encounters involving PSA testing decisions, and explore how GPs decided to order, or not order, PSA tests for these men. Our analysis will explain variation in GPs' reasoning; perceived clinical, moral, and legal obligations; and the place of potential overdiagnosis in decision making.

Conclusions: GPs, gatekeepers to the PSA test, are potentially caught between competing ethical, legal, clinical, commercial, and political interests. Despite evidence and advice about the potential for overdiagnosis in PSA testing, many PSA tests continue to be ordered with screening intent. By examining variation in GPs' clinical reasoning, we will explain how and why PSA testing occurs and thus how overdiagnosis could be more effectively limited in clinical practice

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Abstract # 65 - CLINICAL REVIEW AND AUDIT – A COMMISSIONER'S APPROACH TO MANAGING UNWARRANTED VARIATION IN RATES OF ABDOMINAL HYSTERECTOMY

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Introduction: Bupa Health Funding is the largest health insurer in the UK and committed to making quality healthcare affordable and accessible for the benefit of patients.
Bupa observes wide, unexplained variations in the way some physicians and surgeons treat conditions in the private sector, which is not explained by clinical need, patient preference or health system capacity.
Bupa analyses intervention rates using risk adjusted statistical comparison. In 2011, Bupa identified that 55% of hysterectomies on Bupa insured patients were abdominal (as opposed to vaginal, laparoscopic or Wertheim's) and some Bupa recognised surgeons were only performing abdominal hysterectomies.
Medical evidence shows that a vaginal hysterectomy has equal or significantly better results than abdominal surgery for benign gynaecological disease, and when not possible, a laparoscopic approach may avoid a more invasive abdominal hysterectomy.

Aim: To ensure Bupa patients receive access to the most appropriate type of hysterectomy based upon clinical need and patient preference.

Method: Bupa conducted a clinical review and audit of Bupa recognised surgeons' practice who had only performed abdominal hysterectomies on Bupa patients (Nov 2010 - Oct 2011). At the same time, a trained specialist team began to assess requests to fund abdominal hysterectomies, to ascertain whether the procedure was clinically indicated (in line with medical evidence) and shared decision-making had occurred.

Results: There have been an estimated 111 'avoided' abdominal hysterectomies for Bupa patients (May - Oct 2012; out of a forecast 1559 all hysterectomies) with no evidence of detrimental impact on patient outcomes. Surgeon practice has changed (4% fall in abdominal hysterectomies and corresponding increase in laparoscopic hysterectomies over baseline).

Conclusions: Clinical review and audit with process change can reduce the risk of overtreatment, influence surgeon practice in line with the medical evidence, and support Bupa to maintain patient safety and steward insured members' funds appropriately.

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Abstract # 66 - A MEDICAL REVIEW PROCESS FOR ORTHOPAEDIC SURGERY – A COMMISSIONER'S APPROACH TO MANAGING UNWARRANTED VARIATION

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Introduction: Bupa Health Funding is the largest health insurer in the UK and committed to making quality healthcare affordable and accessible for the benefit of patients.
Bupa observes wide, unexplained variations in the way some physicians and surgeons treat conditions in the private sector, which is not explained by clinical need, patient preference or health system capacity.
Bupa analyses and benchmarks intervention rates using risk-adjusted statistical comparison, requiring rigorous clinical mapping of different coding systems. For example, when compared with the NHS in England, Bupa insured patients were at least three times more likely to undergo knee arthroscopy (2011), three times more likely to undergo arthroscopic subacromial decompression (2012), and eight times more likely to have an extensive open rotator cuff repair (2012).

Aim: To ensure Bupa's funding policies support patients to access treatment in line with published medical evidence and clinical guidelines.

Methods: Bupa introduced evidence-based medical reviews to manage funding requests for knee arthroscopy, rotator cuff tear repair and subacromial decompression.
Before implementation, Bupa wrote to relevant surgeons, hospitals and professional associations to highlight the observed variations and discuss the approach. Medical reviews were introduced using specialist support teams. Funding requests, which did not meet evidence-based criteria, were independently peer-reviewed by consultant orthopaedic surgeons.

Results: There were an estimated 1622 'avoided' knee arthroscopies (Jun 2011 – May 2012; forecast 17,225) and an estimated 188 'avoided' shoulder procedures (subacrominal decompression and rotator cuff repair; May - Oct 2012; forecast 1,770). In both cases, this represented a 9% reduction in funding requests (adjusted to account for change in insured lives covered), with no evidence of detrimental impact on patient outcomes.

Conclusions: An evidence-based funding policy supported by a medical review process reduces the risk of overtreatment and supports Bupa to maintain patient safety and steward insured members' funds appropriately.

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Abstract # 67 - APPLYING THE MEDICAL EVIDENCE TO FUNDING POLICIES – A COMMISSIONER'S APPROACH TO MANAGING UNWARRANTED VARIATION IN RATES OF SPINAL SURGERY

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Introduction: Bupa Health Funding is the largest health insurer in the UK and committed to making quality healthcare affordable and accessible for the benefit of patients.
Bupa observes wide, unexplained variations in the way some physicians and surgeons treat conditions in the private sector, which is not explained by clinical need, patient preference or health system capacity.
In 2011, Bupa identified that some surgeons were performing percutaneous vertebroplasty on Bupa insured patients for osteoporotic fractures, despite the available clinical guidelines and the results and conclusions of the currently available medical evidence e.g. randomised trials by Buchbinder et al 2009, and Kallmes et al 2009.

Aim: To ensure Bupa's funding policies support patients to access treatment for osteoporotic vertebral fractures in line with clinical guidelines and published medical evidence.

Methods: Bupa wrote to relevant surgeons, hospitals and professional associations in the UK, advising that from March 2012, Bupa would no longer fund percutaneous vertebroplasty for osteoporotic vertebral fractures and clarifying the position on funding for patients with vertebral metastases.
Bupa took the decision to stop funding percutaneous vertebroplasty for osteoporotic vertebral fractures in any of its worldwide health insurance businesses.

Results: There have been an estimated 26 'avoided' spinal procedures on Bupa members (Mar - Oct 2012; out of a forecast 47), with no evidence of detrimental impact on patient outcomes. During this period, all vertebroplasty claims (metastatic and non metastatic) decreased by 55%.

Conclusions: An evidence-based funding policy reduces the risk of overtreatment and supports Bupa to maintain patient safety and steward insured members' funds appropriately.

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Abstract #69 - OVERDIAGNOSIS OR REAL CLINICAL BENEFIT: THE CHALLENGE IN EVALUATING NEW SENSITIVE DIAGNOSTIC TESTS OR BIOMARKERS.

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Overdiagnosis is one of the biggest challenges in modern medicine. It is present across all medical fields. Estimates indicate overdiagnosis has led millions to become patients unnecessarily, receiving unwarranted and potentially harmful treatments.

A major contributor to this rising problem is the development of highly sensitive diagnostic technologies, including biomarkers, high-resolution imaging, and genetic tests. These new technologies certainly improved medicine. They identify new - often yet milder diseased – cases or case subgroups that did not exist based on prevailing diagnostics. But therapies given to subjects with small abnormalities or mild disease may not necessarily yield the benefits as seen in traditional cases; i.e. the essence of overdiagnosis. Disease presence needs redefined; it becomes a continuum rather than a dichotomous entity.

The current research framework for studying the accuracy of diagnostic technologies requires a final diagnosis that is dichotomous; the new test is compared to the existing reference to quantify its ability to include or exclude disease presence. This framework is poorly equipped to determine whether a new test indeed leads to better treatment choices or rather creates overdiagnosis. Methods beyond this prevailing diagnostic research paradigm, addressing the disease continuum including the follow-up of (mild) diseases, are urgently needed, certainly in this medical technology era.

In this presentation possible improvements in test accuracy measures by using a clinically relevant spectrum of disease instead of a dichotomous disease definition are discussed. Also, the possibility of leaving the accuracy paradigm and focusing on whether patients receiving the new sensitive test will directly benefit from treatment will be examined.

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Abstract # 70 - WHAT IS A DISEASE? PERSPECTIVES OF THE PUBLIC, HEALTH PROFESSIONALS, AND LEGISLATORS IN THE FINNISH DISEASE (FIND) SURVEY

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Background: The concept of disease is subject to social, cultural, and economic influences. Although what is considered a disease reflects and influences health policies, little is known about the perception of diseases and the willingness to use public tax revenue for their treatment among relevant stakeholders.

Aims: To assess the perception of diseases and the willingness to use public-tax revenue for their treatment among relevant stakeholders.

Methods: In 2010, we mailed questionnaires to 3000 laypeople, 1500 doctors, 1500 nurses, and all 200 parliament members in Finland. Respondents used a 5-point Likert scale to provide their perspectives on 60 states of being using two claims: “[This state of being] is a disease”; and ”[This state of being] should be treated with public tax revenue”

Results: Of the 6200 individuals approached, 3280 (53%) responded. Of the 60 states of being, at least 80% of respondents considered 12 to be diseases (Likert scales “4” and “5”) and five not to be diseases (Likert scales “1” and “2”). There was considerable variability in most states, and great variability occurred in ten (at least 20% of respondents of all groups considered it a disease and at least 20% rejected as a disease) (Figure). Doctors were more inclined to consider states of being as diseases than laypeople; nurses and parliament members were intermediate ($p<0.001$). Responses to the two claims were very strongly correlated ($r = 0.96$ [95% CI: 0.94-0.98]; $p<0.001$).

Conclusions: There is large disagreement among the public, health professionals, and legislators regarding the classification of states of being as diseases and whether their management should be publicly funded. Understanding attitudinal differences can help to enlighten social discourse on numerous contentious current public policy issues.

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Abstract # 71 - EXPLORING DECISIONS TO WITHHOLD DIAGNOSTIC INVESTIGATIONS IN DUTCH NURSIONG HOME PATIENTS WITH A CLINICAL SUSPICION OF VENOUS THROMBOEMBOLISM: A MIXED METHOD STUDY

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Objective: To explore decisions to withhold additional diagnostic investigations in nursing home patients.

Design: Mixed-method study.

Setting: 19 nursing homes in the Netherlands.
Participants: 268 nursing home patients with a high suspicion of venous thromboembolism (VTE), 21 elderly care physicians.

Measurements: The frequency of decisions to forgo diagnostic investigations was established in an observational study on diagnostic strategies for elderly patients with a suspicion of VTE. Patient characteristics, bleeding-complications and mortality were related to the decision to withhold investigations. For a better understanding of the elderly care physicians' decisions, individual face-to-face in-depth interviews were performed and analysed using the grounded theory approach.

Results: Referal for additional diagnostic investigations was forgone in 104/268 (38.8%) patients with an indication for diagnostic work-up. 'Blind' anticoagulant treatment was initiated in 79 (76.0%) of these patients. Patients in whom investigations were withheld were older and mortality and major-bleeding occurred more often within 3 months, compared to the referred patients (respectively 83.8 versus 80.9 years; 34.0% versus 18.2% and 6.7% versus 1.2%). In their decisions to forgo diagnostic investigations, physicians incorporated the estimated relative impact of the potential disease; the potential benefits of diagnostic investigations and whether performing investigations agreed with established management goals in advance care planning.

Conclusions: Referral for additional diagnostic investigations is commonly withheld in Dutch nursing home patients suspected of VTE. Patients in whom investigations were withheld had higher mortality- and bleeding rates than referred patients. Physicians mainly based their decisions on their judgment concerning the proportionality of the investigation. Given the worse outcomes of the non-referred patients and complexity of the decisions, more attention for decisions concerning withholding diagnostic investigations in older patients is needed.

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Abstract # 72 - PROFESSIONAL SOCIETIES' TOP 5 LISTS FOR THE CHOOSING WISELY INITIATIVE: EVIDENCE-BASED AND SUSTAINABLE?

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Background: The Choosing Wisely Initiative is an important effort to stem the tide of inappropriate use of testing and the accompanying problem of overdiagnosis.

Aims: To assess the process by which professional societies created their Choosing Wisely 'top 5' lists, as well as societies' plans for sustaining such efforts.

Methods: We searched the Choosing Wisely website for information about the process employed by each of 26 professional societies to create 'top 5' lists of overused services, and examined any referenced articles. For each society's list we recorded details about: **(Step 1)** how societies generated lists of candidate services; **(Step 2)** how they gathered evidence about harms, benefits, and costs; **(Step 3)** how they evaluated evidence to make a final list; and **(Step 4)** whether they specified plans for continuation. Two authors independently conducted reviews, reconciling discrepancies by discussion.

Results: Step 1: 15 societies used leaders' opinions alone to generate *candidate lists* (two also reviewed their society guidelines) and another 10 used leaders' opinions plus input from general membership. **Step 2:** 14 societies mentioned examining *evidence* to aid decisions about lists (10 did unspecified "literature reviews", two examined evidence from their own guidelines, two examined systematic reviews done by others); 12 did not discuss evidence. **Step 3:** 16 societies developed *final lists* with input from physician leaders (one also mentioned input from patients) and 10 did not specify a process; **Step 4:** Four of the 26 societies are planning *future lists*, while the other 22 specified no plans.

Conclusions: The 26 societies used varying processes to establish a Choosing Wisely list; the use of evidence also varied. It is uncertain whether the Choosing Wisely Initiative will continue. We suggest that the professional societies convene to discuss a shared, feasible process for developing 'top 5' lists and sustaining them into the future.

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Abstract # 73 - SCREENING FOR PROSTATE CANCER

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Introduction: Prostate cancer is a common malignancy in developed countries and a leading cause of morbidity and mortality. PSA-based screening for prostate cancer to limit disease-related complications and mortality is desirable, but has had mixed outcomes in different trials.

Aims: To explore rates of overdiagnosis associated with prostate cancer screening.

Methods: We performed a systematic review of randomized controlled trials of PSA-based prostate cancer screening (recently published by Ilic et al., The Cochrane Library, 2013) based on a comprehensive search of both the published and unpublished literature. Two authors independently reviewed the citations for studies to include and subsequently performed the data abstraction according to an a priori protocol. We assessed risk of bias and the quality of evidence using the Cochrane risk of bias tool and GRADE, respectively.

Results: Five RCTs with a total of 341,342 participants were included in the updated review. Meta-analysis of the five included studies indicated no statistically significant difference in prostate cancer-specific mortality between men randomized to the screening and control groups (risk ratio (RR) 1.00, 95% confidence interval (CI) 0.86 to 1.17). Rates of overdiagnosis were reported in two studies – the ERSPC, where the rate of overdiagnosis was estimated to be up to 50%, and the PLCO study, which reported false-positive rates of 10.4% and 15.0% for PSA and digital rectal exam, respectively.

Conclusions: Findings from this updated systematic review demonstrate that screening does not significantly reduce prostate cancer-specific mortality, but results in overdiagnosis and downstream harms related to the screening test (i.e. PSA anxiety), diagnostic testing (i.e. complications of prostate biopsy) as well as complications and quality of life impairments associated with the unnecessary treatment of screen-detected cancers. These findings underscore the need for active efforts and health policies to limit unnecessary testing of asymptomatic men unlikely to benefit from screening.

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Abstract #74 - PREVALENCE OF POLIPHARMACY AMONG ELDERLY PATIENTS IN A HEALTHCARE CENTRE.

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Background: Elderly patients with multimorbidity use a large number of drugs multiplying the risk of adverse effects. To know the prevalence of polipharmacy is a starting point to design deprescribing medication interventions to improve the elderly patients wellbeing.

Objective: To assess the prevalence of polipharmacy in patients older than 70 from a Spanish Healthcare Centre, number and type of prescribed drugs. Prevalence of a mental disorders and consumption of psychotropic drugs. Prevalence of potentially severe pharmachological interactions.

Methods:
Design: Observational study.
Setting: Primary Healthcare Centre of the Balearic Islands (Spain) covering 26.000 inhabitants. The study was made in September 2012.
Subjects: Patients aged 70 or more, consuming 6 or more drugs per day.
Outcomes: Age, sex, number and type of prescribed drugs, potentially severe pharmachological interactions (Stockley Alert database). Registered diagnosis of a mental disorder.
Patients were identified from primary care pharmachological prescriptions database and review of clinical records.

Results: 608 of 2311 (26.3%) patients older than 70 were taking 6 or more drugs per day. Median age was 79 and 65.8% were women. Median number of prescribed drugs was 9 (range 6 to 23) and 14.5% were taking 12 or more. Antihypertensive (90.3%) and proton pump inhibitors (71.9%) drugs were the most prescribed drugs. A 53% of the patients were taking at least one psychotropic drug (anxiolytic-hypnotic 35.5%, antidepressant 33.6% and antipsychotic 3.9%). A diagnosis of a mental disorder was registered in 47.9%.. We observed a pottentially severe phatmachological interaction in 71.9% of the patients.

Conclusions: One of each four patients older than 70 was polimedicated and taking a median of 9 drugs. Antihypertensive and proton pump inhibitors are the most prescribed drugs. Uno of two polimedicated elderly patients have a mental disorder and are taking a psychotropic drug.

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Abstract # 75 - VETERANS HEALTH ADMINISTRATION ACTIVITIES TO REDUCE OVERUSE OF CANCER SCREENING TESTS

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Introduction: The Veterans Health Administration (VHA) is America's largest integrated health care system. In FY 2012 facilities were asked to use quality improvement methods to evaluate systemic processes contributing to inappropriate use of at least one of the following: 1) prostate cancer screening with PSA in men age ≥75; 2) cervical cancer screening in women with total hysterectomies for benign disease and women age >65 with adequate recent screening; 3) colorectal cancer (CRC) screening in adults age ≥85, screening colonoscopy in intervals <10 years, and redundant screening. Previous data from several facilities showed frequent inappropriate use in these areas.

Methods: 140 VHA facilities were surveyed about activities to reduce overuse.

Results: In FY 2012, 84 of 140 facilities examined PSA screening in men ≥75, 39 examined CRC screening in adults ≥85, 35 examined redundant CRC screening, 31 examined CRC screening with colonoscopy in intervals <10 years, 44 examined cervical cancer screening in women >65, and 32 examined cervical cancer screening for women with total hysterectomies for benign disease. 108 sties generated data from electronic health records, 51 reviewed providers' ordering patterns, 67 reviewed patients' charts, 50 interviewed clinical leaders, 77 reviewed clinical reminders and/or order sets, and 58 reviewed clinical policies/protocols. As a result, 53 sites revised clinical reminders and/or order sets, 35 added informational alerts, 17 revised clinical policies and/or protocols, 53 provided group educational sessions to providers, 52 provided education/feedback to providers, and 38 provided educational materials.

Conclusions: VHA implemented a strategy to reduce overuse of screening for prostate, cervical, and colorectal cancers in VHA facilities. Ongoing monitoring will be needed to assess if these efforts are sustainable over time and lead to true reductions in overuse and overdiagnosis.

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Abstract # 77 - CONCEPTUAL CHALLENGES LURKING BEHIND THE PROBLEMS WITH MEASURING OVERDIAGNOSIS: TOWARDS A MORE ROBUST DEFINITION OF OVERDIAGNOSIS.

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Background: Overdiagnosis is claimed to be one of the major challenges to modern health care. According to standard definitions, overdiagnosis occurs when a condition is diagnosed that would otherwise not go on to cause symptoms or early death. In practice there are significant difficulties with assessing the extension of overdiagnosis. Such problems come out clear in fierce debates, e.g., on mammography screening. One of the challenges is that there are many methods to assess how many patients that would not experience symptoms or early death, as no method is perfect. However, many of the (methodological) challenges stem from a conceptual problem: to foretell the future. Standard definitions of oversiagnosis presupposes that one is able to assess (the extension) of future events, i.e., symptoms or early death.

Aims: The aim of the study is to elaborate a more robust definition of overdiagnosis, so that measurement may be more uniform and assessment less controversial. The ultimate goal is to facilitate adequate strategies to reduce and, where possible, to avoid overdiagnosis.

Methods: Literature search for conceptions and definitions of overdiagnosis (and synonyms). Qualitative content analysis of findings from literature search, in order to identify and analyze basic challenges and possible solutions. Philosophical (concept) analysis to elaborate an operational definition.

Results: 5 distinctive definitions and 11 different conceptions of overdiagnosis are identified in the literature. All definitions refer to future events (symptoms or death). This “prophetic” aspect of overdiagnosis makes measurement and assessment extremely challenging, and causes many of the methodological problems. A definition with prospective features is developed and presented.

Conclusion: Definitions of oversiagnosis that presuppose the ability to foretell the future will inevitably result in methodological challenges. A revised definition of overdiagnosis is needed in order to assess, address, and manage overdiagnosis.

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Abstract # 79 - REDUCING OVERDIAGNOSIS ON NATIONAL LEVEL: LESSONS LEARNED FROM GERMANY

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Background: The concept of evidence-based medicine was introduced in Germany in 1996. Since then a variety of procedures, tools and organizational developments have been established to safeguard sustainable development and use of national policies for preventing non-evidence based health care.

Aims and Methods: The presentation will give an overview on the national activities of the German national healthcare organizations and policy makers aiming at prevention / reduction of healthcare overuse on over a period of 15 years, its results, as well as on lessons learned and future developments.

Results - Description of best practice: National Guideline Agency founded by the German Medical Self-Administration (1995). Activities of this organization: Guideline for Guidelines (1996), standards and procedures for Guideline Clearinghouse (1997), German Network for Evidence based Medicine co-founded (membership >800 in 2012), Guideline for EB Patient Information (1999), Guideline and Patient Information Clearinghouses (1999), networking with internat. EBCPG projects (starting in 1999), national consensus on standards for EBCPGs (2000), G-I-N co-founder (2002), program for multiprofessional Disease Management EBCPGs - with compulsory patient participation (2002), standards for EBCPGs based quality measures (2006), German Medical e-Library (2009), implementation projects (start in 2010).

Conclusions / Lessons learned: Key points for setting up a sustainable national system of evidence based healthcare: (1) organisational CPG co-ordination, (2) national & international networking between health care providers, researchers, patient/public and policy makers on individual and organizational levels, (3) adaptation of international best practice procedures and tools. Major problem to be solved in the future: (1) Implementing best practice decision aids in daily healthcare, (2) stakeholders' conflicts of interest, (3) limited resources for development & implementation of evidence based decision aids.

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Abstract #80 - MENTAL HEALTH CARE WITHOUT DIAGNOSIS: BEST PRACTICES

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In the field of mental health, diagnoses are highly subjective and often do not exactly fit the experiences of the people being diagnosed. Worse, the stigma attached to mental illness means that people can be harmed simply by having a diagnostic label applied to them. In this workshop, I will introduce examples of successful programs that meet common goals of mental health treatment without diagnosing people as “mentally ill.” These goals include helping people get through emotional crisis safely, and reducing violence in the community. We will discuss ways of helping people recover from mental distress without being limited to diagnostic labels.

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Abstract # 81 - IMPLEMENTATION OF THE EUROPEAN GUIDELINES FOR MANAGEMENT OF ARTERIAL HYPERTENSION MIGHT DESTABILIZE THE NORWEGIAN HEALTHCARE SYSTEM - MODELLING STUDY BASED ON THE HUNT 2 POPULATION.

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Introduction: Previous studies indicate that combined cardiovascular disease (CVD) risk estimates in preventive clinical guidelines tend to overestimate risk, and, thus, lead to excessive medical attention and treatment.

Aims: To evaluate the CVD risk profile in a well-defined, general Norwegian population according to current European guidelines on hypertension. Secondly, to estimate the workload associated with implementation of these guidelines.

Methods: Implementation of the 2007 European Guidelines for the Management of Arterial Hypertension was modelled on data from the HUNT 2 study, comprising 65 082 adults, aged 20-89. The number of recommended follow-up visits per year was calculated as well as the number of physicians required for the task.

Results: Among individuals with blood pressure ≥120/80 mmHg, 93% (74% of the total, adult population) would need regular clinical attention and/or drug treatment, based on their cardiovascular risk profile. This translates into 296 624 follow-up visits per 100 000 adults/year. In the Norwegian healthcare environment, 99 general practitioner positions would be required in the study region for this task alone. The number of general practitioners currently serving the population in the study area is 87 per 100 000 adults.

Conclusions: The potential workload associated with the European hypertension guidelines could destabilize the healthcare system in Norway, one of the world´s most long- and healthy-living nations, with very good physician coverage, by international comparison. The guidelines seem to overestimate considerably the risk and/or the amount of resources appropriate for the healthcare system to spend specifically on cardiovascular risk reduction. Large-scale, preventive medical enterprises can hardly be regarded as scientifically sound and ethically justifiable, unless issues of practical feasibility, sustainability and social determinants of health are considered.

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Abstract # 82 - QUANTIFYING AND MONITORING OVERDIAGNOSIS IN CANCER SCREENING: A SYSTEMATIC REVIEW OF METHODS

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Introduction: To reduce overdiagnosis, we need accurate methods to quantify and monitor this phenomenon over time.

Aims: To systematically review the methods that have been used for measuring overdiagnosis from cancer screening; to evaluate the strengths and weaknesses of each method.
Methods: We searched PUBMED, EMBASE, and the Cochrane Library for primary research studies of any design that quantified overdiagnosis from cancer screening. We abstracted relevant data and appraised study design and methods using established criteria.

Results: 70 studies met inclusion criteria. We grouped studies into four methodologic categories and found strengths and weaknesses with all designs. (1) Follow-up of a well-designed RCT (n=1) is theoretically an ideal method but requires substantial time, may not be generalizable, and is not suitable for monitoring. (2) Pathologic/imaging studies (n=15) that draw conclusions about overdiagnosis by examining the range of biological or behavioral characteristics among cancers are simpler in design but assume that these characteristics are highly correlated with progression. (3) Modeling studies (n=33) can be done in a shorter time frame but require complex mathematical equations simulating the natural history of screen-detected cancer, which is the fundamental unknown question. (4) Ecologic studies (n=21) are limited by a lack of agreed-upon standards, by variable data quality, and by the potential for population-level confounders. Some ecologic studies, however, have used excellent methods; several of these studies from different geographic areas may together provide the best overall estimate of overdiagnosis and are ideal for monitoring it over time.

Conclusions: Well-conducted ecologic studies in multiple settings should be used for quantifying and monitoring overdiagnosis in cancer screening programs. To support this work, we need internationally agreed-upon standards for ecologic studies and a multi-national team of unbiased researchers to perform analysis.

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Abstract # 83 - OVERDIAGNOSIS.ORG: AN EVIDENCE-BASED RESOURCE FOR PATIENTS AND CLINICIANS

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Background: In light of increasing evidence for overdiagnosis and other harms introduced by many of the mainstream screening programs, it is clear that the decision of an individual to enter into a screening program is a personal one – a balance between benefits and harms. Unfortunately, biased commercial interests have caused many to have a sense of the safety and effectiveness of these programs that is not based on rigorous scientific evidence. That is why it is crucial that all individuals have ready access to unbiased information about the risks and benefits of screening tests so they are able to make an honest informed decision about whether or not to participate in a screening program.

Purpose: The purpose of this presentation is to introduce individuals and clinicians to a novel unbiased evidence-based resource: Overdiagnosis.org. The website will remain free and without commercial ties or competing interests. It will strive to present visitors with the most up-to-date evidence regarding the risks and benefits of the common screening programs. In addition, it will aim to further educate the public about overdiagnosis and other screening-related harms.

Methods: PubMed and Cochrane Libraries were searched for relevant literature. The main page of the site will feature a master chart of the major screening programs, listing referenced data on their respective absolute risk reduction and number needed to screen profiles. The site will otherwise be organized by disease entity, presenting the evidence-based literature pertinent to the risks and benefits of each particular screening exam. Direction to relevant books, publications for the lay public, and other unbiased media will also be provided. The editors will strive to keep the website up-to-date as more research and evidence continue to emerge.

Summary: Overdiagnosis.org, an unbiased evidence-based resource for patients and clinicians, is presented to aid in the informed decision process.

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Abstract # 84 - THE EFFECTS OF REPLACING SCREENING MAMMOGRAPHY WITH SCREENING LOW-DOSE COMPUTED TOMOGRAPHY IN WOMEN

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Introduction: In 2012, it was estimated that 72,590 women died of lung cancer while 39,510 died of breast cancer. In August 2011, the results of the National Lung Screening Trial (NLST) demonstrated a 20.0% reduction in lung cancer specific mortality and a 6.7% reduction in all-cause mortality for screening low-dose computed tomography (LDCT). In January 2013, the American Cancer Society recommended that clinicians initiate a discussion about screening LDCT in high-risk populations. The benefits of screening mammography, on the other hand, have recently been called into question with concerns about overdiagnosis and other harms receiving much attention.

Aims: To evaluate the effects of replacing screening mammography with screening LDCT in women.

Methods: PubMed and Cochrane Libraries were searched for relevant literature. 2010 United States Census Bureau data was used to calculate an estimate for potentially avertable annual breast cancer deaths with screening mammography.

Results: If the screening regimen adopted in the NLST was fully implemented among the screening-eligible US female population, it has been estimated that 3,260 lung cancer deaths could be averted each year. By comparison, if the entire screening-eligible US female population adopted the USPSTF recommendations for screening mammography, it is estimated that 1,932 breast cancer deaths could be averted each year. In addition to greater disease-specific mortality reduction, a reduction in all-cause mortality, less overdiagnosis and overtreatment, fewer false positives and biopsies, and lower health care expenditure might also accompany a switch from screening mammography to screening LDCT in women. The primary reasons for these benefits include a targeted, high-risk, screening population and the much lower number needed to screen to save a single life for LDCT as compared with mammography.

Conclusions: Replacing screening mammography with screening LDCT in women could result in more lives saved, less overdiagnosis and other harms, and lower health care expenditure.

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Abstract # 85 - MITIGATING THE HARMS OF LOW-DOSE COMPUTED TOMOGRAPHIC SCREENING FOR LUNG CANCER

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Background: Overdiagnosis leads to an overstatement of the utility of early-detection screening programs when “disease” that would have never resulted in death is identified and “treated,” falsely decreasing disease-specific mortality in the screened population. Overdiagnosis also leads to overtreatment. False positives occur when a screening test suggests the presence of disease where none exists.

Aims: To evaluate overdiagnosis and false positive rates in screening low-dose computed tomography (LDCT) for lung cancer, with an emphasis on ways to mitigate them.

Methods: PubMed and Cochrane Libraries were searched for literature regarding overdiagnosis, false positives, and LDCT screening for lung cancer.

Results: The utility of screening for lung cancer benefits from several unique characteristics. Patients with stage-1 lung cancer who do not undergo resection have a 5-year survival of 10% as compared with 60-80% in patients who do. This agrees with low-rates of “incidental” lung cancer found on autopsy studies. An easily identifiable high-risk population increases the predictive value of a positive LDCT, with specificity increased by considering nodule size, volume-doubling time (VDT), and solid or sub-solid nature.

On initial screening LDCT, increasing the nodule size needed to be considered a positive test from 5 mm to 8 mm decreased work-up by 70% and increased time to diagnosis by 9 months in less than 10% of subjects, decreasing false positives while preserving mortality benefits.

Incident lung cancer diagnosed at screening was previously believed to constitute more cancers with a VDT >400 days as compared with ”clinical practice”, suggesting overdiagnosis. More recently, however, a review of the International Early Lung Cancer Action Program experience found only 3% (all sub-solid) of incident lung cancers to have a VDT of >400 days. This differentiation is critical as lung cancer-specific mortality is significantly higher with shorter VDTs.

Conclusions: Although overdiagnosis and false positives exist in lung cancer screening, they can be mitigated, increasing the utility of LDCT for detecting lung cancer that would result in death.

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Abstract # 86 - MODEL OF OUTCOMES OF SCREENING MAMMOGRAPHY: INFORMATION TO SUPPORT INFORMED CHOICES

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Background
Overdiagnosis is an important downside of breast cancer screening. In order to make an informed choice women require clear and balanced information about the benefits and harms of mammography screening. Currently information on overdiagnosis is not considered in invitation material sent to participants of screening programs in Australia.

Aims
To update estimates of the benefits and harms of biennial screening mammography for Australian women who enter a screening program at age 50 and continue to participate in screening every two years until age 69. We provide outcomes expressed per 1000 women over 20 years for use in decision aids.

Methods
Markov process model with data from BreastScreen Australia, the Australian Institute of Health and Welfare and the Australian Bureau of Statistics plus mortality reduction and overdiagnosis estimates from the Independent UK Panel review on Breast Cancer Screening.

Results
Initial results suggest that for every 1000 women who begin screening at age 50, 467 are recalled for assessment and 122 women undergo at least one biopsy over 20 years. Among these 1000 women, 73 breast cancers are diagnosed: 62 invasive cancers, (44 detected at screening and 18 interval cancers) and 11 DCIS (all detected at screening). By comparison, among 1000 women who are not screened, 44 cancers are diagnosed over 20 years. In screened women, we estimate that 19 cancers are a result of overdiagnosis. There are about 4 fewer deaths from breast cancer among the screened women compared to unscreened women. Thus we estimate 5.5 overdiagnosed breast cancers (invasive and DCIS) for every breast cancer death averted.

Conclusions
Women value the possible outcomes of mammography screening differently. These quantitative estimates can be used to clearly convey the balance between benefits and harms, such as overdiagnosis, in order to help women make an informed decision about participation in screening programs.

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Abstract # 87 - COMMUNICATING WITH PHYSICIANS ABOUT OVER DIAGNOSIS OF PROSTATE CANCER: THE PROMISE OF NARRATIVE COMMUNICATION TECHNIQUES FOR ADDRESSING BARRIERS TO CHANGE

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Background: Following decades of effort to promote cancer screening, there is now emerging scientific evidence that screening leads to over diagnosis and increasing recognition that, for many, the harms of screening outweigh the benefits. Concerns about the unfavorable balance of benefits and harms are particularly pronounced for prostate cancer screening. The United States Preventive Services Task Force (USPSTF) recently recommended against prostate cancer screening for all men because it concluded that the very low probability of preventing a death from prostate cancer in the long term does not outweigh the moderate to high probability of early and persistent harms. However, recent surveys and qualitative studies suggest that physician beliefs about the outcomes of PSA screening, and lack of confidence in addressing patient concerns about PSA discontinuation are important barriers to changing PSA screening practices. Communication tools targetting these barriers could improve the implementation of practice guidelines that incorporate this USPSTF recommendation, and other efforts to reduce the over diagnosis of prostate cancer.

Aims: To describe promising approaches, grounded in narrative communication research, for addressing physician barriers to changing their PSA screening practices that contribute to the over diagnosis of prostate cancer.

Approach: In this presentation we will review commonly used communication approaches to facilitate physician behavior change, and present arguments for why traditional didactic approaches are unlikely to be effective in addressing the powerful barriers physicians perceive to changing their PSA screening practices. We will then discuss reasons why narrative communication techniques hold promise for achieving the substantial shifts in provider motivation and self-efficacy needed to address the problem of prostate cancer overdiagnosis. We will end by describing a specific web-based intervention employing narrative communication techniques we are developing to motivate and empower physicians to discontinue PSA screening.

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Abstract # 88 - WOMEN'S VIEWS ON OVERDIAGNOSIS IN BREAST CANCER SCREENING: A QUALITATIVE STUDY

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Background: While mammography screening can reduce breast cancer mortality, it also carries a risk of overdiagnosis – an important harm largely unknown to the public at present. Aims: We elicited women's responses to information about the nature and extent of overdiagnosis in mammography screening, and explored how awareness of overdiagnosis might influence screening attitudes and intentions.

Methods: We conducted a qualitative study using focus groups that included a presentation explaining overdiagnosis, incorporating different published estimates of its rate (1–10%, 30%, 50%) and information on the mortality benefit of screening, with guided group discussions. Participants included 50 women aged 40–79 years with no personal history of breast cancer, varying in educational background and previous participation in screening.

Results: Upon learning about overdiagnosis in breast cancer screening, women generally reacted with surprise, but most came to understand the issue. Responses to the different overdiagnosis estimates were diverse. The highest estimate (50%) made some women perceive a need for more careful personal decision making about screening. In contrast, the lower and intermediate estimates (1–10%, 30%) had limited impact on attitudes and intentions, with many participants remaining committed to screening. For some women the information raised concerns, not about whether to screen but whether to treat a screen-detected cancer or consider alternative approaches (e.g., watchful waiting). Most women found overdiagnosis important and thought this information should be available to enable informed choices, but many also wanted encouragement to have screening.

Conclusions: Women from a range of socioeconomic backgrounds could comprehend the issue of overdiagnosis in mammography screening, and they generally valued information about it. Effects on screening intentions may depend heavily on the rate of overdiagnosis. Overdiagnosis will be new and counterintuitive for many people and may influence screening and treatment decisions in unintended ways, underscoring the need for careful communication.

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Abstract # 89 - OVERDIAGNOSIS IN BREAST CANCER SCREENING: COMMUNICATING EFFECTIVELY WITH WOMEN

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Background: Australian women aged 50-69 years are offered biennial mammography screening. Awareness of overdiagnosis of breast cancer is minimal, yet understanding this important harm is integral to making informed choices.

Aims: We aimed to generate evidence regarding how best to communicate with women about overdiagnosis in mammography screening.

Methods: After reviewing the literature on overdiagnosis in breast screening, we explained and discussed the risk of overdiagnosis in focus groups with 50 diverse women, exploring their understanding and sources of confusion. Findings informed the development of a draft information booklet for women approaching screening age, which then entered a thorough piloting and refinement process using interviews with women to improve comprehension and acceptability.

Results: We will present and discuss key features of the information booklet, for example:

- Offering choice: Readers are invited to consider whether or not they wish to have screening
- Illustration to explain the overdiagnosis concept: This helps women understand that screening could lead to a diagnosis and treatment that are not needed
- 'Questions you may have' box: This addresses key questions and misunderstandings relating to overdiagnosis
- Visualizing risk: A 1000-person diagram illustrates the absolute number of breast cancer diagnoses over 20 years, including the number of overdiagnosed cases based on an estimate derived from randomised trials and applied to current local data
- Putting overdiagnosis in context: Overdiagnosis is presented alongside other important screening outcomes (breast cancer mortality reduction, false positives)
- Summary table: This facilitates comparison of outcomes with and without screening
- Plain language: Choice of words was guided by consumer input, and a glossary defines all medical terms.

Conclusions: The process of developing an information booklet for women considering mammography screening identified important design and presentation aspects that can help optimise communication about overdiagnosis in breast cancer and other contexts.

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Abstract # 90 - ENDOSCOPY FOR ELDERLY PATIENTS WITH UPPER GASTROINTESTINAL HAEMORRHAGE: WHAT VALUE DOES IT ADD?

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Background: Upper Gastrointestinal haemorrhage (UGIH) is a common problem that can have significant effects on a person, with elderly patients being particularly prone to its complications. The usual management of UGIH involves gastroscopy for diagnosis and therapy if indicated. Whilst the utilisation of endoscopy may be established in younger patients and the general population, the overall benefit of endoscopy in elderly patients needs to be assessed against the risks of prolonged fasting, sedation and the procedure.

Aims: To determine the value of endoscopy in elderly patients with UGIH and examine if any factor(s) are useful in guiding its use in these patients.

Methods: We performed a retrospective analysis of all patients aged 80 years and over who developed signs of non-variceal UGIH at John Hunter Hospital over a 12 month time period. Liver disease, varices, and non-UGIH were excluded. Co-morbidities, medications, mortality, ASA Score, Glasgow Blatchford Score (GBS) and details of endoscopy (if performed) were examined.

Results: There were 49 episodes over the period. The median age was 88.10 years. The main presentation of UGIH was malaena (44.9%). There were 30 episodes managed conservatively and 19 episodes which were managed through use of endoscopy. There was only 1 therapeutic endoscopy performed, with only 2 (10.5%) being associated with a change in medical management of a patient. ASA score was similar between the 2 groups. An increasing ASA score was associated with an increased 30-day mortality. A higher GBS did not correlate with an increase in 30-day mortality.

Conclusion: Although the risks of endoscopy is low, its usefulness in elderly patients is limited and costly. Further studies are needed to decide when it useful. ASA could be useful in determining those more at risk of dying within the next 30-days and potentially those with which it seems futile to perform endoscopy.

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Abstract #91 - WORLD-WIDE PREVALENCE OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD): A SYSTEMATIC REVIEW AND META-ANALYSIS.

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Introduction: ADHD is one of the most widely cited and controversial of all disorders routinely diagnosed in childhood. Diagnostic discrepancies exist, potentially altering reported prevalence rates. Two issues reported to explain the variation in prevalence are (1), variations between diagnostic criteria (i.e., DSM versions, American Psychiatric Association, 1987; 1994) and (2), varying methodologies for implementing the criteria (Polanczyk et al., 2007).

Aims: We are conducting a systematic review and meta-analysis of prevalence studies for ADHD between 1980 (DSM III) and 2012 (DSM IV TR). Our objectives are two-fold; to systematically describe whether the prevalence rates for ADHD alter when the full criteria of DSM are implemented, and to synthesise and describe the changes to prevalence rates between broad diagnostic criteria over time.

Method: Original studies of point prevalence estimates between 1980 (DSM III) and July 2012 (DSM IV TR) were included. Eligible studies included those with samples from community or school populations, diagnosis of ADHD were made in accordance with a DSM diagnosis, and participants were 18 years or younger. All languages were included. Searches were conducted in MedLine, PsycINFO, CINAHL, Embase and Web of Science.
Results: We have screened the title and abstracts of 4386 manuscripts and are currently extracting the data for the studies to be included in the review. Tables 1 and 2 summarise our preliminary findings.

Conclusion: The effect of the changes in the DSM criteria over time has been to effectively lower the threshold for diagnosis. The inconsistent application of the diagnostic criteria in practice (for example, meeting the criteria for the disorder as assessed both at home and at school) also affects the observed prevalence.

Table 1. Proportion of Eligible Studies that Met DSM Diagnostic Criteria (N=26)

Broad Criteria	Met Criteria n (%)	Did Not Meet Criteria n (%)	Unclear n(%)
DSM III/ IIIR (N=8)	1 (12.5)	3 (37.5)	4 (50)
DSM IV (N=18)	5 (27.8)	10 (55.5)	3 (16.7)

Table 2. Comparison of ADHD Prevalence Rates in Studies that Met and Did Not Meet Diagnostic Criteria		
DSM Version	**Criteria Met?**	**Prevalence Range**
DSM III/III R (N=4)	No (n=3)	0.96-5.8
	Yes (n= 1)	6.1
DSM IV (N=15)	No (n=11)	4.1-17.1
	Yes (n=4)	2.2-12.2
Note: studies with unclear methodology for diagnoses were not included.		

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Abstract # 92 - HOW FREQUENTLY ARE HARMS REPORTED IN CANCER SCREENING TRIALS? A LITERATURE REVIEW

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Background: Harms are generally poorly reported in randomized trials on pharmacological interventions, and there is evidence that reporting is worse in non-pharmacological trials. We aim to assess the frequency of harm reporting in randomized trials of cancer screening.

Methods: For cancer screening interventions previously assessed in a Cochrane review, we identified trials from their reference lists, and updated the literature search. Otherwise, we searched CENTRAL, MEDLINE and EMBASE. Two reviewers independently assessed articles for eligibility (randomized trials assessing the effect of cancer screening on cancer incidence, cancer-specific mortality and/or all-cause mortality). Two reviewers, who were blinded to author identity, assessed whether absolute numbers or incidence rates of harm-related outcomes were provided separately for the screening and control groups. The qualitative outcomes were: false-positive findings, overdiagnosis, negative psychosocial consequences, somatic complications, invasive follow-up procedures, all-cause mortality, and withdrawals due to adverse events. Space devoted to harm was a quantitative outcome. Binary outcomes were described as proportions and continuous outcomes using medians and interquartile ranges.

Results: Out of 4590 articles assessed, 198 (57 trials, 10 screening technologies) matched the inclusion criteria. False-positive findings were reported in 5 of 57 trials (9%, 95% confidence interval [95%CI] 3%-20%), overdiagnosis in 4 (7%, 95%CI 2%-18%), negative psychosocial consequences in 5 (9%, 95%CI 3%-20%), somatic complications in 11 (19%, 95%CI 10%-32%), use of invasive follow-up procedures in 27 (47%, 95%CI 34%-61%), all-cause mortality in 34 (60%, 95%CI 46%-72%), and withdrawals due to adverse effects in one trial (2% 95%CI 0%-11%). The median percentage of the result section space reporting harms was 12% (interquartile range of 2% to 19%).

Conclusions: Cancer screening trials seldom reported the data required to assess the harms of screening. The most important harms of screening, overdiagnosis and false-positive findings were reported in only 7% and 9% of 57 cancer screening trials, respectively.

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Abstract #93 - WITHHOLDING THERAPY AND DIAGNOSTICS AT THE END OF LIFE

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Introduction: During the past decades, options to diagnose and treat patients with advanced disease have largely expanded. However, not all that can be done should be done. The use of burdensome and potentially futile interventions aimed at prolonging life has been found to be common practice until late in the terminal phase, especially in hospitals. Avoiding overdiagnosis and overtreatment for patients with advanced disease is complex, but may significantly contribute to the quality of death and dying.

Aims: To assess trends during a 15-year period in the Netherlands in the frequency of withholding potentially life-prolonging treatment and diagnostics at the end of life.

Methods: In 1995, 2001, 2005 and 2010, samples of deaths were drawn from the national death registry. Physicians who had attended a death in the sample received a questionnaire about the decision making that had preceded death. The response rates ranged from 74%-78% and the total number of studied cases was 27589.

Results: Deaths were preceded by decisions to withdraw or withhold potentially life-prolonging treatment or diagnostics in 30% (1995), 30% (2001), 28% (2005) and 37% (2010) of all cases. Decisions to withhold treatment most commonly concerned hydration/nutrition (29% of all decisions in 2010), antibiotics (20%) and cardiovascular medication (12%). It was decided not to admit the patient to an acute hospital in 6% of all cases, diagnostic procedures that could have contributed to prolongation of life were withheld in 2%, and a general decision to refrain from medical interventions was made in 3%. No clear trends in withholding different types of interventions were observed over the years.

Conclusions: Increased awareness over the past 15 years of the need to carefully consider the goals of care at the end of life has not resulted in a clear trend towards more conscious decisions to refrain from potentially life-prolonging but burdensome treatment and diagnostics.

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Abstract # 94 - USE OF PRIVATE SECTOR RWE IN ADVANCING UNDERSTANDING ACROSS COUNTRIES ABOUT THE ROLE OF INAPPROPRIATE PRESCRIBING IN DRIVING ANTIBIOTIC RESISTANCE

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Background: Evidence shows that the global challenge of antibiotic resistance is driven by prescribers' broad use of easily available antibiotics as a panacea for a wide variety of illnesses. Multiple efforts are underway globally to address this issue.
Aims: To assess the potential of private sector real world evidence to help health systems effectively identify antibiotic misuse and overuse, and measure the impact of programs designed to prevent overdiagnosis and use of antiobiotics.

Methods: A review of published literature that uses IMS Health pharmaceutical sales and volume data to analyze the causes of antibiotic resistance and impact of interventions. 54 articles since 2000 have been published leveraging IMS Health data. These were analyzed for different categories of information that contribute to understanding antibiotic resistance and where public sector data was inadequate to fully understand antibiotic use.

Results: Out of 54 articles, 29 help understand antibiotic misuse worldwide. Among those addressing overdiagnosis, evidence demonstrates common circumstances where antibiotics are mis or over-prescribed. For example, a national campaign in France started in 2001 to reduce the inappropriate use of antibiotics, with a focus on pediatric use. While overall, outpatient pediatric antibiotic prescriptions reduced by almost half, use for otitis had the lowest reduction and in fact increased for children aged 0-24 months, suggesting other measures are necessary. Other studies used real world evidence to show the common use of broad spectrum antimicrobial agents such as penicillins in Ireland and US. Policy evaluations were also evaluated. In Quebec, guidelines targeting physicians on prescribing reduced inappropriate overprescribing resulted in reductions while in the UK, guidelines were found to be at risk of being ignored.

Conclusions: Real world evidence is helpful as a source to improve policy development. Policymakers must engage both public and private sectors to leverage fully the available real world evidence.

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Abstract # 96 - MEASUREMENT VARIABILITY AND FREQUENCY OF TESTING AND THEIR IMPACT ON OVER DIAGNOSIS

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Introduction: Most continuous diagnostic tests are subject to measurement variability because of natural variability and technical measurement error. Because of this measurement variability, the frequency of testing can also affect the chance of false positive diagnoses, because of people having random high measurements.

Aims: To explore the impacts of measurement variability and the frequency of testing on over diagnosis.

Methods & results: Using examples from cardiovascular disease (such as blood pressure, cholesterol and absolute risk), we will illustrate how measurement variability can lead to over diagnosis. In particular, we will discuss how a single measurement or a small number of measurements can lead to over diagnosis of disease.
We will also discuss how overly frequent screening of disease can lead to over diagnosis, For example, if testing is frequent, then if a decision rule in which any measurement is over a threshold is used then over diagnosis will occur. We will also discuss ways of overcoming problems with measurement variability. For example, self-monitoring of blood pressure enables better estimation of true levels of blood pressure by averaging a large number of measurements. We will also briefly discuss statistical methods, such as empirical Bayesian methods, which enable better estimation of true levels of measurement

Conclusions: Measurement variability is a potential cause of over diagnosis. Attention needs to be given to determination of the optimal number of measurements, as well as frequency of measurement, so that over diagnosis does not occur.

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Asbtract # 97 - FRAX®, The Fragile WHO Fracture Prediction Tool: Who Made WHO, WHO Made You?

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WHO, the number one health authority, has the power to impact the lives of virtually all individuals in the world. Nevertheless, in recent year there have been serious concerns regarding its internal governance, the scientific evidence underlying the WHO recommendations, and most worrisomely, financial uncertainties or even infringements. In this presentation, we dissect how WHO's recently launched fracture prediction tool (FRAX®) is a unique case study of all above noted concerns.

Although the FRAX® is now being widely adopted in clinical practice (> 8,000 assessment each day), it does not identify fracture-prone patients better than simpler methods and there is dire lack of evidence on its effectiveness in targeting drug therapy to those deemed at high fracture risk (the alleged primary purpose of the tool).

Besides unimpressive performance, an even more troubling issue regarding the FRAX® pertains to research ethics and conflicts of interest. First, FRAX® developers have ignored a number of requests for access to the underlying FRAX equations needed for independent external validation. Second, WHO guidelines for handling conflicts of interest explicitly state that people who had a conflict of interest should not take part in the discussion or the piece of work affected by that interest or, in certain circumstances, that the person with the conflict should not participate. However, many individuals and organizations involved in the development and promotion of FRAX® stand to benefit financially if more people are identified as being at risk for osteoporotic fractures and recommended drug therapy.

The original 1994 WHO definition of osteoporosis transformed a true disease of fracture into a disease of fracture risk. The new WHO effort (FRAX®) merely fosters this development. No one disputes the difficulty of communicating the concept of risk, but is it really in WHO's best interest to allow someone to use its name and prestige to label the great majority of aging population at "high risk" and to deem them in need of long-term preventive pharmacotherapy (Figure)?

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Abstract # 99 - WHO SHOULD DEFINE A DISEASE?

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Background: Panels defining what should be considered a disease traditionally include only doctors. However, it has recently been argued that including the general public in such decisions could be beneficial, particularly as a disease label commonly results in requests for public funding for its treatment. To our knowledge, no study thus far has compared doctors' and laypeople's views on definition of disease and the use of public funding for their treatment.

Aims: To compare the perceptions of doctors and lay public on the definition of diseases and the willingness to use public-tax revenue for their treatment.

Methods: 3000 laypeople and 1500 doctors in Finland were asked to rate their agreement with two sets of 60 statements: "[This state of being] is a disease" and "[This state of being] should be treated using public tax revenue" using a 5-point Likert scale. Pearson correlation coefficients and kappa statistics were used to compare doctors' and laypeople's responses.

Results: 51% of doctors (n=741) and 50% of laypeople (n=1 537) responded. Overall, doctors' and laypeople' views on what is disease and what should be treated using tax revenue were similar (correlation for both comparisons: 0.93, 95% confidence interval: 0.88, 0.96) though there was large variability in both groups. Agreement was nearly perfect between doctors' and laypeople's views on what is disease (kappa: 0.90) and on what should be treated using tax revenue (kappa: 0.82). Considering a difference of > 1.0 point in average values as a threshold, the states that substantial differences in opinion existed between the two groups were dental caries, hip fracture and alcoholic cirrhosis on the former claim and anorexia and alcoholic cirrhosis on the latter (all: doctors > laypeople).

Conclusions: Generally, doctors and laypeople agree on disease definition and public funding (Figure). However, there was both intra- and inter-group disagreement, suggesting that representative panels will have to deal with very divergent opinions.

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Abstract # 100 - OUR DRUGS KILL US

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Background: Studies from the United States, Norway and the European Commission consistently show that drugs are the third leading cause of death after heart disease and cancer in rich countries.

Aims: To explore why this is the case and what we can do about it.

Methods: I wrote a book, with over 1000 references: Deadly medicines and organised crime. How big pharma has corrupted health care (submitted for publication).

Results: Major contributing causes to the vast number of preventable deaths are: 1) Impotent drug regulation that builds on the permissive rather than the precautionary principle and accepts surrogate outcomes and the lack of adequate safety data; 2) Fake fixes, such as warnings and precautions that drug regulators know won't work and that doctors cannot remember, as there are thousands of them; 3) Organized crime in big pharma that often involves illegal marketing, kickbacks and other forms of corruption, fraudulent research and marketing, and obstruction of justice; 4) Lack of tangible sanctions for crimes; 5) Widespread corruption of doctors; 6) Lack of knowledge of the consequences of polypharmacy and unwillingness to reduce it; 7) Unavailability of full study reports, protocols and the raw data from drug trials; 8) Conflicts of interest at medical journals.

Conclusions: We have a drug disaster and we need a revolution. Drug testing should be a public enterprise; there should be no money between doctors and companies; drug marketing should be forbidden, as tobacco marketing is, as it is similarly lethal; trials should not be published in journals; all raw data must be free; and drug regulation needs a major rehaul. We also need general warnings on drug labels like for cigarette packs: "Drugs may be lethal and should be avoided, if possible, particularly if they are newly introduced."

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Abstract # 101 - QALY Modeling for the Norwegian Breast Cancer Screening Program: Net Harms are Inevitable

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Introduction: Mammography screening may save life; however, screening may also cause harms because it is associated with many false positive mammograms and overdiagnosis. Analysis of 30-40 years old randomized studies showed that screening might cause net harm for up to ten years when benefits and harms were evaluated by quality adjusted life year (QALY) analysis. The detection rate in modern mammography is 2-3 times higher than it was 30 years ago, and modern treatment of advanced breast cancer is much more effective.

Aims: To evaluate harms and benefits in modern mammography screening.

Methods: We followed a cohort of women aged 50 years in 20 years with biennial screening and then in another 10 years without screening. We used estimates of mortality reduction and overdiagnosis in the Norwegian Mammography Screening Program in our QALY analysis. We split utility loss into eight components: living with false positive diagnosis, having mastectomy, having lumpectomy, using chemotherapy, using anti-estrogen drugs, having reconstructive surgery, anxiety due to cancer diagnosis and being unable to work after treatment. We asked the oncologists to estimate the utility loss for each component, and we restricted the utility losses for each component to last: chemotherapy (0.5 year), surgery (0.5-1 year), false positive (3 years), anti-estrogens (5 years), cancer anxiety (10 years) and loss of work (0.5-13 years).

Results: Mammography screening is causing net harms in up to 30 years. The percentages of the utility losses were: false positive mammograms (30%), anti-estrogen drugs (20%), anxiety due to cancer diagnosis (20%), mastectomy (11%), being unable to work after treatment (7%), lumpectomy (7%), chemotherapy (3%) and reconstructive surgery (3%).

Conclusion: QALY analyses show how mammography screening affects women differently during their life time. The harms occurred mostly during the screening period, while most of the saved years occurred after screening had stopped.

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Abstract # 102 - CAPSULE ENDOSCOPY IN THE INVESTIGATION OF IRON DEFICIENCY ANEMIA AND SMALL BOWEL BLEEDING: DOES DIAGNOSIS ALTER MANAGEMENT?

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Introduction: Capsule endoscopy is a recognized and approved technique for the investigation of small bowel bleeding in adults. It is an investigation of intermediate expense, approximately AUD 1500 per procedure in a public hospital and used significant human resources in the education of patients, administration of the capsule and ultimately reading of the obtained images by an appropriately qualified Physician. Capsule endoscopies are not without significant risk, including bleeding, perforation and capsule retention.

Aims: To show that Capsule Endoscopy is a frequently engaged investigative technique which, although highly sensitive, has low specificity and does not result in a disease modifying intervention in a majority of cases.

Methods: An audit of 196 capsule endoscopies performed at the John Hunter Hospital, Newcastle Australia between 2010 and 2012 was conducted to determine the extent to which capsule endoscopy changed the management of iron deficiency anemia, diagnosed an inflammatory bowel condition which required initiation of therapy or identified sites of bleeding which were surgically remediable. These results will be presented.

Of a smaller cohort of 33 patients performed at a satellite institution, only 8 capsules identified either a small bowel or colonic source of bleeding, 1 capsule diagnosed mucosal changes most consistent with Crohn’s disease while the remaining 24 were either incomplete or did not contribute to the ongoing management of the patient. These eight were referred for further luminal follow up (either repeat gastroscopy, colonoscopy to obtain biopsies for histology or push enteroscopy) and a ninth patient was re-referred for capsule endoscopy because of an incomplete study. The rest of the patients were to be followed up in clinic.

Conclusions: Capsule endoscopy immediately changed management in a small proportion of cases which may have been investigated using other substantially less invasive techniques.

Abstract # 103 - COMPARISON OF THE BURDEN OF OVERDIAGNOSIS IN SCREENING FOR BREAST CANCER AND CERVICAL CANCER IN A NATIONWIDE SCREENING PROGRAMME, A MODELLING APPROACH.

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Background: Overdiagnosis has a different meaning in breast cancer than in cervical cancer, mainly because screening for cervical cancer prevents the occurrence of cancer by eliminating pre-cursor lesions (CIN).

Aim: To clarify the definition of overdiagnosis and to estimate the measure of overdiagnosis of the Dutch cervical cancer screening programme and the Dutch breast cancer screening programme.

Methods: We used our microsimulation model (MISCAN) to estimate the following parameters of both screening programmes: deaths averted, life-years gained, and overdiagnosis rate.

Results: The number of invasive cancers was reduced with 54.7% in cervical cancer and with 1.3% in breast cancer, as a result of screening. In breast cancer this is balanced by an overdiagnosis rate of 24%, which is the proportion of overdiagnosed invasive cancers of all cancers diagnosed in the presence of screening. For cervical cancer this proportion is negligible. By means of effectiveness in gaining lifeyears the programmes are comparable, necessitating 53 screens to safe one lifeyear in cervical cancer and 69 screens in breast cancer. Breast cancer screening is slightly more effective in preventing cancer death, it takes 1085 screens to prevent one death, whereas cervical cancer screening needs 1323 screens.

Conclusion: Both programmes are comparable when looking at effectiveness. Measures of overdiagnosis are difficult to compare, but definitely lower when looking at invasive cervical cancer. Possible harms of treatment for CIN I should not be dismissed because of the relatively high numbers of overdiagnosis when assessing CIN lesions. The numbers for breast cancer are comparable to earlier published figures.

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Abstract # 104 - USE OF MRI AS PART OF BREAST CANCER DIAGNOSTIC ASSESSMENT IN A POPULATION BASED SAMPLE

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Background: Concerns have been raised about the increasing use of magnetic resonance imaging (MRI) for breast cancer screening and surveillance. Yet little is known about MRI use as part of initial diagnostic assessment, and whether its use contributes to more aggressive surgery.
Aims: To evaluate factors associated with use of MRI as part of breast cancer diagnostic assessment and impact of MRI use on treatment received.

Methods: We conducted a population-based survey of 2290 women newly diagnosed with breast cancer from the Detroit and Los Angeles SEER registries from 6/05-2/07 and again 4 years later (N=1536). The primary outcomes were patient-reported receipt of MRI when first diagnosed with breast cancer and type of surgery received (lumpectomy, mastectomy or bilateral mastectomy). Primary independent variables included age, genetic mutation status, and family history. We used regression to evaluate factors associated MRI and type of surgery, controlling for patient demographics and cancer stage.

Results: Of the analytic sample (N=1446), 41.5% reported having had MRI as part of their initial diagnosis. MRI receipt was associated with younger age (<=49) (F=10.13, P=0.0063), receipt of genetic testing (F=3.12, P=0.012), and invasive (vs. DCIS) cancer (OR: 2.04; 95% CI: 1.49-2.78). Use of MRI during diagnosis was significantly associated with receipt of more invasive surgery; women who had a bilateral mastectomy (vs. lumpectomy) significantly more often had received an MRI (OR: 2.26, 95% CI 1.45-3.53), controlling for clinical indications for bilateral mastectomy.

Conclusion: MRI receipt during diagnosis was associated with risk factors for development of more aggressive cancer or new primary cancer, suggesting appropriate use as part of the diagnostic work-up for breast cancer. However, MRI use also appears to drive more aggressive surgery. Further work is needed to ensure clinicians and patients understand the risks and benefits associated with MRI use as part of breast cancer diagnosis.

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Abstract # 105 - HEALTHCARE COSTS IN THE DANISH RANDOMIZED CONTROLLED LUNG CANCER CT-SCREENING TRIAL: A REGISTRY STUDY

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Introduction: Healthcare costs of lung cancer screening participants are important factors in costs-effectiveness analyses of lung cancer screening trials but only modeling estimates of healthcare costs in the secondary healthcare sector exist.

Aims: To analyze participants' actual healthcare costs and selected healthcare utilization in a randomized controlled lung cancer screening trial.

Methods: 4104 healthy men and women, who were heavy smokers or former smokers, aged 50–70 years, were randomized to either a screening or control group. The screening group participants were offered five annual low dose computerized tomography (CT) scans. Data on healthcare costs and utilization were retrieved from public registries. Outcomes were divided in three categories: 1) total healthcare costs, 2) primary sector: costs of- procedures at- and contacts to general practitioners; costs of other specialized medical doctors, psychologists and physiotherapists and 3) secondary sector: hospitalization, outpatient visits, emergency room contacts, surgical procedures and non-surgical procedures.

Results: Outcomes were compared between 1) the screening group (n=2047) and the control (n=2052) group and 2) the control group and each of the true-positive, false-positive and true-negative groups of the screening group. The costs were higher in the screening group compared with the control group ($p<0.001$).The costs were higher for the true-positive and false-positive groups compared with the control group by a factor of 10.57 [7.09;15.75] and 1.67 [1.20;2.32] respectively. The true-positive and the false positive groups had higher healthcare use in both the primary and secondary healthcare sector.

Conclusions: Low dose lung cancer CT screening increases healthcare costs compared with no screening. Overall healthcare costs were higher for the true-positive and false-positive groups than for the control group. Including healthcare costs of screening participants in the primary healthcare sector is important for future cost-effectiveness analyses of cancer screening trials.

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Abstract # 106 - LONG TERM PSYCHOSOCIAL CONSEQUENCES OF FALSE POSITIVE RESULTS IN THE DANISH RANDOMIZED CONTROLLED LUNG CANCER SCREENING TRIAL: A COHORT STUDY

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Introduction: Lung cancer is the leading cause of death from cancer and several randomized controlled lung cancer screening trials using low dose computerized tomography (LDCT) are being evaluated. One trial has shown a relative reduction in lung cancer specific mortality of 20%. However, a high false positive rate of 23% was reported. Psychosocial consequences of false positive results are important to include in a balanced assessment of lung cancer LDCT screening but reporting has been limited to short term follow-up and the use of generic questionnaires. At present, no evidence of long term psychosocial consequences exists.

Aims: To analyze the long term psychosocial consequences of participants receiving false positive results in a randomized controlled lung cancer screening trial.

Methods: The Danish randomized controlled lung cancer screening trial (DLCST) randomized 4104 participants to a LDCT screening group and a control group. The screening group was offered five annual LDCT scans and the control group received usual care. In this matched cohort study we recruited 132 participants receiving an abnormal result (false and true positive results) in the DLCST. For each participant with an abnormal result we recruited 2 participants with normal screening results and 2 participants from the control group. All participants were matched by gender, age and time of screening. Each participant completed the validated questionnaire, Consequences of Screening-Lung Cancer, at baseline and 1, 6 and 18 months after diagnosis.

Results: The results are currently being analyzed and, unfortunately, we have no preliminary results to present in this abstract. However, the final results will be ready for presentation in September 2013.

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Abstract # 107 - “YOU ARE PREHYPERTENSIVE”: PREDISEASES AS CLINICAL ENTITIES TO PREEMPT DISEASES

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Cardiometabolic diseases are the leading cause of morbidity and mortality worldwide and account for a substantial share of health care expenses. Consequently, the management of chronic cardiometabolic diseases such as cardiovascular disease (CVD) and type 2 diabetes milletus are more than just about the human cost of disease, it is fundamental for the performance of health care and to the sustainability of health systems.

A well-accepted risk reduction strategy for the prevention of CVD events is the targeted reduction of blood pressure (BP) among those with elevated BP usually determined by office BP measurement. Given that hypertension diagnosis (i.e. label) has been shown to have unintended negative effects on patients' well-being, care is needed so as not to label otherwise healthy individuals the implications of which extend beyond the individual.

Since office-based BP measurement has the potential to misdiagnose patients with the clustering of such entities masked hypertension, white coat hypertension and sustained hypertension around the cut-off 140/90, ambulatory BP and home BP monitoring are advocated to diagnose “true BP” and thus ensure proper diagnosis of hypertension. The identification of the entity prehypertension – as well as prediabetes, meanwhile highlight a dilemma for clinicians and non-clinicians alike in light of the consequences, both intended and unintended, of recognizing so-called “prediseases” as clinical entities.

In this paper, the author argues that the nature of chronic cardiometabolic diseases underline the importance of recognizing intermediate health states towards (cost-)effective clinical risk management. Being categorized as prehypertensive and/or prediabetic should not be seen as disease mongering or overdiagnosing but rather exhorting one to be extra-mindful of his/her lifestyle and that a modification of such is imperative to maintain his/her health and well-being.

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Abstract # 108 - DIAGNOSING OVERTREATMENT AND HOW TO STOP IT

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Background: Unnecessary or incorrect drug therapy might impair quality of life and is a waste of scarce resources in healthcare. This can be avoided not only by avoiding initial overdiagnosis / overtreatment but also by evaluating and questioning ongoing treatment. Structured information about when and how to withdraw drugs in a safe manner, and what the patient might expect by doing so, is lacking. The format of the Summary of Product Characteristics from the medical products agencies doesn't include a mandatory section with the information needed to end drug treatment structured in a form that is easy to access and thus relevant for both the prescriber and the patient.

Aim: To develop and distribute a manual for prudent assessment and handling of withdrawal of drugs, especially among the elderly.

Method: In collaboration with the drug and therapeutics committees, DTCs, of Sweden an evidence-based manual – FAS UT (PHASE OUT) – was developed and distributed nation-wide free of charge for the prescriber. The manual covers more than 200 pharmaceuticals and give advice how to evaluate and stop treatment, and what to observe in the patient. In addition, proposal for alternative pharmacological and non-pharmacological interventions are given.

Results: The manual is currently in its 3rd edition and has undergone extensive modifications reflecting feed-back from practicing physicians and from participating DTCs. No formal evaluation of its impact in clinical medicine has been performed yet.

Conclusions: Information about how to withdraw drugs is important for the prescriber at the point of care. Medical agencies ought to make stringent demands on manufacturers to gather and present data in a structured way in the SPC in order to facilitate for the physician not only to start but also to stop drug therapy. Structured data on how to stop drug treatment ought to be incorporated in clinical decision support system.

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Abstract #109 - OVERDIAGNOSING DISEASE, UNDERVALUING LIVING? – INVESTIGATING DURING END-OF-LIFE CARE

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Background: There are growing concerns about how we care for patients in the later stages of their lives in acute hospitals. In the UK, there is a focus on improving elderly care and supporting people to die in the community if they wish. Yet many die in hospital, often after prolonged admissions. During these admissions, patients are often cared for by acute medical teams during out-of-hours service (nights and weekends) who may investigate and treat these patients without knowing their prognosis and desire for further investigations. Data is lacking on whether patients at the end stages of their disease are investigated to a different standard compared to general medical patients.

Aims: To explore attitudes and identify working practices around investigating disease in patients with chronic disease and terminal illness, where there is poor prognosis and no cure. Specifically, focusing on in-patients of Care of the Elderly (COTE) medical wards.
Methods: Focus groups with COTE Consultants, senior trainees and junior doctors working in Teaching and District General Hospitals (n=20) in London, UK.
Analysis – preliminary:

- The appropriate level of investigating is often judged by COTE consultants, but no standard way of documenting or communicating this.
- When a decision is made to not investigate it is not always clearly documented.
- For junior doctors, risk of medical negligence and poor clinical outcome was thought to outweigh poor outcome of reduced quality of life.
- Junior doctors are more comfortable with instigating investigations, rather than actively deciding against investigating.

Conclusions – preliminary:

- When a person is coming to the final stages of a terminal or chronic disease, there is tension between investigating for possible new diagnoses and overdiagnosing, which is often not discussed openly or adequately.
- In reality, it is not clear who makes the decision of appropriateness to investigate.
- It is likely that junior doctors tend to err on the side of caution and investigate in patients who are unlikely to benefit from further treatment.
- This may be due to fear of being held accountable for missed diagnosis or under-treating.

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Abstract #110 - OVERDIAGNOSIS IN BREAST CANCER SCREENING - DUTCH INCIDENCE DATA SHOW A COMPENSATORY DECLINE

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Background: The amount of overdiagnosis associated with breast cancer screening has been widely debated.

Aims: To assess whether a compensatory decline in breast cancer incidence is visible in women that are older than the upper age of screening in the Netherlands and how estimates of overdiagnosis are influenced by accounting for background trends in incidence.

Methods: We used breast cancer incidence data from the Dutch Cancer Registry and the MISCAN model to estimate breast cancer incidence in a situation with and without screening. The model included an increase in background incidence, based on the observed trend before the implementation of the screening program. From 1990, Dutch women aged 50-69 years were invited to biennial screening. Between 1998 and 2001 the upper age limit was extended to age 75 years. The compensatory decline was defined as a reduction of >5% in the number of observed breast cancers compared with the predicted number of breast cancers in the absence of screening in age groups above the upper age of screening. Overdiagnosis was calculated by dividing the number of excess cancers by the total number of detected cancers.

Results: From 1994-1997, there was a compensatory decline in women older than 69 years and from 2002-2010, in women older than 75 years. The estimate of overdiagnosis was strongly influenced by the assumed background incidence in the absence of screening; e.g., 3% of all cancers detected in 2005 were estimated to be overdiagnosed if an increase in background incidence was assumed, and 21% if no increase in background incidence was assumed.

Conclusions: A compensatory decline in incidence in age groups above the upper age of screening is clearly visible in recent breast cancer incidence rates from the Netherlands. Furthermore, the trend in background incidence is an important determinant of the estimated amount of overdiagnosis.

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Abstract # 111 - OVERDIAGNOSIS: THE ROOTS OF THE PROBLEM

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Background: Identifying the signs and symptoms of mental ill health and arriving at a diagnosis are key skills required of psychiatrists. However, the presence of relevant clinical features may not be the only reason why diagnoses are made; other drivers are also important. There are ethical aspects to making diagnoses and we have a moral and legal obligation to understand all the factors involved and come to an appropriate decision.

Aims: To explicitly identify and analyse the various factors that influence diagnosis making in psychiatrists; using an ethical framework. To use the understanding gained to promote a transparent and reflective clinical practice based on sound ethical principles, leading to better patient related outcomes.

Methods: The various factors influencing diagnosis-making were identified through a process of deliberation, reflection and clinical experience; and categorised into patient-related, doctor-related and contextual factors. The information was analysed using the four principles of medical ethics- autonomy, beneficence, non-maleficence and justice. Hypothetical case scenarios and references from literature were used to illustrate these principles.

Results: A detailed analysis of diagnostic behaviours demonstrates that apart from clinical signs and symptoms, various factors like clinician training and attitudes, patient and family expectations, perceived stigma and economic drivers influence diagnosis making. There is an inherent conflict in the diagnosis of mental illness as, perceived economic benefits (for patients and clinicians) may lead to over -diagnosis whereas the stigma of mental illness may lead to under-diagnosis.

Conclusions: The initial diagnosis determines much of the future course for patients and families. Some of the drivers for diagnosis remain implicit rather than being explicitly stated. It is important for clinicians to be open and transparent with themselves as well as their patients about the reasons for diagnoses so as to protect the interests of patients, build trust and maintain professional integrity.

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Abstract # 112 - THE PARADOX OF PRECISION IN DIAGNOSTIC IMAGING

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Background: Technological advances continually improve the resolution of diagnostic imaging and provide more sophisticated tools for processing the images. In cardiology, the radiofrequency signals obtained by echocardiography can now be analysed to obtain precise measurements of heart muscle function using parameters such as the amplitude and timing of velocity, displacement, deformation (strain), and rate of deformation (strain rate). These quantitative tests (myocardial velocity imaging, MVI) replace the visual analysis of wall motion and thickening of the heart – a subjective, qualitative method with poor reproducibility.

Methods and Results: We have used MVI to investigate the relationships between long-axis function of the left ventricle – a piston-like motion of the mitral annulus – and cardiovascular risk factors. Long-axis function declines with physical inactivity and is increased in trained athletes; it is reduced with increasing age, shorter height, and increasing body mass index (especially central adiposity). It increases at faster heart rates and is reduced with higher blood pressures even within the normal range. It varies with changes in preload and afterload and with pathophysiological processes such as myocardial fibrosis. Progressive reductions in long-axis function related to type 2 diabetes, hypertension, obesity, high LDL-cholesterol, smoking, and positive family history, are accompanied by progressive increases in radial function and sphericity of the left ventricle. All these relationships are continuous.
The methods for processing MVI vary between manufacturers and are protected intellectual property. Comparisons between diagnostic machines in the same subjects show no significant correlations for some parameters.

Conclusions: As echocardiographic tools have become more sensitive and precise, paradoxically it has become more difficult to diagnose early disease. The influences of risk factors are now apparent, making it difficult to define normal values and diagnostic cut-points, and there are major variations between manufacturers. A new approach is needed, using clinical decision tools integrated into diagnostic reporting systems.

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Abstract # 114 - DEVELOPING OVERUSE MEASURES OF COLORECTAL CANCER SCREENING

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Background: Studies suggest that approximately 25% of screening colonoscopies performed in Medicare patients are inappropriate. While performance measures of CRC screening underuse have been widely adopted, performance measures of overuse have not been specified.

Aims: To develop electronic performance measures of overuse of screening colonoscopy and fecal occult blood testing (FOBT) in the Veterans Health Administration (VHA), and to quantify overuse in VHA.

Methods: We convened an expert workgroup to specify measures of CRC screening overuse based on guideline recommendations and published data. Measures were developed separately for colonoscopy and FOBT. We then developed two electronic algorithms based on measure specifications, using data from the VHA Corporate Data Warehouse, and calculated the proportion of screening colonoscopies and FOBTs that met definitions of probable and possible overuse.

Results: After exclusion of diagnostic and high-risk screening examinations, we identified 59,929 Veterans who underwent average-risk screening colonoscopy in fiscal year (FY) 2010. 8,940 (14.9%) of these colonoscopies were found to meet definitions for probable (7.5%) or possible (7.4%) overuse. The most common reason for overuse of screening colonoscopy was performance of colonoscopy less than 10 years after prior colonoscopy. We identified 541,571 Veterans who underwent screening FOBT. 141,292 (24.1%) of these FOBTs were found to meet definitions for probable (12.2%) or possible (13.9%) overuse. The most common reasons for overuse of FOBT were performance of FOBT less than 5 years after colonoscopy and performance of FOBT in an individual over 75 years of age.

Conclusions: Though less prevalent than reported in Medicare fee-for-service, overuse of CRC screening is common in a large integrated healthcare system that utilizes underuse measures to encourage screening uptake. Overuse measures, such as those we have specified through a consensus workgroup process, could be combined with underuse measures to enhance the appropriateness of CRC screening.

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Abstract # 115 - IMPACT OF PERFORMANCE MEASUREMENT ON UTILIZATION OF SCREENING AMONG VETERANS

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Background: Colorectal cancer (CRC) screening performance measures (PMs) encourage screening in individuals between ages 50-75. These age-based measures may unintentionally encourage screening in older patients who are screen-eligible due to age but are in poor health.

Aims: To examine whether the CRC screening PM age cutoff is associated with overuse of screening among individuals aged 70-75 in poor health.

Methods: We performed a retrospective cohort study utilizing electronic data from the Veterans Health Administration (VHA). We identified regular users of VHA primary and preventive care who were due for average-risk CRC screening in fiscal year (FY) 2010. The primary outcome was completion of colonoscopy or fecal occult blood testing (FOBT) within 24 months of the FY10 visit. We used multivariable logistic regression to assess the impact of age and health status (Charlson comorbidity index) independent of demographics and number of primary care visits.

Results: 408,610 Veterans met our inclusion and exclusion criteria. 38% completed a CRC screening test in VHA within 24 months. Compared to patients between ages 50-69, screening utilization was somewhat lower in patients between ages 70-75 (OR 0.90, 95% CI: 0.88-0.92). However, screening utilization decreased markedly after age 75 (OR 0.23, 95% CI: 0.22-0.23). A Veteran who was 75 years of age and unhealthy (in whom life expectancy is limited and screening is likely to result in net harm) was nearly twice as likely undergo screening as a Veteran who was 76 years of age and healthy (OR = 1.96, 95% CI: 1.71-2.22).

Conclusions: PM specification can have important implications for clinical care, potentially promoting overutilization (and underutilization) in selected groups of patients. Refining measures to be more clinically sensitive is critical if we wish to promote more appropriate use of care.

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Abstract # 116 - HOW DO CITIZENS BALANCE THE BENEFITS AND BURDENS OF NEWBORN SCREENING? A PUBLIC ENGAGEMENT SURVEY

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Background: Newborn screening (NBS) programs have expanded in recent years and there has been increased debate surrounding the appropriate balance between their benefits and burdens. How the public values and trades-off the effects of NBS, including those impacting affected infants and their families (clinical, informational) and those imposed on the rest of the population (false positive results, overdiagnosis) can influence NBS policy and uptake.

Aims: We quantified citizens' preferences for the varied effects of NBS.

Methods: In January 2013, a bilingual Internet survey was administered to a representative sample of Canadians to assess preferences for NBS across 5 attributes using a discrete choice experiment. Introduced through a detailed training module, the attributes included: clinical benefits of improved health (none, moderate, significant), earlier time to diagnosis (1 week to 4 years), reproductive risk information (available, not), false positive (FP) results (1-40 per affected baby), and overdiagnosed (OD) cases (0-2 per affected baby). Data were analyzed with a mixed logit model to account for preference heterogeneity.

Results: The survey participation rate was 94%; 1220 completed responses met quality criteria (52% completion rate). Respondents prioritized clinical benefits over all other effects, and positively valued reproductive risk information and earlier diagnosis. All respondents had a negative preference for FP results, and 81% negatively valued OD (19% positively valued this effect). Respondents were willing to accept high numbers of FP results and OD cases to achieve moderate clinical benefit for one affected baby (39 FP, 4.8 OD), and even higher numbers to achieve significant clinical benefit (49 FP, 6.04 OD).

Conclusions: We report a novel approach to exploring public preferences for the complex trade-offs obliged by population screening programs. Our findings point to broad understanding of false positive results, some ambivalence toward overdiagnosis, and tolerance for burdens in the pursuit of clinical and informational benefits.

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Abstract #117 - ADDRESSING BIAS IN ESTIMATES OF DIAGNOSTIC ACCURACY OF DEPRESSION SCREENING TOOLS: A DATA REGISTRY FOR INDIVIDUAL PATIENT DATA META-ANALYSES

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Background: Major depressive disorder may be present in 10-20% of patients in medical settings. Routine screening for depression has been recommended to improve depression management. However, studies that have examined the diagnostic accuracy of depression screening tools typically have used data-driven, exploratory methods to select optimal cutoffs. Typically, these studies report results from a small range of cutoff points around whatever cutoff score is most accurate in that given study. When data from these published studies are combined in meta-analyses, estimates of accuracy for different cutoff points are often based on data from different studies, rather than having data from all studies for each possible cutoff point. As a result, traditional meta-analyses can generate grossly exaggerated estimates of accuracy. Individual patient data (IPD) meta-analyses can be used to address this problem by synthesizing data from all studies for each cutoff score to obtain precise, unbiased diagnostic accuracy estimates.

Aims: The DEPRESsion Screening Data (DEPRESSD) Registry was created as a data repository for IPD meta-analyses of depression screening accuracy. The Registry is accumulating datasets from original studies with diagnostic accuracy data for common depression screening tools, which will result in large enough samples to accurately estimate accuracy across all relevant cutoff scores. It will also allow analyses of moderating factors that may influence accuracy (e.g., age, gender, diagnosis).

Methods: Authors of eligible published studies are being invited to contribute original data to the Registry. Datasets will be eligible for this project if they include a DSM or ICD diagnosis of MDD based on a validated structured or semi-structured diagnostic interview administered within two weeks of the administration of one or more depression screening tools included in the Registry.

Conclusions: This Registry will provide a mechanism to obtain realistic estimates of depression screening tool accuracy, which currently appears to be substantially exaggerated.

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Abstract #118 - USE OF A PROSTATE CANCER SCREENING PATIENT DECISION AID REDUCES PATIENT INTENT TO BE SCREENED

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Background: Prostate cancer screening with the prostate specific antigen (PSA) blood test is controversial, largely due to the potential for harm from overdiagnosis and overtreatment; the decision to screen should be guided by informed patient preference. Patient decision aids (DAs) are tools that can improve knowledge and help patients make a choice that is consistent with their personal values.

Aims: To assess impact of a video DA on the patient's decision to have a PSA test.

Methods: Prior to a preventive medicine appointment, a PSA screening DA was mailed to men age 50-75. Patients were asked to: 1) complete a pre-DA questionnaire, 2) watch the DA "PSA Screening: Is It Right for You?", and 3) complete a post-DA questionnaire. Measures included pre/post screening intention, 5 multiple choice knowledge questions, and 4 questions on values influencing the decision (Likert scale: 0 not important -10 very important).

Results: From Jan 2010 – Dec 2012, 2005 DAs were distributed; 556 patients returned questionnaires (28%). After watching the DA, a substantial number of patients changed their intention for PSA screening (36%). Participants were less likely to be unsure about their decision (30% before vs.17% after DA) and more likely to decide against PSA screening after viewing the DA (20% vs. 39%, $p < 0.001$). Most patients (89%) understood key PSA facts (knowledge score ≥ 80% correct). High rankings for "Find cancer early" were associated with choosing PSA screening (OR=1.5, 95% CI 1.3 – 1.9), while patients who felt it was important to "Avoid worry from false alarm" were less likely to choose PSA screening (OR=0.6, 95% CI 0.5 – 0.8).

Conclusions: Use of a PSA decision aid is associated with high decision quality (well informed patient making a choice congruent with their values) and increased the number of patients declining screening, thus reducing the potential for harm from overdiagnosis.

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Abstract # 119 - OVERDIAGNOSIS AND OVERTREATMENT OVER TIME: HISTORICAL PERSPECTIVE OF A VERY MODERN PROBLEM

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Overdiagnosis and overtreatment are often thought of as relatively recent phenomena, influenced by a contemporary combination of technology, specialization, payment models, marketing, and supply-related demand. Yet a quick glance at the historical record reveals that physicians and medical manufacturers have been accused of iatrogenic excess for centuries, if not millennia. Whether the intervention at hand has been leeches and lancets, calomel and cathartics, aspirins and amphetamines, or statins and SSRIs, the longue durée of medical history is replete with skeptical critiques of diagnostic and therapeutic enthusiasm. Medicine has long had therapeutic solutions that search for ever-increasing diagnostic problems. The opportunity cost of this profusion shapes the other side of the coin: chronic persistence of underdiagnosis and undertreatment.

Drawing from key controversies of the 19th and 20th centuries, our presentation will chart the enduring challenges of inter-related diagnostic and therapeutic excess. As the present critique of overdiagnosis and overtreatment seeks to mobilize resources from inside and outside of medicine to rein in these impulses, we provide a perspective of the successes and failures of prior reform movements – an instructive context from which to act.

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Abstract # 121 - THE IMPLICATIONS OF OVERDIAGNOSIS FOR TREATMENT: A COMPARISON OF CLINICAL PRACTICE GUIDELINES FOR THE TREATMENT OF DEPRESSION

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The revision of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*), due for publication by the American Psychiatric Association (APA) in May 2013, has created a firestorm of controversy because of questions about industry influence. Concerns have been raised that financial conflicts of interest (FCOI) between *DSM* panel members and the pharmaceutical industry create the potential for disease mongering. For example, there are two new mood disorders, Disruptive Mood Dysregulation Disorder and Premenstrual Dysphoric Disorder, and the bereavement exclusion for Major Depressive Episodes has been eliminated such that eligibility for diagnosis will include those who grieve for longer than two weeks. The implications of these changes to the *DSM* have yet to be seen, but the potential for overdiagnosis is clear.

As many clinicians have noted, unnecessary treatment is one consequence of overdiagnosis. Clinical practice guidelines (CPGs) are meant to provide guidance for clinical decision-making based on a systematic review of the best available evidence. Ensuring that guidelines for depression are trustworthy is imperative since in the U.S. 80% of prescriptions for antidepressants are written by non-psychiatrist physicians (Cascade, Kalali, & Halbreich, 2008) who turn to CPGs as a sound resource when diagnosing and treating their patients.

In this study, we compared the treatment recommendations made in a small sample of international guidelines for depression, as well as the degree and extent of FCOI among the guideline authors. FCOI in guideline development groups ranged between 0% and 100%. Compared to APA's CPG, which recommended pharmacotherapy as a first line intervention for mild depression, the other guidelines reviewed were less likely to have FCOI and were more likely to recommend exercise, lifestyle changes, or psychotherapy for mild to moderate depression. We discuss our findings in terms of their implications for public health and policy.

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Abstract #122 - REVIEW OF PERFORMANCE MEASUREMENT AS AN APPROACH TO TARGETING OVERDIAGNOSIS: HIGH YIELD PROSPECTS FOR MEASURE DEVELOPMENT

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Background: Overuse of health care services is responsible for approximately 30 percent of U.S. healthcare expenditures. Overdiagnosis is a significant source of overuse and poses burdens on patient health and the healthcare system.

Aim: To quantify the number of existing overdiagnosis performance measures and identify opportunities for measure development.

Methods: We reviewed the U.S. Preventive Services Task Force (USPSTF) D recommendations and Choosing Wisely Campaign lists to identify and select overused services relevant to overdiagnosis. We also identified performance measures endorsed by the National Quality Forum (NQF) and measures currently in development in order to quantify the number of services that correspond to overdiagnosis measures. Based on select criteria (e.g., public health importance, evidence) we shortlisted existing opportunities for measure development.

Results: Thirty-eight USPSTF D recommendations and 45 Choosing Wisely services were identified. USPSTF D services were applicable to asymptomatic populations while those identified by Choosing Wisely required specialist-based care. The 83 total cited overused services mapped to 57 areas of overdiagnosis (e.g. routine cardiac screening in asymptomatic individuals and prostate-specific antigen-based prostate cancer screening in men) and 37 performance measures. Of the measures identified, 25 were NQF endorsed and 12 were currently in development. The measures represented different sources of accountability (e.g., health plan, provider, facility). Opportunities for new measure development were identified from both sources. There was variation in terms of public health importance, strength of evidence and feasibility of implementation. Ambiguity around exclusions, or caveats such as “low risk,” limited development of measures for certain high-priority services.

Conclusions: While overuse measures currently exist, new measures are needed to reduce overdiagnosis. Performance measurement targeting this domain can be an important lever for influencing clinician behavior through stakeholder feedback, public reporting, clinical decision support and financial incentives. Reducing overdiagnosis has the potential to reduce costs and decrease physical and psychological harm to patients.

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Abstract # 124 - DIAGNOSTIC UNCERTAINTY AS A RESULT OF NEWBORN SCREENING FOR CYSTIC FIBROSIS: A QUALITATIVE EXPLORATION OF FAMILY EXPERIENCE

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Background: Newborn screening has been one of the most successful population screening initiatives, yielding profound clinical benefits through pre-symptomatic diagnosis and treatment of infants with very rare conditions. As newborn screening programs have expanded to include a larger number of conditions, sometimes with equivocal evidence of clinical benefit, there has been increased attention to the potential for harm. One of the most serious harms is the phenomenon of overdiagnosis, where newborn screening leads to temporary or more protracted uncertainty about an infant's diagnosis and the appropriate course of treatment.

Aims: We aimed to explore the family experience of diagnostic uncertainty arising from population screening in newborns, in the context of screening for cystic fibrosis (CF).

Methods: With informed consent, we conducted open-ended, semi-structured interviews with parents whose infants had received inconclusive results for CF after screening and confirmatory testing within the previous 4-44 months; clinicians assessed eligibility for inclusion. Transcripts were analyzed for thematic patterns with interpretive description and constant comparison.

Results: To date, 8 interviews have been completed with 6 mothers and 2 couples. Data collection is ongoing. Consistently expressed themes about what it means for families to experience a period of temporary or more protracted uncertainty were: (1) questioning how long to remain under medical supervision; (2) deliberating about anticipated effects on the child's self image; and (3) equivocating regarding potential health consequences of a 'borderline diagnosis' later in the child's life.

Conclusion: In the context of newborn screening for CF, overdiagnosis leads to diagnostic uncertainty. This infrequent phenomenon is a burdensome experience for families and a challenge for newborn screening programs. Research on how families interpret and cope with these results can inform discussion of the benefits and burdens of newborn screening and help health professionals in their efforts to provide support.

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Abstract # 125 - COMMUNICATING WITH PATIENTS ABOUT OVER DIAGNOSIS: DEVELOPMENT OF A PAMPHLET TO IMPROVE UNDERSTANDING OF THE BENEFITS AND HARMS OF PROSTATE CANCER SCREENING, AND TO ADDRESS PATIENT CONCERNS ABOUT DISCONTINUATION

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Background: The United States Preventive Services Task Force recently recommended against prostate-specific antigen (PSA) screening for prostate cancer in all men because it concluded that the very low probability of preventing a death from prostate cancer in the long term does not outweigh the moderate to high probability of early and persistent harms. Public reactions to these recommendations suggest patients may have concerns about discontinuation. Further, prior studies suggest the general public often overestimates the benefits of cancer screening and dismisses the possible harms.

Aim: To facilitate efforts to reduce the over diagnosis of prostate cancer by developing a patient education pamphlet designed to improve the accuracy of patient perceptions about the benefits and harms of PSA screening, and to address patient questions and concerns about discontinuation of PSA screening.

Methods: Qualitative data will be collected among male patients age 50-75 who received a PSA in the past two years at the Minneapolis Veterans Affairs Medical Center. We will conduct: 30 1-hour in-person interviews to identify the range of questions and concerns patients have about discontinuation of PSA screening; and 4 patient focus groups to obtain feedback on the clarity and utility of alternative approaches to summarizing information on the benefits of harms of PSA screening (i.e., two side-by-side pictographs comparing the benefits and harms experienced by (a) screened and (b) unscreened men, or a single pictograph summarizing the incremental benefits and harms experienced by screened men, above what is observed for unscreened men. Data collection and analyses will be completed by July 2013.

Results: This presentation will summarize: (1) the range of questions and concerns patients report about PSA discontinuation, and (2) patient perspectives on the relative clarity and utility of the comparative and incremental pictographs used to summarize the information on the benefits and harms of PSA screening.

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Abstract # 126 - DOES INCLUSION OF TOTAL CHOLESTEROL IN MORTALITY RISK ALGORITHMS LEAD TO OVERESTIMATION OF RISK? TEN YEARS PROSPECTIVE DATA FROM THE NORWEGIAN HUNT 2 STUDY.

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Introduction: Many clinical guidelines for cardiovascular disease (CVD) prevention contain risk estimation charts/calculators. These have shown a tendency to overestimate risk, and may, thus, lead to excessive medical treatment in certain groups of people. This indicates the possibility of theoretical flaws in the algorithms. Total cholesterol (TC) is a frequently used variable in the risk estimates. Some studies indicate that the predictive properties of cholesterol might not be as straightforward as widely assumed.

Aims: Our aim was to evaluate the validity of TC as a variable in combined risk estimates, by documenting the strength of TC as a risk factor for mortality in a well-defined, general Norwegian population without known CVD at baseline.

Methods: We assessed the association of TC with total mortality, as well as mortality from CVD and ischaemic heart disease (IHD), using Cox proportional hazard models, adjusting for age, blood pressure, and smoking. The study population comprises 52,087 Norwegians, aged 20–74, who participated in the HUNT 2 Study (1995–1997) and were followed-up on cause-specific mortality for 10 years (510,297 person-years in total).

Results: Among women, cholesterol had an inverse association with all-cause mortality [hazard ratio (HR): 0.94; 95% CI: 0.89–0.99 per 1.0 mmol/L increase] as well as CVD mortality (HR: 0.97; 95% CI: 0.88–1.07). The association with IHD mortality seemed to follow a ‘U-shaped’ curve, with the highest mortality <5.0 and >7.0 mmol/L. Among men, the association of cholesterol with mortality from CVD and in total followed a ‘U-shaped’ pattern.

Conclusion: Our study provides an updated epidemiological indication of possible errors in CVD risk algorithms. If our findings are generalizable, clinical and public health recommendations regarding the ‘dangers’ of cholesterol should be revised. This is especially true for women, for whom moderately elevated cholesterol (by current standards) may prove to be beneficial.

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Abstract # 127 - ONTARIO'S APPROACH TO EVALUATING THE APPROPRIATENESS OF ROUTINE PROCEDURES AND TESTS

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There is growing recognition that reducing the use of unnecessary or inappropriate health care interventions can improve both patients outcomes and reduce costs. In April 2012, the Ontario Health Technology Advisory Committee (OHTAC) established a subcommittee, the Appropriateness Working Group (AWG), to develop a systematic framework for identifying, prioritizing, and assessing health care interventions for which there is suspected overuse, misuse, or underuse. For its first year, the subcommittee was tasked to identify interventions currently being overused or misused which could be delisted or restricted from public coverage to yield an estimated $150,000,000 (CDN) in total cost savings. In order to inform the development of the framework, we conducted a jurisdictional scan to understand current and historical examples of appropriateness and disinvestment initiatives, such as the US Choosing Wisely campaign and previous disinvestment work by NICE. A prioritization process was developed using ten criteria, including burden of illness, volumes/diffusion pressure, potential savings, safety concerns, and feasibility of implementation. Candidate interventions were identified from the literature, findings of other appropriateness initiatives and through submissions from members of the AWG and Ontario hospitals. For the first round, ten health interventions were prioritized. Three methods were used to assess the evidence: full evidence-based analyses including a systematic review and cost-effectiveness analysis, rapid reviews (reviews of systematic reviews), and expert consultations. Expert panels contextualized all analyses and evidence to the Ontario setting.

To date, this process has been completed for seven topics and has informed government policy changes, such as restricting physician billing for selected interventions to specific populations or indications, and removal of tests from the standardized Ontario Laboratory Requisition form.

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Abstract # 128 - IMPACT OF COMPUTER-AIDED MAMMOGRAPHY DISSEMINATION ON EARLY-STAGE BREAST CANCER TREATMENT RATES IN THE MEDICARE POPULATION

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Background: After Congress extended Medicare coverage to computer-aided detection (CAD) in 2001, CAD diffused quickly into U.S. mammography practice. Research suggests that CAD may promote the detection of ductal carcinomas in-situ (DCIS). Many DCIS and early-stage invasive breast cancers may be overdiagnosed, particularly among older women.

Aims: To estimate the fraction of DCIS and early-stage breast cancers attributable to CAD in the Medicare population.

Methods: In a retrospective cohort study, we estimated adjusted odds ratios (aOR) of DCIS and stage I invasive breast cancer, and diagnostic testing among female Medicare enrollees aged 67 to 89 years undergoing screening mammography from 2001 to 2006 (409,459 mammograms, 163,099 women). Based on annual CAD prevalences and adjusted incidence rate differences, we estimated the number of Medicare enrollees diagnosed and treated for DCIS and stage I breast cancer and the percent attributable to CAD (PAR%).

Results: From 2001 to 2006, CAD prevalence increased from 3.6% to 60.5%. CAD was associated with greater incidence of DCIS [aOR 1.17; 95% CI: 1.11-1.23] and stage I breast cancer [aOR 1.06 (95% CI: 1.03-1.11)]. Nearly all enrollees with DCIS or stage I breast cancer received treatment (97.3%). In women without breast cancer, CAD was associated with increased odds of diagnostic mammography [aOR 1.28; 95% CI: 1.27-1.29] and breast biopsy [aOR 1.10; 95% CI: 1.08-1.12]. From 2001-2006 nationally, CAD dissemination was associated with ~49,000 and ~40,000 additional Medicare enrollees treated for DCIS and stage I breast cancer, respectively, and ~705,000 additional diagnostic mammograms and ~56,000 breast biospies. From 2001-2006, the proportion of DCIS and stage I breast cancers attributable to CAD increased from 0.6% to 9.3% and 0.2% to 3.5%, respectively.

Conclusions: To the extent that DCIS and stage I breast cancer are overdiagnosed in older women, CAD has become an important societal contributor to breast cancer overdiagnosis in the U.S.

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Abstract # 129 - OVERDIAGNOSIS OF BREAST CANCER RISK: DIFFERENT MODELS, DIFFERENT PREDICTED RISK

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Introduction: Overdiagnosis is commonly thought of a diagnosis of "disease" which will never cause symptoms or death during a patient's lifetime. A less common but equally important case of overdiagnosis is the diagnosis of being at risk for a disease, such as being at high-risk for developing breast cancer, which will never cause symptoms or death. Women can arrive at such a diagnosis by meeting a set of criteria put forth by the medical community, which are typically accompanied by recommended management strategies. Overdiagnosis can happen when such criteria or recommendations are misinterpreted, poorly implemented, or based on insufficient data.

Aims: Identify the extent and consequences of overdiagnosis for individuals being at high risk for breast cancer using the ACS guidelines for the appropriate use of Magnetic Resonance Imaging (MRI).

Methods: Based on a population study, we identified women who fit the ACS criteria. Because the ACS criteria uses three risk assessment models for determining a woman’s risk, these criteria were reviewed to determine the extent of possible overdiagnosis in this population. From these data, the expected resource utilization stemming from his overdiagnosis, and the impact on patient quality of life are extrapolated.

Results: 5,894 women who received mammography screening at a community hospital were included in the study. 342 (5.8%) were diagnosed as high risk by at least one model. However, only 0.2% were diagnosed as high risk by all three models. One model identified 330 (5.6%) to be at high risk, while the other two models identified many fewer eligible women (25, 0.4% and 54, 0.9% respectively).

Conclusions: Using different models to evaluation the ACS criteria identifies very different populations, implying a large potential for overdiagnosis. Further, this overdiagnosis is likely to result in the outcome of screening too many women, incurring false positives and unnecessary resource utilization.

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Abstract #132 - OVERUSE OF COLORECTAL CANCER SCREENING IN THE VETERANS HEALTH ADMINISTRATION

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Background: Routine screening can reduce colorectal cancer (CRC) incidence and mortality. However, screening is inappropriate for some patents which can lead to overdiagnosis, increased costs of healthcare, and increased medical risk. Little is known about the prevalence of inappropriate screening or its causes.

Aims: This study quantifies the extent of inappropriate screening in a large integrated health care system and tests for associations between facility characteristics and inappropriate CRC screening rates. Facility characteristics examined include CRC screening performance measure scores and characteristics of facilities' CRC screening computerized clinical reminders (CCRs) which are used to remind providers when patients are due for screening and guide them on appropriate action.

Methods: This observational study identified patients who underwent CRC screening via fecal occult blood test (FOBT) or colonoscopy at a Veterans Health Administration facility between October 1, 2009 and December 31, 2011 (n= 1,083,965). Facility estimates of inappropriate screening were regressed on facility CCR characteristics and CRC screening rates using hierarchical logistic regression models.

Results: Preliminary estimates indicate that 14.7% of screened patients were unlikely to benefit (age < 50, age > 85, or life expectancy < 5 years) and 11.0% were high-risk but were inappropriately screened with using FOBT instead of colonoscopy. Facilities with more inappropriate tests had CCRs that (1) were assigned to the physician (and not the intake nurse), (2) reactivated within 9 years of a prior colonoscopy, and (3) emphasized FOBT as the preferred screening mode. Analysis is ongoing to determine the proportion and predictors of patients that were inappropriately rescreened before they were due.

Conclusions: Findings from this work will be used to improve the quality of CRC screening programs by minimizing the number of patients who receive inappropriate screening tests while maintaining high rates of appropriate screening.

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Abstract # 133 - A CONCEPTUAL FRAMEWORK FOR UNDERSTANDING AND REDUCING PROVIDER OVERUSE OF PRIMARY CARE SERVICES

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Introduction: Primary care providers frequently recommend, administer, or prescribe healthcare services that are unlikely to benefit their patients. Yet little is known about how to reduce provider overuse behavior. In the absence of a theoretically-grounded causal framework, it is difficult to predict the contexts under which different types of interventions to reduce provider overuse will succeed and which will fail.

Aims: To present a framework for understanding provider overuse of primary care services that can be used to develop and evaluate overuse reduction interventions.

Methods: We review current research on the overuse of primary care services with a focus on interventions designed to reduce overuse. Findings from these studies are integrated with psychological theories to develop a framework describing proposed causes of primary care provider overuse behavior.

Results: The described framework utilizes key constructs from the Theory of Planned Behavior. The framework illustrates how different categories of provider beliefs can affect the formation of an intention to adequately assess the appropriateness of a service for an individual patient and describes factors that may affect whether the presence of this intention results in an appropriate recommendation. Interventions that have been commonly used to address provider overuse behavior are reviewed within the context of the framework.

Conclusions: The proposed framework integrates theory and prior research and can be used in the development, evaluation and reporting of interventions to reduce overuse.

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Abstract # 134 - COMMUNICATION STRATEGIES TO REDUCE OVERDIAGNOSIS THROUGH A RATIONAL APPROACH TO CANCER SCREENING: A FOCUS ON PCPS

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Background: Cancer screening generates substantial over-diagnosis and over-treatment. The benefits of cancer screening are less than people believe, while its harms are greater than people think. Drivers of excessive cancer screening include consumer advocates, payers (who use cancer screening rates as quality metrics), and professional special interests, including clinicians and researchers. In many cases, their promotion of screening is based on the mistaken concept – and conventional wisdom -- that early diagnosis is always beneficial.

Health care providers (HCPs) and the public have been the primary targets of these messages. HCPs are at the center of this: they order and perform such testing, and they are the public's most trusted source of information. For cancer screening, the critical HCPs are Primary Care Providers (PCPs), who often experience a significant knowledge deficit regarding the interpretation of cancer screening statistics.

Aims: Articulate a strategy for educating and empowering PCPs and the public to engage in rational approaches to cancer screening that will reduce over-diagnosis.

Methods: PCPs must be re-educated and empowered to promote a more rational approach to cancer screening. To succeed, PCPs will require a more thorough understanding of the benefits and harms of cancer screening, a commitment to facilitating shared decision-making, and access to the necessary information and tools. This will include decision aids, visual aids such as pictographs, and information available in patient-oriented formats (e.g., number needed-to-screen, natural frequencies).

This session will review: The reasons most cancer screening programs fail to deliver on the promise created by the early success of cervical cancer screening. The heterogeneity of cancer progression, illustrated by robust analogies. Effective tools for understanding and communicating the benefits and harms of cancer screening, with an emphasis on over-diagnosis. Shared decision-making as a strategy for mitigating over-diagnosis. The need to avoid using cancer screening rates as a quality metric.

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Abstract # 135 - BEST CARE EVERYWHERE - APPROPRIATE MICROHEMATURA DIAGNOSTIC WORK-UP

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Introduction: Hematuria is one of the most common conditions confronting clinical urologists and is present in many genitourinary pathology conditions. According to KP experts, it is estimated to account for 20% of all urologic visits and up to 13.9% of urologic hospitalizations. Adult microhematuria is an example of a clinical symptom for which the lack of scientific evidence has created variations in clinical practice. Consequently, many patients with microscopic or gross hematuria undergo low-yield workups that include invasive testing and imaging with radiation. Kaiser Permanente conducted a prospective cohort study of patients who were referred to urologists and underwent a full evaluation for asymptomatic microscopic hematuria during a 2-year period in an integrated care organization in 3 regions along the West Coast of the United States. The study results suggested that a considerable proportion of patients could avoid extensive
evaluations with use of appropriate risk factors. KP's quality initiative demonstrates improved clinical practice and avoidance of unnecessary testing.

Aims are to:
- Explain the study methodology and components of evidence based guideline
- Describe interventions and measurement methodology
- Share the data that demonstrates change of clinical practice and reduction of unnecessary testing and potential harm.
- Share KP's approach to shared decision making.

Methods: Describe methodology of targeted microhematuria testing how to define and measure unwarranted variation.

Results: Discuss recently published results on reduction of unnecessary testing.

Conclusion: The KP guideline for hematuria workup was developed to guide clinicians in their clinical practice and to support reliable diagnostic workup of patients with risks for urinary tract cancer

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Abstract # 136 - 'GOLDILOCKS' CANCER SCREENING – NOT TOO LITTLE… NOT TOO MUCH

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Introduction: Cancer screenings are critical preventative tests that have evolved through advances in evidence-based medicine. The traditional focus has been on ensuring our patients are regularly getting their cervical, prostate, breast and other cancer screening. With updated guidelines and new evidence we know that "too much care" can result in harm and unnecessary downstream procedures that can impact a patient's quality of life.

Aims: To tell the patient story's (1-2 brief videos) when unwarranted tests/treatment are perform and when patients are not involved in decisions regarding their care. To explain the 3 cancer screening area of opportunity KP has reduce unwarranted variation (PAPs, PSA and Breast Cancer) To describe the importance of the Physician / Patient discussion on making the right decisions for care.

Methods: Describe how to define and measure unwarranted variation. Review and discuss the value of using Share Decision making tools and other processes to have critical patients/Physician discussions to ensure the patient's voice is heard

Results: Show data on reduction of unnecessary testing, adoption of new tools and Patient responses.

Conclusion: Summarize the triple aim value of doing the right tests at the right time for the patients.

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Abstract # 137 - Best Care Everywhere - Success in OPIOD Prescribing Management

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Introduction: Unwarranted imaging tests can put patients' health at risk. This study is a review of the KP's comprehensive quality process to ensure proper dx and procedures related to low-risk back pain to ensure proper referrals for CT scans for Lumbar Spine.

Aims:
- Reveal how KP regional and local Low Back Pain champions dedicate time and energy to educate physicians about the appropriateness of referrals to physical medicine rehabilitation services prior to imaging.
- Describe the KP Northern California process has established an ongoing monitoring process. Low Back Pain data is provided to each medical center on a quarterly basis.

Reporting Methodology: The percent of members with a primary diagnosis of low back pain who do not have an imaging study (x-ray, MRI, CT) within 28 days of the diagnosis comprise the measure. The scores are reported nationally as an inverted rate, with a higher score indicating more appropriate treatment. Beyond indicating quality, the metric is also viewed as a measure of a Health Plan's efficiency of resource utilization.

Results: Data will be provided to demonstrate the long-term success of this program. Results are achieved by an ongoing effort to provide continuing medical education to clinicians about the diagnosis and treatment of low back pain, and efforts to improve the accuracy of data capture and reporting.

Conclusion: Regional and local Low Back Pain champions have dedicated time and energy to educate physicians about the appropriateness of referrals to physical medicine rehabilitation services prior to imaging.

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Abstract # 139 - CHILD HEALTH SUPERVISION: TOO MANY VISITS? TOO MUCH EMPTY RITUAL?

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Background: In the U.S., child health supervision accounts for 22% of pediatric visits. The American Academy of Pediatrics (AAP) promulgates the periodicity schedule that directs child health supervision in the United States. However, the number and content of these pediatric visits has been viewed as “anachronistic and unscientific.” Families seem to agree with this viewpoint as children attend less than one-half of the AAP recommended well-child visits, even when there are no financial barriers. Is this a fair assessment? Should the AAP periodicity schedule and content set the quality standard for pediatric preventive care?

Aim: To evaluate the AAP periodicity schedule for its evidence-base and to compare the AAP schedule to other child health supervision models.

Method: The evidence behind the AAP periodicity schedule was analyzed. As well, 10 pediatric textbooks published in 2000 or later were reviewed for their representation of the AAP periodicity schedule and/ or other models/ schedules for child health supervision. Finally, the child health supervision programs developed by the Institute for Clinical Systems Improvement (USA), United Kingdom, Australia, and Canada were compared and contrasted with the AAP recommendations.

Results: Each of these alternatives have well-developed, evidence-based schedules and content for child health supervision that require far fewer resources. Findings from the textbook review uncovered limited critical evaluation of the AAP periodicity schedule and little mention of alternative models of child health supervision. This presentation will provide the specific findings of these analyses, discuss practice implications, and make recommendations for future research.

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Abstract # 141 - BENEFITS AND HARMS OF HPV PRIMARY SCREENING FOR CERVICAL CANCER IN GERMANY: ESTIMATES FROM A SYSTEMATIC DECISION-ANALYSIS.

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Introduction/Aims: Compared to cytology, HPV testing has the potential to improve the effectiveness by reducing cervical cancer incidence due to improved early detection and treatment but also a higher risk of over-diagnosis and overtreatment of irrelevant lesions. We systematically evaluated benefits and harms of different HPV-based primary cervical cancer screening strategies in the German health care context.

Methods: A previously validated and published Markov model1 for the German health care context was used to analyze the trade-off between benefits and harms of different screening strategies differing by length of screening interval and test algorithms including HPV testing alone or in combination with cytology or with cytological triage for HPV-positive women. We used published German clinical and epidemiological data as well as test accuracy data from international meta-analyses. Predicted outcomes included reduction in cervical cancer cases (CC) and deaths and unnecessary treatment (defined as invasive therapy of < CIN 3).

Results: Overall, HPV-based screening was more effective than cytology alone, with a relative reduction in cervical cancer incidence of 49%-90% compared to 33% - 80% with cytology alone (depending on screening intervals). The incremental gain in effectiveness with HPV screening compared to cytology was higher and incremental increase in harms was lower with extended screening intervals. Compared to annual cytology, which is currently the recommended standard in Germany, biennial HPV screening was similarly effective but reduced unnecessary treatment (depending on test and follow-up algorithm). In contrast, annual HPV primary screening compared to annual cytology alone would result in an incremental harm-benefit relation of 12 - 117 unnecessary treatments per additional prevented cervical cancer case (depending on screening adherence rate).

Conclusion: Based on our analyses, HPV-based cervical cancer screening is more effective than cytology alone, but has a higher risk of overtreatment when used in annual screening. In the German health care context, depending on screening adherence rate biennial or triennial HPV screening for women aged 30yrs and older is similarly or more effective as annual cytology alone, but with significantly reduced unnecessary treatments.

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Abstract # 142 - OVERDIAGNOSIS OF FAMILIAL MEDITERRANEAN FEVER BY GENETIC SCREENING IN ADULTS

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The gene frequency of Familial Mediterranean Fever (FMF) is 0.011 (CI 0.06 - 0.15) and the carrier rate is 0.20 (CI 95% 0.12-0.28) in Turkish population. With a population of 70 million, the number of carriers can be estimated to be more than 16 million people. The most frequent gene mutation is M694V and constitutes 55% of the mutations. The AA type systemic amyloidosis is the most morbid association/complication and is encountered in 12.2% of pediatric patients with FMF. The classical symptoms of FMF constitute of periodic attacks of fever, abdominal pain (peritonitis), chest pain (pleuritis), arthritis and rash.

With the introduction of genetic tests into clinical practice, the adult patients evaluated at the outpatient setting with a variety of symptoms have been offered genetic screening. Fever, abdominal pain and chest pain are among the top ten symptoms examined in the outpatient.

Therefore several groups have defined clinical criteria to diagnose FMF more accurately.

We have analyzed the demographic findings and clinical symptomatology of 100 adults with a positive genetic test for FMF. The mean age of the group was 42.3 years (Range 18 - 66). Fifty six (56%) were male and forty four (44%) were female. Only 5% of this group had classical attacks of FMF and met the clinical criteria of the disease and all of them were under 30 years of age. The remaining 95% didn't meet the clinical criteria of FMF and lacked evidence of systemic amyloidosis. Fifty five percent of the patients were examined by a rheumatologist, 24% by an internist and 12% by an infectious disease specialist.
All of the patients were prescribed colchicine and were advised to take their medications for the rest of their lives. 50% were prescribed 0.5 mg once a day, 28% 0.5 mg b.i.d., and 22% t.i.d. When medical files of these 100 patients were further analyzed, it was realized that 56% had chronic medical conditions necessitating long-term medical treatment, which had potential interactions with colchicine.

Like many other clinical conditions (e.g. pulmonary thromboembolism), diagnosis of FMF requires detailed clinical information, family history and an algorithm for diagnosis. Omitting this important part of diagnostic approach in a clinical entity with common symptoms and ordering genetic screening tests in a community with a high gene carrier frequency is leading to overdiagnosis of FMF.

The resulting clinical results are numerous adverse outcomes, ranging from being stigmatized to unnecessary drug treatment for indefinite duration with potential side effects and interactions.

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Abstract #143 - THE EXTENT OF OVER-DIAGNOSIS CAUSED BY INTRODUCTION OF PSA SCREENING IN AUSTRALIA.

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Background: The introduction of the PSA test in the 1980s led to an epidemic of screening men for prostate cancer. The goal was to save lives, so if screening and follow-up was vigorous, this should have reduced mortality from this disease.

Aim: We report changes in the apparent incidence of prostate cancer in the PSA era, and its association with prostate cancer mortality.

Method: We used cohort analysis of routinely collected prostate cancer incidence and mortality data in Australia.

Results: Incidence rose dramatically from about 1987 to 1993, for all age groups >55, but the greatest rise was for those aged >70-years. Thereafter, incidence fell for those > 70, but continued to rise for those aged 45-64 years.

The incidence initially rose at all ages. After 2000 it continued to rise, the largest change being 4 per 1000 at about age 65, then the incidence curve is flat thereafter, producing a diagnostic lead time of about 15 years over the pre-test era.

Mortality rose from ~1980, particularly among men >75, peaking in ~1994. It has dropped steadily since, for age groups over 65. The 2007 mortality curve is later and 1 per 1000 lower than in earlier years.

Discussion: These data are consistent with the introduction of screening producing a epidemic of over-diagnoses of prostate cancer (the apparent substantial rises in incidence); while small changes in mortality are as predicted by an over-diagnosis model. We cannot discount the effects of improved treatment during this time. Since early treatment may have effects up to 20 years later, it is difficult to discern whether screening has produced some effects to balance the harm of over-diagnosing many men as having prostate cancer 15 years earlier than would have presented clinically.

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Abstract #144 - CHANGING SCREENING POLICIES TO REDUCE OVERDIAGNOSIS.

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Introduction: Screening for disease has the potential to provide valuable health improvement. However, if done excessively, it has the risk of causing “false positives”, and overtreatment, some of which causes harms to people who have been turned into patients unnecessarily. The Canadian, then the US Task Force on Preventive Services were established to provide more evidence-based policies than those generally proposed by interest groups.

Aim: To compare comparable recommendations of the two Task Forces with those from community organisations, during the time they have been operating.
Methods. Selected recommendations from differing domains: cancer, mental health, cardiovascular and metabolic disease are compared for grades of recommendation, start and stopping, and intervals. The rationales are compared.

Results: Using similar evidence bases, the Task Forces recommend less screening, and when they do, uses more conservative limits than those from leading interest groups. Differences are mainly due to focus on potential benefits, and lesser attention to harms by community groups. Specifically, over-diagnosis is seldom mentioned in interest group rationales, though some would vastly increase the number of people diagnosed and treated. For the few recommendations in common, the Canadian Task Force is slightly more conservative than the US.

Discussion: North American medicine is substantially more interventionist and more expensive than elsewhere in the world, to the potential detriment of health. Benefits are emphasised, and little attention given to extent of harms or even to their measurement. The Task Forces on Prevention assist by critical review of evidence, to discriminate when preventive activities are worth doing, and recommending limits on uncritical starting, stopping and frequency recommendations. These confront the culture and politics of medicine, demonstrated by outrage and rejection after release of guidelines, especially around activities that generate income through extra screening and its follow-up.

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Abstract #146 - EVIDENCE OF OVERTESTING FOR VITAMIN D IN AUSTRALIA: AN ANALYSIS OF 4.5 YR OF MEDICARE BENEFITS SCHEDULE (MBS) DATA

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Objective: To comprehensively examine pathology test utilization of vitamin D (25-hydroxyvitamin D; 25(OH)D) testing in each state of Australia to determine the cost impact and value and to add to evidence to enable the development of 25(OH)D testing guidelines.

Design: Longitudinal analysis of all 25(OH)D pathology tests in Australia.

Setting: Primary and Tertiary Care

Measurements: Frequency of 25(OH)D testing between 1 April 2006 and 30 October 2010 coded for each individual by provider, state and month between 2006 and 2010. Rate of tests per 100000 individuals and benefit for 25(OH)D, full blood count and bone densitometry by state and quarter between 2000 and 2010.

Results: 4.5 million tests were performed between 1 April 2006 and 30 October 2010. 42.9% of individuals had more than one test with some individuals having up to 79 tests in that period. Of these tests, 80% were ordered by GPs and 20% by specialists. The rate of 25(OH)D testing increased 94 fold from 2000 to 2010. Rate varied by state whereby the most southern state represented the highest increase and northern state the lowest increase. In contrast, the rate of a universal pathology test such as FBC remained relatively stable increasing 2.5 fold. Of concern, a 0.5 fold increase in bone densitometry was seen.

Conclusions: The marked variation in frequency of 25(OH)D testing indicates large sums of potentially unnecessary funds are being expended. The rate of 25(OH)D testing increased exponentially at an unsustainable rate. Consequences of such findings are widespread in terms of cost and effectiveness. Further research is required to determine the drivers and cost benefit of such expenditure. Our data indicate that adoption of specific guidelines may improve efficiency and effectiveness of 25(OH)D testing.

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Abstract # 148 - PERSONALIZED PROSTATE CANCER SCREENING - A DECISION-ANALYTIC VIEW ON PERSONALIZED BENEFIT-HARM BALANCE

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Introduction: Early detection and treatment is the only option to reduce prostate cancer mortality, but gains in life expectancy are opposed by losses in quality of life (QoL) due to overdiagnosis and overtreatment.

Aims: We used the decision-analytic Oncotyrol Prostate Cancer Outcome & Policy Model (PCOP Model) to investigate the impact of individual QoL preferences on the benefit-harm balance of screening in order to support individual screening decisions.

Methods: The PCOP Model is a state-transition micro-simulation model that follows men from birth to death. During their lifetime, men may develop preclinical cancer, which over time progresses in stage and grade. Preclinical cancer can be detected due to symptoms or by screening. Once detected, cancer can be treated. Treatment can result in cure or not and may cause serious complications. Given no cure, cancer progresses and eventually kills the patient, if he does not die from another cause before. Input parameters of the model were retrieved from the literature and from online databases. We simulated and compared the clinical consequences of no screening and different once-in-a-lifetime and interval screening options. Analytic endpoints were lifetime risks of clinical events (incl. overdiagnosis), life expectancy, and quality-adjusted life expectancy. Sensitivity analysis was used to study the impact of QoL preferences.

Results: Our analyses show that the lifetime risk of prostate cancer diagnosis strongly increases with age at screening and screening intensity, which to a substantial part is due to overdiagnosis. All screening strategies save lives and gain additional lifetime. However, if quality of life is considered, we find that the gains in life expectancy can be outweighed by losses in quality of life. This is especially true, when screening is performed at old age or with high frequency.

Conclusions: Individual QoL preferences should be considered in personalized screening decisions.

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Abstract # 149 - TERRORIZED BY THE POLYP POLICE: HOW WELL ARE CONSUMERS INFORMED ABOUT THE BENEFITS AND HARMS OF COLONSCOPIES AND THE UNCERTAINTIES AROUND COLON POLYPS?

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Intro: Many health systems recommend screening for colorectal cancer beginning at age 50 years and continuing until age 75 years. The ways the risks of the disease and the benefits of screening are conveyed to consumers influence the appeal of screening and consumers' likelihood of submitting to it. If consumer-oriented information about colon cancer screening is biased it could create new cohorts of misinformed, overdiagnosed and overtreated consumers.

Methods: We amassed consumer-oriented colon screening information from the websites of colon screening programs in Canada, the US, Australia and the UK. We only assessed websites that made specific claims about the benefits and harms related to colonoscopy and the presence and removal of polyps (pre-cancerous signs).

Results: Seventeen websites from consumers' organizations, health authorities and cancer charities (5 US, 5 Can, 2 Aus, 5 UK) were assessed. Consumer-oriented benefit/harm statements relating to colonoscopy, as well as polyp discovery/ removal information were analyzed where key statements were determined to conform/ not conform to the principles of informed consent. More than three quarters of these statements were deemed not to be consistent with informed consent. Information about the incidence and danger of polyps and their need for removal lacked balance, often failing to mention uncertainties and important qualifiers about what is known about the natural history of polyps.

Conclusions: Colon screening information for consumers fear mongers. It generally overemphasizes the benefits of colonoscopy screening, glosses over uncertainties about the evidence and the natural history of the disease, and downplays harms of colonoscopy. Information of this quality will lead to "frequency creep", (shorter intervals for follow-on screening), a heightened level of fear and a great risk of overdiagnsosis and harm to the population. Better, more complete and balanced information may help reduce the harms of colon cancer screening and colon cancer overdiagnosis.

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Abstract # 150 - GESTATIONAL DIABETES – EXPERT OPINION OR INDEPENDENT REVIEW?

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Glucose intolerance detected in pregnancy (gestational diabetes mellitus, GDM) was first described as an entity in the 1960s but its clinical significance, the optimal screening strategies, diagnostic criteria and the value of treatment have been the subject of intense debate. As currently defined, GDM includes a wide spectrum ranging from previously unrecognized diabetes through to relatively trivial degrees of glucose intolerance. Whilst the former pregnancies are genuinely high risk, the major outcome of the latter is an increase in birth weight - a surrogate measure of debatable clinical relevance. In 2008, a large multicenter observational study (Hyperglycemia and Pregnancy Outcomes study, HAPO) confirmed that there was no threshold of glycemia that defined a high-risk group and that many of the outcomes attributed to modestly elevated blood sugars are confounded by maternal obesity.

In 2010, based on their interpretation of the HAPO results, an expert body known as the International Association of Diabetes in Pregnancy Study Groups (IADSPG), suggested significant changes to the diagnostic criteria that would increase the proportion of pregnancies diagnosed 2-3 fold to 18-20%. Despite there being no trial evidence that outcomes of clinical significance would be improved by this change, it was swiftly adopted as policy by the influential American Diabetes Association and has subsequently been endorsed in several other countries.

The Agency for Healthcare Research and Quality of the National Institutes of Health recently commissioned a systematic review and convened an independent panel to consider the diagnosis of GDM. In its preliminary report (March 2013) the panel rejected the IADPSG proposal, expressing concern about the adoption of new criteria that would increase the prevalence and the corresponding costs and interventions, without clear demonstration of improvements in clinically important outcomes.

This is an interesting example where authoritative independent review has apparently checked a substantial move to overdiagnosis.

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Abstract # 152 - MENTAL HEALTH CARE WITHOUT DIAGNOSIS: BEST PRACTICES

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In the field of mental health, diagnoses are highly subjective and often do not exactly fit the experiences of the people being diagnosed. Worse, the stigma attached to mental illness means that people can be harmed simply by having a diagnostic label applied to them. In this workshop, I will introduce examples of successful programs that meet common goals of mental health treatment without diagnosing people as “mentally ill.” These goals include helping people get through emotional crisis safely, and reducing violence in the community. We will discuss ways of helping people recover from mental distress without being limited to diagnostic labels.

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Abstract # 154 - REFINING THE CONCEPTS OF OVERDIAGNOSIS, MEDICALIZATION, AND DISEASE MONGERING

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Background: 'Disease mongering' appeared in the medical literature in 2002 and generally describes how commercial interests come to outweigh those of the patient in labeling and treating disease. This critical terminology generally fails to make adequate reference to the related theoretical concepts of overdiagnosis and of medicalization -- the process by which ordinary life experiences become defined and treated as medical problems.

Aims: To define the conceptual boundaries of overdiagnosis, and develop a graphical model for its detection and description.

Methods: I used Medline and hand searches to identify key articles addressing overdiagnosis, disease mongering and medicalization. To analyze and distinguish these three concepts, I used examples drawn from the medical and social science literature, and from advertisements.

Results: Current concepts of overdiagnosis and disease mongering were found to overlap substantially and are problematic in that they lack agreed means of detection and measurement; mongering in particular fails to adequately distinguish appropriate from harmful promotion of disease awareness. Overdiagnosis and disease mongering may arise from other than commercial incentives, but still depend on the motivated promotion of disease labeling or treatment.

Conclusions: Disease mongering and overdiagnosis have profound implications for medical practice,

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Abstract # 155 - PERFORMANCE OF THE UKPDS RISK ENGINE IN A UK COHORT OF PATIENTS WITH TYPE 2 DIABETES: A VALIDATION STUDY.

Christian Bannister, Sara Jenkins-Jones, Chris Morgan, Craig J Currie, Glyn Elwyn, Irena Spasić, Chris D Poole.

Objective To evaluate the performance of the UK Prospective Diabetes Study (UKPDS) Risk Engine for predicting the 10-year risk of various cardiovascular disease endpoints in an independent UK cohort of patients newly diagnosed with type 2 diabetes.

Design Retrospective cohort study to validate a cardiovascular risk score with routinely collected data between April 1998 and October 2011.

Setting Around 350 general practices from the United Kingdom contributing to the Clinical Practice Research Datalink (CPRD).

Participants 79,966 patients aged between 35 and 85 years (388,269 person years) with 6,227 cardiovascular events.

Main outcome measures Four primary outcomes were evaluated: first diagnosis of coronary heart disease (CHD), stroke, fatal CHD and fatal stroke.

Results The UKPDS CHD equations showed poor calibration, severely overestimating CHD risk (fig. 1). The UKPDS stroke equations showed calibration ranging from poor to moderate (fig. 1). The UKPDS risk equations overestimated the risk of CHD, fatal CHD, stroke and fatal stroke by 269% (95% CI 255-285%), 539% (489-600%), 144% (136-153%) and 95% (85-107%), respectively. The UKPDS risk equations showed moderate discrimination in all four outcomes, with the C-index values ranging from 0.65 to 0.78. In the CPRD cohort, all the UKPDS risk equations showed a reasonable ability to identify high-risk patients (discrimination), but were generally poor at quantifying their risk (calibration). The UKPDS stroke equations performed relatively well by comparison, whereas the UKPDS CHD risk equations consistently overestimated absolute risk.

Conclusions The over estimation of cardiovascular risk by the UKDPS risk equations may lead to unnecessary targeting of patients for preventative strategies. Accurate estimation of absolute risks is important not only for communicating information on prognosis to patients and practitioners, but important for estimating the balance of potential benefits and risks of individual preventive treatments. Due to the large number of false-positive results observed in this study, use of the UKPDS risk engine in clinical practice may lead to ‘overtreatment’ of patients with type 2 diabetes.

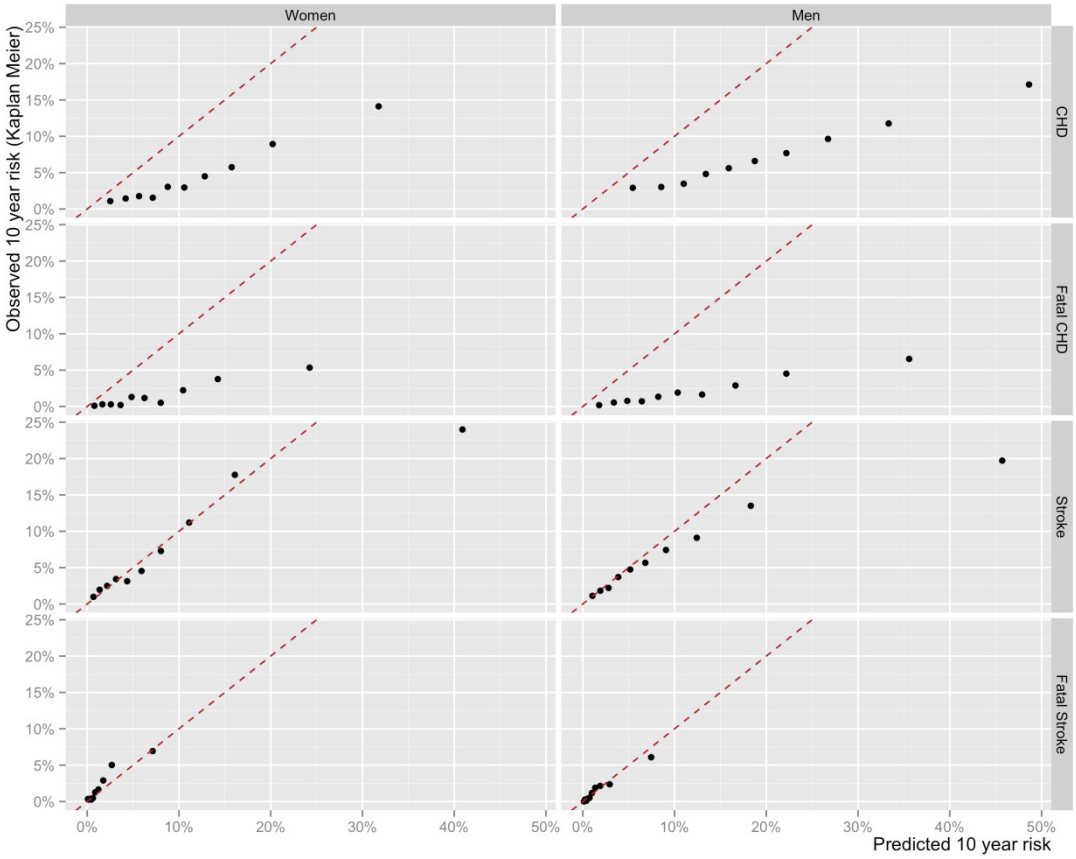

Fig 1. | Observed versus predicted grouped by tenth of predicted risk.

Abstract # 156 - THYROID CANCER OVERDIAGNOSIS: CURRENT STATUS OF THE PROBLEM IN THE UNITED STATES

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Background: We have previously reported on a doubling of thyroid cancer incidence – largely due to the detection of small papillary cancers. Because they are commonly found in people who have died of other causes, and because thyroid cancer mortality had been stable, we argued that the increased incidence represented overdiagnosis.

Aims: To determine whether thyroid cancer incidence has stabilized. Main outcome measures are thyroid cancer incidence, histology, size and mortality.

Methods: Analysis of secular trends in patients diagnosed with thyroid cancer, 1975-2009, using the Surveillance, Epidemiology, and End Results (SEER) program and thyroid cancer mortality from the National Vital Statistics System.

Results: Between 1975 and 2009 the incidence of thyroid cancer nearly tripled: from 4.9 to 14.3 per 100,000 (absolute increase = 9.4 per 100,000 , RR = 2.9, 95% confidence interval [CI]: 2.7 – 3.1). Virtually the entire increase was attributable to papillary thyroid cancer: from 3.4 to 12.5 per 100,000 (absolute increase = 9.1 per 100,000, RR = 3.7, 95% CI: 3.4 – 4.0). The absolute increase in thyroid cancer in women (from 6.5 to 21.4 = 14.9 per 100,000) was almost four times greater than that of men (from 3.1 to 6.9 = 3.8 per 100,000). Mortality from thyroid cancer was stable between 1975 and 2009 (approximately 0.5 deaths per 100,000).

Conclusions: There is an ongoing epidemic of thyroid cancer in the United States. The epidemiology of the increased incidence, however, suggests that it is not an epidemic of disease – but an epidemic of diagnosis. The problem is particularly acute for women.

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Abstract # 157 - MANAGEMENT OF INCIDENTALOMAS FOUND ON RADIOLOGIC IMAGING STUDIES: DISCOVERING WAYS TO STOP THE TRAIN BEFORE IT LEAVES THE STATION

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Background: Incidental findings on radiologic imaging studies contribute significantly to the problem of overdiagnosis. Our understanding of the individual patient experience of incidentaloma is limited. Thyroid disease provides a good example for study: it is estimated that at least 20% of thyroidectomies are performed as a result of thyroid findings uncovered on imaging tests performed for other reasons.

Aim: Using thyroid disease as a template, develop a general method of registry creation for incidentalomas to: study the impact on patients lives, document clinician behavior, and develop interventions to decrease unnecessary downstream tests and procedures.

Methods: Incidentaloma cases were identified using natural language search from the radiology report database of one institution. Medical charts of identified patients were reviewed to document clinician action and the patient's notification status. Notified patients were contacted by phone for structured interview about the patient experience of incidentaloma.

Results: Survey of patient experience could be completed with less than 1/3 (41/131) of patients identified as having an incidentaloma. The main barrier was unclear notification status in the medical chart. Study protocol did not allow contact with patients or physicians when notification status of the patient about the incidentaloma finding was unclear. Among patients who were successfully contacted, more than 1/3 (7/19) expressed no recollection of being notified of the incidental finding, raising concerns about both the validity of the classification of notification status, and the meaning of patient notification as a general concept.

Conclusions: Developing a registry of incidentalomas presents particular ethical and logistical barriers. One potential solution: creation of clear notification strategies and guidelines for action, so that the study group may be clearly defined, may have unintended consequences. Notification of patients and clinicians about every incidentaloma may worsen the problem the registry is designed to understand and solve: overtreatment of clinically unimportant findings.

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Abstract # 161 - CLINICAL PRACTICE GUIDELINES: WHY WE CAN'T TRUST GUIDELINES AND A PROPOSAL FOR CHANGE

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We document several instances of industry influence over the promulgation and promotion of clinical practice guidelines and we examine the dilemma confronting doctors who believe guidelines are not supported by the evidence, and we look at the frequency of industry involvement in guideline writing overall.

We illustrate the "double jeopardy" of patient harm and physician conundrum when biased guidelines are issued, with a case in which guidelines were followed even though the overwhelming majority of doctors thought they were biased. In this case, doctors cited grave harms including a likely increase in overall mortality caused by the treatment; only 6% said the guideline should be a "standard of care" – yet when asked if they would continue giving the treatment, 60% said they would, citing fears of professional censure and malpractice suits. This case and others like it point to the ethical dilemma doctors face when biased guidelines are promoted, and they beg the question: How did processes intended to prevent or reduce bias in guidelines, fail?

We will present a novel method to rate clinical guidelines developed by an independent panel of nationally recognized and respected experts in methodology.