7th International Conference for EBHC Teachers and Developers

Evidence for sustainability of healthcare

Increasing value, reducing waste

Taormina (Italy), 28th – 31st October 2015

EBHC International Conference 2015

Abstract Book

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EVIDENCE FOR HEALTH

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ORAL PRESENTATIONS

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1. A NEW APPROACH TO CPGS ADAPTATION IN SAUDI ARABIA

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BACKGROUND Adaptation of a clinical practice guideline (CPG) is the systematic approach to considering the use and/or modification of a guideline produced in one setting for application in a different context. Worldwide, adaptation is widely accepted as an alternative to de novo CPGs particularly where skills for developing CPGs are lacking, as it is the case in SA where few CPGs exist.

AIMS To develop 10 adapted CPGs in a four months period without compromising the quality, through the recently established Saudi Centre for EBHC.

METHODS Ten priority CPG topics were suggested by stakeholders representing major specialties. The relevant published CPGs were retrieved, screened and appraised to meet the inclusion criteria. Members from Saudi Specialist Associations were identified and were asked to rank 3 to 10 recommendations for each CPG. Search was updated, Evidence to Recommendation (EtR) tables were formulated, and two day workshops between panel members and McMaster's support team, to issue the adapted recommendations considering the benefits, harms, values preferences, costs, resources, feasibility and equity.

RESULTS Ten adapted CPGs have been achieved.

LIMITS Implication for guideline developers/users: The experience to deliver adapted CPGs in a short period is feasible but challenging.

CONCLUSIONS This unique collaboration between several institutions has, to our knowledge, not been previously reported. Multidisciplinary team was sought but was difficult for non-medics to be effectively involved. There were three conditions for success: a) committed stakeholders, b) scientific support, c) strict project management. Dissemination and implementation are underway. Building local capacity is the long term goal.

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2. SHOULD EVIDENCE BE OBTAINED BY RCTS ONLY? THE ROLE OF RCTS AND REAL LIFE STUDIES FOR BETTER DECISION IN RESPIRATORY MEDICINE

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BACKGROUND Randomized clinical trials (RCT) are recognized as the "gold standard" for evaluating treatment outcomes. Usually they are planned to test a new drug in comparison with the reference drug in a well defined therapeutic area. In order to avoid confounding factors, RCTs are carried over under optimal conditions: selected patients (pts), ideal settings, high level management etc. Randomization assures that pts are similar in different treatment groups (Saturni et al, 2014). Thanks to their rigorous methods, RCTs have the greater level of evidence when a Guideline is prepared by experts of a scientific society. In the real world, pts are different than those enrolled in RCTs. Usually they suffer from different diseases, assume other drugs, are managed in routine clinical practice, and their care could be affected by a great attention to costs and resource consumption. Furthermore, the adherence to treatment is lower than in RCTs. Real life studies should be interesting because they represent the real management of pts, but the lack of randomization introduces a bias that could garble the results.

AIMS our aim is to discuss the role of RCTs and real life studies to evaluate clinical outcomes.

METHODS we focused our attention to the respiratory therapeutic area. We identified RCTs on new respiratory drugs (published during the last 5 years) and real life studies dealing with asthma and COPD management. Furthermore we found some prevalence data on asthma and COPD, and drug utilization data. These data could give us an idea about the care of asthma and COPD in Italy.

RESULTS usually pts recruited in RCTs represent a little part of pts suffering from asthma and COPD. Published data state that asthmatic pts in RCTs represent less than 6% of asthma pts (Chetta et al, 2014), and 17% of COPD pts (Scichilone et al, 2014). We found some very interesting real life studies (usually retrospective studies), dealing with some important outcomes of respiratory diseases management. They could provide very useful data but they miss a lot of data. This doesn't enable to understand the relationship between a certain disease management and some important adverse effects (e.g. incidence of pneumonia related to the use of inhaled steroids) (Janson et al, 2013). Real life data on prevalence of asthma and COPD show a under diagnosis of both diseases (Healthsearch, 2013-2014). Drug utilization data represent a under treatment of asthma and COPD, with 14.3% of pts receiving at least 80% of Defined Daily Doses (DDDs), and 59.6% of pts receiving less than 20% of DDDs (Osmed, 2013).

LIMITS our research is based on published data only. Unpublished data could provide different aspects and point of view.

CONCLUSIONS clinical data provided by RCTs could be a good starting point to include a certain drug in a formulary. Furthermore, clinicians should consider that adherence to a treatment has a crucial role in increasing efficacy. Adherence in real life is certainly lower, and the effectiveness is lower than efficacy too. Age of pts, co-treatments and other pts characteristics can interfere with the prescription of the therapy in real life setting. These aspects affect the effectiveness and safety profile of a drug. The lack of randomization makes these date unreliable to decide, but they are a good starting point to generate a hypothesis to verify through a specific RCT. Finally, payers should pay attention in deciding on RCTs only. They risk to pay for a ideal efficacy, buying a lower effectiveness. Carrying out a real life study, corrected with a randomization list should be a good compromise, in order to have real life procedures and adherence to a specific drug, with a sufficient internal validity. It is well known that some similar studies (e.g. the Salford Study) are ongoing.

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3. INCREASING VALUE OF SYSTEMATIC REVIEWS: THE RE-SCOPING PROCESS FOR BMJ CLINICAL EVIDENCE

Blaine Caroline, Brunnhuber Klara

BMJ

BACKGROUND BMJ Clinical Evidence is an online database of systematic overviews, launched in 1999. With each content update, topics have grown in scope and/or the underlying evidence base, increasing the complexity and length of updating. This has also made it increasingly difficult for users to navigate the resource and quickly find the relevant information.

AIMS In the 2013-14 cycle of updating, we decided to re-scope all 253 BMJ Clinical Evidence topics to focus on areas where an overview of the evidence would have maximum impact on clinical decision making.

METHODS The editorial teams, led by a clinical editor, met with each topic's expert contributors to identify the key clinical questions where there were uncertainties or emerging evidence. A new structured topic landing page was designed that discusses the rationale for the chosen topic coverage,summarises the search and appraisal, and provides clinical comments on the evidence.

RESULTS All 253 BMJ Clinical Evidence topics have now been re-scoped. With the broad range of common clinical conditions covered, the editorial team has used a variety of approaches to find the most important clinical PICO (population, intervention, comparison and outcomes) questions that matter. For some topics, the key aspect of interest is a specific population (e.g., people with rheumatoid arthritis who are treatment naive), for others an emerging intervention (e.g., online interventions for bulimia nervosa), or a particular comparison (e.g., versus active interventions rather than placebo). Sixty-four of our 253 overviews have now completed the updating cycle, with new reviews being published every week. Re-focusing has reduced the average time for updating by one third, with one third of topics now being published within 6 months of the search date.

LIMITS Once all 253 topics have completed the updating cycle through to publication, we will need to audit the entire process to inform the next round of scoping. We will also evaluate the impact on usage figures and gather user feedback on the refocused overviews.

CONCLUSIONS Re-scoping to focus on areas where a review of the evidence matters is helping to make our overviews more relevant and current.

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4. EBRNETWORK: A CALL TO ACTION FOR MORE (EFFICIENT) SYSTEMATIC REVIEWS

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Evidence-based Research Network

BACKGROUND Evidence-based health care depends on relevant research results. Thus scientists are expected to refer to earlier research results when they argue for the need for a new study or summarise its results. But research on research shows that the chosen references are often insufficient and biased towards the interest of the researchers; that researchers are not supported (through funding, time, training) in the production and updating of systematic reviews; and that there is a need for new ways of conducting systematic reviews that are more efficient yet rigorous.

AIMS To address these problems, a group of Norwegian and Danish researchers have initiated an international network, the 'Evidence-Based Research Network' (EBRNetwork - www.ebrnetwork.org). With initial partners from Australia, the UK, USA, Canada, Denmark, the Netherlands and Norway, the Network was established in Bergen, Norway in December 2014.

METHODS We are presenting the findings of several relevant studies, including the use of previous research by scientists; the problem of on-going research after a benefit or harm of an intervention has been unequivocally established; and an international comparison of research funders, regulators and publishers regarding policies mandating systematic reviews prior to new research. We issue an invitation to join the EBRNetwork and will work with the members of the audience toward identifying and prioritising key initial work-streams.

RESULTS The alarming findings of the identified research have shown that too much health and medical research is unnecessary, unethical, unscientific, and wasteful.

LIMITS Numerous studies have indicated that researchers across numerous clinical specialties do not perform, update or even cite a systematic review of the available evidence before new research is initiated. However, it is not known if this is a general problem within all areas of health research.

CONCLUSIONS The new EBRNetwork is an international collaboration that aims to ensure that no new studies are approved, funded or published without systematic review of existing evidence; and works towards more efficient production, updating and dissemination of systematic reviews. The Network issues a call to participate in developing a consensus statement to accomplish these aims.

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5. IMPLEMENTATION OF OUT-OF-OFFICE HYPERTENSION MONITORING IN THE NETHERLANDS

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BACKGROUND Out-of-office BP monitoring is promoted by various clinical guidelines given the need to properly diagnose and effectively manage hypertension and engage the patient in their care process. Compared to the guidelines by the National Institute for Health and Clinical Excellence, the Japanese Society of Hypertension and the European Society of Hypertension , the Dutch cardiovascular-risk management guidelines do not explicitly prescribe out-of-office BP monitoring methods. Considering that widespread practice of out-of-office BP measurement follows the successful implementation of guidelines on ABPM and HBPM, an investigation into the use of these two methods by patients' needs to look into the uptake of guidance by physicians as well.

AIMS The aim of the study was to gain in-depth understanding of patients' and physicians' acceptance and use of 24-hour ambulatory BP monitoring (ABPM) and the home BP monitoring (HBPM) in the Netherlands as methods for out-of-office BP monitoring and study the role of the guidelines in the prescription of ABPM and HBPM by physicians.

METHODS Focus group discussions (FGDs) with patients and physicians were conducted to explore the acceptance and use of ABPM and HBPM. To facilitate the FGDs, a questionnaire was used as a guide based on the Technology Acceptance Model, the Theory of Planned Behavior and the Model of Personal Computing Utilization. The audio-recordings of the FGD sessions were transcribed verbatim by a third-party transcribing company and the transcripts analyzed by qualitative content analysis with a directed approach.

RESULTS ABPM is out-of-office BP monitoring method of choice as no patient was prescribed and has experience with HBPM. Enabling conditions, perceived usefulness, perceived ease of use and attitude are major facilitators for the acceptance and use of ABPM by patients and physicians. Social norm is a factor for physicians' prescription of ABPM but not for patients. Physicians have reservations about the self-efficacy of patients in doing out-of-office BP measurement. Physicians have reservations about the value of guidelines in general. There appears to be a selective uptake of the CVRM guidelines given the acknowledgement of the benefits ABPM over OBPM but not HBPM. Contrary to the advice of the guidelines, physicians show a strong preference for ABPM even as patients have feedback poor tolerance with use. Technological, individual and environmental contexts determine acceptance and use of ABPM. The interaction of factors that determine acceptance and use of ABPM is dynamic among patients but not for physicians.

LIMITS Since we included physicians (and patients) who were willing to take part in the research, we may have had GPs who were relatively more positive about out-of-office BP monitoring in general and of ABPM in particular. Quantitative research, nonetheless, provides information about the potential generalizability of findings. Even as we were not able to include patients with experience in HBPM to take part in the study, we have no reason to expect that that non-acceptance of HBPM among GPs is limited to our sample.

CONCLUSIONS This study sought to investigate patients' and physicians' use and acceptance of out-of-office BP monitoring in the Netherlands. For ABPM we were able to identify the factors that influence acceptance by the patients and GPs: enabling conditions, perceived usefulness and perceived ease of use. There were notable differences in the adoption processes of GPs and patients. Physicians continue to prescribe ABPM even with the feedback from patients about their negative experience. In comparison to ABPM, HBPM is hardly offered and, thus, used as a method of BP monitoring outside of the clinic. This indicates that for patients, the acceptance process of this innovation can only begin after the GP has adopted the innovation.

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6. STUDENTS AND EARLY CAREER PROFESSIONALS AS CHANGE AGENTS

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BACKGROUND Since 2011 the University of Dundee and NHS Tayside have been collaborating on improvement projects led by students and junior doctors using the IHI Improvement Practicum.1 In 2014 we tested BMJ Quality2; an online workspace that supports individuals and teams through healthcare improvement projects and on to publication in a PubMed listed open access journal.

AIMS 1. Form inter-professional teams with students and Early Career Professionals (ECPs, healthcare professionals in their first five years since graduation or following a change in career direction into education, management or research). 2. Establish criteria for partnership on implementation between the University of Dundee and NHS Tayside. 3. Develop an evaluation plan with the Scottish Improvement Science Collaborating Centre3

METHODS We formed improvement teams with Medical, Dental and Nursing students and ECPs first by identifying targets that were important to NHS Tayside and then by finding clinical teams who were willing to host projects. We worked with the Academic Health Sciences Partnership in Tayside4 to secure funding for an organisational subscription and to agree a contract between the University, NHS Tayside and BMJ Group. We are developing an evaluation plan within SISCC's Capacity and Capability Building Research Theme.3

RESULTS Our test supported seven student projects (five medical, one dental, one nursing) and eight ECP projects. We received monthly reports on project progress and participants' completion of eight online modules on Quality and Safety in Healthcare. Three student projects have already been published: two from medicine 5, 6 and one from nursing 7. Students gave positive feedback on the modules, particularly on the use of process mapping to develop a systems approach relevant to the contexts in which they were working, which was critical to success of one of the completed projects.5 Funding from NHS Tayside and the University has enabled an organisational subscription from April 2015 to May 2016 for 250 users, of whom at least 50 will be students. The contract is with the University of Dundee but includes explicit recognition of partnership with NHS Tayside. Goals for the partnership are: 1. At least one project is focused on the interface between social care and healthcare 2. The projects extend across the whole system 3. Projects and teams are inter-professional 4. Projects demonstrate team working and are not person dependent 5. Projects are coherent with NHS Tayside's QI programmes Criteria for registration are: 1. Participants complete the eight Quality and Safety in Healthcare online modules 2. Participants contribute to submission to BMJ Quality Improvement reports according to standard criteria for authorship in healthcare journals. 3. Participants contribute to evaluation through collection of data for NHS Tayside's Return on Investment analysis and/or for the SISCC Capacity and Capability Building research theme3 4. Participants look for opportunities to build on their experience through engagement with more than one QI project and by supporting the formation of a QI Faculty to help others to get started.

LIMITS 1. Our published projects are insufficiently inter-professional. Students have worked on projects with multi-professional clinical teams but team members have not been involved in evaluation or publication. 2. None of the published projects has taken advantage of the Money Matters resource in BMJ Quality. Return on Investment is critical to the sustainability of this work and future projects must include estimation of savings from reducing variation and harm.

CONCLUSIONS Students and ECPs can lead successful improvement projects. Evaluation needs to focus on how this might impact on clinical team and organisational culture as well as on the facilitators and barriers to successful projects.

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7. FROM SQUIRE 1.0 TO SQUIRE 2.0: A NEW WAY TO EVALUATE AND UPDATE PUBLICATION GUIDELINES

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BACKGROUND The Standards for Quality Improvement Reporting Excellence (SQUIRE) guidelines were published in 2008 to increase the completeness, precision, and accuracy of published reports of systematic efforts to improve the quality, value, and safety of healthcare. Since that time, the field has expanded. We asked people from the field to evaluate the Guidelines, a novel approach to a first step in revision of a publication Guideline.

AIMS Aims: Understand people's experiences with and impressions of the SQUIRE Guidelines. Specifically: determine how people interpret and apply the items of SQUIRE; outline barriers to writing about healthcare improvement work; and identify key emerging issues for those doing scholarly healthcare improvement writing.

METHODS Methods: Evaluative design using focus groups and semi-structured interviews with 29 end users and an advisory group of 18 thinkers in the field in the style of participatory action research. Sampling of end users was purposive to achieve variation in work setting, geographic location, area of expertise, manuscript writing experience, healthcare improvement and research experience. The advisory group was chosen to achieve balance by gender, profession and training.

RESULTS Results: Study participants reported that SQUIRE was useful in planning a healthcare improvement project, but not as helpful during writing because of redundancies, uncertainty about what was important to include, and lack of clarity in items. The concept 'planning the study of the intervention' (item 10) was hard for many participants to understand. Participants varied in their interpretation of the meaning of item 10b 'the concept of the mechanism by which changes were expected to occur'. Participants disagreed about whether iterations of an intervention should be reported. Level of experience in writing, knowledge of the science of improvement, and the evolving meaning of some terms in the field are hypothesized as the reasons for these findings.

LIMITS Limits: It is possible that the findings here are incomplete - that we missed an important impression or opinion about the SQUIRE Guidelines. While we sampled until saturation was achieved, the absence of specific findings in any qualitative approach does not mean the findings do not exist. Because there are populations we did not reach, such as people who had not published improvement work, their views are not captured here. Additionally, the interviews were conducted in English, thus some nuances in expression may not have been fully expressed or received from non native English participants in the study.

CONCLUSIONS Conclusions: The original SQUIRE Guidelines help with planning healthcare improvement work, but are perceived as complicated and unclear during writing. Key goals of the revision will be to clarify items where conflict was identified and outline the key components necessary for complete reporting of improvement work.

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8. VALUE OF AN ECONOMIC ANALYSIS ON DIAGNOSTIC TESTS CONDUCTED FOR THE PNEUMONIA NICE CLINICAL GUIDELINE

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BACKGROUND The National Clinical Guideline Centre (NCGC) is a leading centre in the UK for the development of evidence-based clinical practice guidelines commissioned by the National Institute for Health and Care Excellence (NICE). Recommendations in NICE guidelines are often based on original economic modelling as both cost and cost-effectiveness have to be considered by the Committee. In the past several diagnostic strategies that have been incorporated into guideline recommendations stemmed from the results of economic models developed at the NCGC.

AIMS To present our experience in the development of an economic model on microbiological tests for the Pneumonia Guideline (CG191) and illustrate how both results and limitations of the model were considered when making recommendations in the clinical guideline.

METHODS Patients with moderate- and high-severity community-acquired pneumonia (CAP) commonly receive a suite of microbiological tests on admission to hospital with the hope of isolating a causative pathogen. Due to high mortality rates, correct antibiotic treatment is essential. However, it is unknown if the additional cost of tests to identify the pathogens provide additional benefits in terms of patient outcomes. An economic model was developed which assessed the cost-effectiveness of various tests, in isolation or combination, including an 'all tests in combination' strategy. In the model, individuals were given either targeted treatment (based on the pathogen susceptibility to possible antibiotics) or empirical treatment according to the correct or incorrect identification of the pathogen, which in turn depended on the sensitivity and specificity of the test used. As a result, the probability of patients being alive or dead at 30 days was determined by whether patients received the appropriate antibiotic treatment or not, as well as on pathogen-specific mortality probabilities. Outcomes of each strategy were translated into quality-adjusted life years (QALYs) and together with costs were compared in an incremental analysis, using the £20,000 per QALY threshold set by NICE. A series of sensitivity analyses were conducted to test the robustness of the model results to the change in some key parameters and assumptions.

RESULTS In the base case, the most cost-effective microbiological testing strategy was to perform a blood culture and a sputum culture. It was agreed that the model was unable to capture all the benefits from targeted treatment, therefore a threshold analysis was conducted which showed that the gain from targeted treatment would need to be above 0.0134 QALYs before all tests in combination would become cost-effective. This value was discussed by the Guideline Committee; given the uncertainty as to whether this value is reasonably achieved, the Committee decided to make a weaker recommendation on additional tests such as antigen tests. These results led to a firm recommendation to conduct blood and sputum cultures and a 'consider' recommendation for pneumococcal and legionella urinary antigen tests.

LIMITS The model may have not fully captured the benefits of conducting all microbiological tests as no decrease in mortality was assumed with targeted treatment for some of the pathogens. Overall, the model could not capture the real benefits from targeted antibiotic treatment as there is no accepted method for quantifying the costs and QALY associated with antimicrobial stewardship.

CONCLUSIONS The economic model was able to identify a diagnostic strategy to be recommended, while a simple review of accuracy studies would have never been enough to identify the optimal combination of tests. The limitations of the model were also taken into account in the decision-making process, which was reflected in the different strength of the recommendations made. Reducing the need for inappropriate antibiotics may lead to long-term economic benefits, on both an individual and societal level, through the use of lower cost antibiotics and the continued ability to use basic antibiotics for common conditions. With the development of new antibiotics slowing, this is a key issue, both in terms of costs and quality of life. Also, the economic model identified some important areas for future research which are necessary to determine the real benefits of more accurate and extensive microbiological tests for patients with CAP, such as consequences of antimicrobial resistance. Currently, a NICE guideline is under development on this issue.

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9. IDENTIFYING THE IMPACT OF RESEARCH ON PERFORMANCE OUTCOMES AND PATIENT EXPERIENCES: AN ALLIED HEALTH PROFESSIONAL PERSPECTIVE

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BACKGROUND Kryzyzanowska et al (2011) recognise that public and policy makers are intuitive about their support for research, particularly clinical trials but are less aware of the complex interaction between patient needs, treatment intervention and the healthcare systems delivering that care. They suggest that a greater understanding is needed about the improvements in infrastructure and processes of care that result from research activity and explore how mechanisms are justified and desirable to achieve the research impact. Using complex adaptive systems theory (Gell-Mann 1994) we recognise that research outcomes are not static or fixed in time but operate as a feed-back learning loop that may be beneficial to the healthcare organisation. The effort and energy required to engage in writing research proposals has many by-products in terms of knowledge generation and leadership (Zahra& George 2005) in a health care context. An active research environment may serve to promote collaboration, an enterprising culture and may ultimately bring increased health and wealth to the population. The current need is to find out more about the ultimate effect on patients communities and contextual factors in provider services and how these sit within the meso organisational environment with local policy and reform; this can include the level of talent or experts and the technical opportunities in the system (van Gijn 2010). For this appraisal, publication rates, impact factor and citations and income metrics are inadequate.

AIMS A systems approach to assess the impact of research in a provider organisation allows a specific focus on patients and the human resource who contribute to both clinical care and academic outputs. The public are entitled to know that health research is resulting in some pragmatic changes to practices whilst also acknowledging the need to invest in longer term, high priority areas that have shown beneficial returns (Glover et al 2014). The impact case studies submitted as part of the Research Excellence Framework have gone some way to evaluate the wider impacts of academic studies including health policy and improved health systems; including economic advantages (Hanney & Gonzalez 2014) but this study aims to demonstrate the impact of research activity on patients' experience and organisational performance in a single NHS provider setting; showing how research has had an effect on practice and a health economy across agencies/institutions.

METHODS A patient collaborator supported the project and we engaged a public and patient involvement panel in a case based approach to qualitatively assess the learning and development that had resulted from 2 years of active engagement in research across an NHS Directorate, supported by a confirmed research strategy and capacity building initiatives. In addition we analysed the data collected across the organisation, comparing the outcomes of research participation for the Allied health professionals as leaders and partners in research activity including bid writing, research delivery and publication

RESULTS The metrics identified in the organisation include number of bids and successful grants obtained, income and collaborations. These impacts on the Directorate have resulted in an achievement of a new status; 'academic directorate'. Over 10% of the clinical workforce are research active but the impact of research activity in the workforce and consequently on patient care is more intangible. Patient influence on topic identification, selection and the process of building bids and delivering protocol is evident. Wider collaborations and clinical influence on academic settings are reported and beneficial with the longer term opportunities to build programmes of high quality research.

LIMITS This study is a preliminary assessment of impact that requires a longer term perspective to map impact on improvements in health and wellbeing and even specific and sustained improvements in health care (Graham et al 2012). A sustained focus on research impact is on-going and further infrastructure is needed to engage AHPs in shaping research priorities (Pickstone et al 2008)

CONCLUSIONS Allied health professions are quickly developing as researchers, collaborators and contributors to a wide range of research that generate knowledge that is immediately usable in the health care setting. Evaluation of research Impact shows immediate benefits in terms of individual knowledge and skills and a sharing of evidence based practices across teams and the rehabilitation workforce. AHPs have appreciated knowledge-'navigators' to help them sustain their research activity and ensure that patient engagement remains central to their translational activity. Learning through collaboration HEI's are opportunistic. The impact of high -quality research in health care can be seen in the way that research protocols are influencing and systematising patient facing activity including the measurement of outcomes and evaluation of care.

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10. INCREASING ACCESSIBILITY, EFFICIENCY AND IMPACT FOR CLINICIANS AND SERVICE: NETWORKED EDUCATIONAL ENGAGEMENT FOR REMOTE AND ISLAND HEALTHCARE TEAMS

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BACKGROUND In Scotland, some 20% of the population live across 94% of the land mass defined as remote and rural, presenting particular challenges for remote/rural NHS Health Boards & Partnerships. With need to reduce costs and improve quality, there is a significant drive to redesign services, develop new roles and ways of working across the rural hospital and community workforce. It will also requires use of innovative new ways of training and educating staff to ensure improvement in quality of service at reduced costs. Delivering for Remote and Rural Healthcare (2008) "stated access, rural specific content and support for remote and rural learners as the key issues to be addressed (by RRHEAL)". RRHEAL is committed to the ongoing development of practical, structured educational resources/ networks that make links between existing resources, systems and institutions more effective. The Quality Strategy for NHS Scotland made clear Government's requirement for healthcare services to improve equity of access for all people in Scotland, geographical location should not be a barrier to access service. NES made clear commitment to such with NESs Inclusive Education policy, including specific instruction- inclusion of remote and rural learner needs. RRHEAL has a critical role enabling this policy to action. In context of the above, an Island Board sought interventions from RRHEAL to initiate and support educational engagement for isolated mixed discipline health teams across their dispersed island chain, citing the need to increase access to; Current, evidence based content Limit the cost and clinical service impact of travel to engage with educational opportunity Continuing Professional Development opportunities Potential for networking with peers, Professional support, aiding (recruitment &) retention. The potential for peer to peer discussion, supported critique and service development

AIMS To initiate a mixed discipline educational network with "priority" presented content and facilitated discussion for remote and island teams. To Improve access to inclusive and contextually appropriate education for remote teams focusing on application to practice/ service To improve efficiency in educational delivery and reduce service impact of clinical release To improve networking between teams in remote and island settings To improve knowledge navigation skills and utility of the existing evidence base- relating to presented subject material To develop re-usable educational resources for both asynchronous uptake alongside their benefit as skills & knowledge maintenance tools.

METHODS Initiation of a Video Conferenced (VC) educational network specifically for remote and islands teams. RRHEAL facilitate sessions, supporting networked discussion and debate. Utilisation of existing national Service Level Agreement for VC bridging service, so cost neutral and familiar engagement route to this end audience. Monthly sessions with a subject expert presenting EVIDENCE BASED content. Each session devoted half time to presenting content, with remainder for facilitated discussion and networking. Opportunity for sharing potential for applications of (presented) content to local best practice maximised.

RESULTS Evaluation reveals a high appeal for this format of delivery with regular engagement from staff based in remote locations and the smaller isles across Scotland. Some such isles are 320 miles+ from the nearest large town. Note –increasing numbers of presenters previously unfamiliar with use of VC for presenting and leading educational debate, now with support, developing skills with this format and uptake/ spread across their "home" organisations. This has resulted in at least 2 "spin off" VC educational programmes, fostering greater opportunity for inclusive educational engagement.

LIMITS Connectivity issues –some areas of greatest potential impact limited due to reduced connectivity / bandwidth Limited workplace access to computers/ VC Challenging to deliver broad based content to a mixed discipline, self selecting audience. However – this mixed discipline, generalist delivery is providing opportunity for service focussed networking and knowledge exchange whilst also generating subject request for further specialist development. Potential for progression and growth at scale.

CONCLUSIONS Audience acceptability for at distance educational networking in remote and island H&SC teams High appeal for presenters/ lead subject experts in accessing this otherwise hard to reach remote and islands audience. The need for greater resource in fostering professions & subject specific networking opportunities, higher volume/ focused content and the capacity to manage this within a fully developed host system. Video conference educational networks are functional and efficient in presenting and disseminating evidence based, context rich, applications focused sessions. Structured facilitation and supported engagement with strict adherence to VC Etiquette aids networking at distance.

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11. DISEASE ACTIVITY GUIDED MANAGEMENT AND PATIENT INITIATED APPOINTMENTS IN RHEUMATOID ARTHRITIS: A RANDOMIZED CONTROLLED TRIAL

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BACKGROUND Rheumatoid arthritis (RA) is a chronic inflammatory disease that causes chronic synovitis and progressive joint damage. The treatment of RA aims to reach low disease activity or remission in the individual patient, usually through regular appointments booked by the physician. If prebooked appointments does not improve patient outcome they contribute to a significant waste of healthcare resources and patient time. Patient initiated care, that is appointments booked when necessary by the patient instead of regular appointments booked by the physician, has been demonstrated to improve outcome an decrease visits in patients with established RA. Whether patient initiated appointments can be used in the everyday clinic setting, with established as well as newly diagnosed RA, remains to be elucidated.

AIMS to test the hypothesis that patient clinical outcome in Rheumatoid Arthritis can be improved by implementation of a patient initiated system of care.

METHODS An 18 month controlled blinded end-point 2-center study with 131 patients with established as well as newly diagnosed RA randomized to intervention (n=64) or control (n=67). The intervention group were guaranteed appointments to a rheumatologist within ten working days if they experienced a flare in disease activity. The control group were booked in advance according to guidelines. Independent assessments were performed at 0, 3, 6, 12, and 18 months. Outcome measures were disease activity score 28 (DAS28), VAS - satisfaction with and VAS - confidence in care and number of appointments to rheumatologist.

RESULTS Preliminary analysis indicates that DAS28 decreased in both groups with no significant difference between the groups. Median satisfaction and confidence in care were > 90 mm with no difference between the groups.

LIMITS The rheumatologists in the study were not blinded to group assignment of the patients and this may have influenced the care since clinical judgement rather than strict protocol was used. The randomization of the groups resulted in differences in disease duration which may have affected the outcome.

CONCLUSIONS This study shows that if disease activity guided management is applied patient initiated appointments can safely replace traditional care at a large scale to empower the patient in outpatient clinics. Interestingly a cohort including newly diagnosed RA could not replicate earlier results of outcome improvement with patient initiated appointments.

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12. OPTIMIZING INTERVENTION DESIGN TO CREATE SUSTAINABLE INTERVENTIONS

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BACKGROUND Interventions to support the implementation of clinical guidelines (such as education, audit and computerised prompts) have important but variable effects. Typically interventions are adapted for use because of prior experience without a full understanding of how and why they work. Psychological theory offers a structured approach to identify: why evidence translation falters (e.g. knowledge, emotion, confidence etc.); and associated evidence-based techniques (e.g. problem solving, feedback etc.) that can change behaviour.

AIMS To develop cost-effective and sustainable intervention strategies to implement evidence-based recommendations (i.e. managing diabetes outcomes, managing blood pressure, avoiding risky NSAID prescribing; and prescribing anticoagulants for atrial fibrillation) with potential high impact for UK primary care.

METHODS Semi-structured interviews with practice staff in primary care (n=60) were conducted to identify determinants of practice. Determinants were coded to theoretical domains and behaviour change techniques that are amenable to change. Interventions routinely available within the UK NHS were tailored (audit and feedback, educational outreach, computerised decision support, and patient-mediated interventions). Consensus panel meetings with patients (n=8), commissioners and clinicians (n=7) prioritised the selection of determinants and reviewed the acceptability of intervention strategies. The similarities and differences of determinants and associated behaviour change techniques across the different recommendations have been identified.

RESULTS Four tailored intervention strategies incorporating techniques known to change behaviour have been developed. We have pre-specified the active ingredients in a logic model for each recommendation. Interview studies with practice staff systematically identified barriers beyond knowledge and skills that are seldom included in intervention design (e.g. emotion). Determinants were identified by nurses, practice managers and doctors and varied by recommendation (e.g. risky NSAID prescribing was thought to be determined by environmental factors such as the accuracy of coded data; whereas people with atrial fibrillation were not prescribed anticoagulants because clinicians feared the occurrence from inappropriate prescribing). Consensus panel meetings allowed us to review strategies and explore the acceptability to patients, professionals, and commissioners prior to implementation. For example, the appropriateness and timing of computerised prompts were questioned for diabetes and hypertension recommendations.

LIMITS The effectiveness of these strategies is unknown and is being tested in two cluster randomised controlled trails. Parallel process evaluations will explore if the behaviour change techniques change behaviour as predicted by our logic models. Whilst determinants of practice may only be relevant to countries with a comparable primary care organisation, methods to identify determinants and incorporate behaviour change techniques are transferable.

CONCLUSIONS More patients could receive evidence-based care if interventions to change practice can be optimised. Tailoring routinely available interventions using psychological theory could offer a cost-effective method to improve the transfer of evidence based recommendations that can be sustainably delivered in routine health care.

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13. SCOTTISH IMPROVEMENT SCIENCE COLLABORATING CENTRE (SISCC). STRENGTHENING THE EVIDENCE BASE FOR IMPROVEMENT SCIENCE: LESSONS LEARNED

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BACKGROUND At the heart of the challenge facing health services, social care, and society as a whole, is how to design and deliver evidence-based, high quality, compassionate care and services that improve health and well-being and avoid causing harm, on a consistent basis. Quality improvement initiatives, which aim to improve health and social care services, often fail to use existing evidence. In part, this is due to lack of capacity and capability in evidence synthesis and evaluation, and limited knowledge of improvement science research. There are knowledge gaps in how to use and share the research, learning and experience arising from such initiatives. This can lead to improvement initiatives which are local, small scale, do not evaluate impact (positive and negative) and/or do not achieve the impact and outcomes anticipated. This is both wasteful and time consuming. Finding out how to improve outcomes through implementing change at scale is a significant challenge for health and social care systems internationally. In Scotland, a collaborating centre focussed on strengthening the evidence base for improving the quality of care has been established.

AIMS The Scottish Improvement Science Collaborating Centre (SISCC) aims to improve outcomes across four domains (safety and reliability, care and compassion, inequalities, and health and wellbeing) through developing the evidence base around how change can be implemented effectively at scale and how these changes can be successfully spread and sustained. Improving outcomes through implementing change at scale requires a strong evidence base to ensure that the changes result in positive outcomes, avoid harm, are sustainable and cost-effective, and can be replicated. Learning the lessons from recent and ongoing improvement science and implementation work in Scotland and beyond is a key step in understanding and developing the evidence base.

METHODS We have conducted a series of rapid studies, including: 1) a structured overview of the peer reviewed literature that report studies conducted as part of the core focus of the Collaborations for Leadership in Applied Health Research and Care (CLARHCs), Health Innovation and Education Clusters (HIECs) and the Scottish Patient Safety Programme (SPSP); 2) a thematic analysis of measurement domains for improvement initiatives; 3) a documentary analysis of propositions regarding change at scale. In addition, we have conducted workshops with those involved in large scale improvement initiatives to co-create a model that conceptualises the processes used for successful implementation of large scale sustainable change programmes.

RESULTS The analysis and collation of this work is underway and will be completed shortly, however, it is not available to report in the timeframe for submission of this abstract. We propose a presentation that provides an overview of the findings of this early work and which describes the ongoing and planned activity of SISCC. The work of the SISCC will help develop a rigorous evidence base of how large scale improvement initiatives, which are based on the best available research evidence, can deliver measureable and sustainable improvements in health and social care services and patient outcomes. The SISCC will facilitate the translation of knowledge from research and practice into frontline improvement in health and social care.

LIMITS -

CONCLUSIONS The SISCC will become a national resource and centre of expertise in Improvement Science Research, Development and Knowledge Translation. It will encourage and facilitate an evidence based approach to improving health and well-being across practitioners, policymakers and researchers, putting evidence at the heart of quality improvement in Scotland's health and care and will contribute to the knowledge base internationally.

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14. WHY NOT TURN IT THE OTHER WAY AROUND?

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BACKGROUND The new regulations and general guidelines for doctors' specialist medical training, issued in 2008 by the Swedish National Board of Health and Welfare, stipulate that the trainee should acquire a scientific approach, by attending a course and by carrying out an individual written work. However, it is unclear what is meant by the goal. This is reflected in the various specialist societies' different directives and the disparities in the design of the courses provided today. These courses have not always lived up to trainee-doctors' expectations. During spring 2012 we undertook two focus group interviews with trainee-doctors from various specialties, which revealed that trainee-doctors believe it is important to acquire a scientific and critical way of thinking in order to be able to examine their own practice and to respond adequately to the patients' questions. At the same time they expressed a wish that the education during the scientific courses should relate more to their own everyday practice than was the case at the time. This is in accordance with modern pedagogic theories about problem-based learning and is also what Ramsden suggests in Learning to Teach in Higher Education.

AIMS The aim of this project was to provide a course that corresponds to trainee-doctors' desire to acquire a scientific and critical way of thinking in order to be able to examine their own practice and to confront the challenges and the requirements from modern medical care. The aim was also to contribute to their development and competence as qualified consumers of scientific knowledge and to lay a foundation for their continuous professional development.

METHODS We designed an alternative course in research methodology that was introduced 2012 in Vänersborg, a small town in the northern part of Västra Götaland Region. The course is founded on EBM-pedagogics and problem-based learning according to McMaster, CEMB in Oxford and a course in critical appraisal for GP-trainees at the University of Copenhagen. The course includes a total of 20 days during a period of 3 months, whereof 10 days are devoted to independent work. During the introductory days, half-day work-shops in advanced literature-search in databases like PubMed, Cochrane, Best Practice, etc. are led by medical librarians. In another four day workshop students are introduced in critical appraisal of scientific articles on treatment and diagnostics, reviews and treatment recommendations, supervised by qualified researchers. Short lectures in research methodology, statistics, qualitative methods, ethics and presentation-techniques are interwoven into five days of seminaries, spread out over the course. Under the supervision of qualified researchers the students work in groups with an individual in-depth project concerning a problematic issue in every day practice, like a medical treatment or a diagnostic method, formulated in the PICO-format. Background, method, result and discussion, based on the existing literature or own generated data, is then presented in writing and orally in front of an audience. The course has now been given annually since 2012 for totally 75 students from various specialties. It has continuously been evaluated in writing according to the LEARN concept. Oral evaluations from the students have also been asked for at the end of each workshop-day. The course has then been, after the final exam, evaluated with a questionnaire, translated and modified from Ramsden, in which the students are requested to answer multiple choice questions about whether the course had met their expectations, if the teachers seem to bother about their competence and wishes, if they perceived the course to be relevant for their practice, etc.

RESULTS The course is currently valuated very highly among the students according to the continuous evaluations. More detailed results from the questionnaires will be presented in the oral presentation.

LIMITS Today there is a worry in the scientific society that young doctors feel reluctance towards research and becoming researchers. Our course contains a minimum of research methodology and does not prepare the student for doing actual research; there are no requirements for students to collect, process and analyze new data by using quantitative or qualitative methods.

CONCLUSIONS Today trainee-doctors are asking for the skills to critically examine their own methods and to address well-informed patients when they come with their questions. Our course in critical appraisal, basic research methodology, literature search and a supervised extended essay in a clinical problem has proven to meet their expectations. That fact that some of them found scientific research so fun and stimulating at the end of the course, which was far from what they had imagined at the onset, opens for the possibility that one day they will reassess their original aversion to research and start doing research.

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15. TO BE OR WHAT TO BE? LEADERSHIP ROLES IN CONDUCTING QUALITY IMPROVEMENT WORK GUIDED BY NATIONAL QUALITY REGISTRIES

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BACKGROUND According to role theory, a successful leader is flexible and dynamic between the professional role, system and context. Role theory focuses on the finding, taking and making of a role. Leaders and managers have an important role in healthcare quality improvement (QI) but what is it that we need from them and want them to do? A Leadership program aiming at increasing leaders QI capacity and capability was initiated in Stockholm County Council in 2014. The Leadership program focuses on QI theory, coaching methodology of healthcare improvement and the use of data from National Quality Registers (NQRs). The Leadership program runs in parallel with another program aiming at educating healthcare improvement team coaches with representatives from the leaders organizations.

AIMS The aim of this study is to explore the role of leaders in QI initiatives. What are the opportunities and challenges of managing continuous, sustainable improvement work?

METHODS This exploratory study includes interviews and pre- and post surveys with leaders attending the Leadership program starting in 2014. The 7 semi-structured interviews was analyzed using qualitative content analysis, descending in meaning units, codes, categories and themes. Survey data was collected before the leaders started the 10 month Leadership program and follow up data will be gathered at the end of the program in June 2015. Descriptive statistics will be used to present survey data.

RESULTS Leadership roles have been studied in a limited width and the actual doings of successful and unsuccessful leaders have raised many questions through the years. In this study, exploring the roles of leaders in QI have hopefully got us a bit closer to understanding the phenomena. The main findings considering the roles of leaders include having clear aims and expectations, giving relevant support, reinforcing, being flexible and dynamic, being engaging and genuinely interested in the progress of the projects by conducting structured follow-up, having coaches guiding an improvement team and help spread QI knowledge, having more scheduled time for QI and promoting good communication. Combining these features with the work of a coach guided improvement team, would provide continuous improvement work with many opportunities for success. Coaches can help leaders build a structure around effective QI work by guiding the improvement team, knowing the tools, reporting progress and enhancing individual development. Challenges for sustainable QI work mainly involved lack of resources and a need for more education on the “how” for leaders fostering sustainable QI efforts. Leaders do indeed understand the importance of QI in health care, but the assumption of leaders knowing exactly how to manage QI projects has proven to be false. The NQR´s are considered important, however used scarcely in some organizations. This study provides several suggestions for an increased use of NQR´s. The main problem seems to involve structure and technique; not having NQR data integrated to the medical records makes the workload concerning data handling difficult and time consuming, resulting in a delay in getting data and dis-engagement of staff. Also, some of the current indicators are considered irrelevant for the users and a more patient centered approach is desired, in form of indicators reflecting the reality of the patient and his/her background, adapting the registries more to the population. The leaders do see the advantages with the use of registries for improvement work and think they could help to bring about larger-scale improvements if developed according to the wishes of the users. Furthermore, some concrete suggestions are more frequent reports from the registries and making data more reachable. An enhanced dialogue concerning the improvements of the registries should be highlighted; recent changes conducted without a dialogue with the users, has merely resulted in decreased usefulness of the registries.

LIMITS Only a third of the participants of the leadership program were interviewed, which can be seen as a limitation mainly considering the saturation of the material. However, while conducting the last interviews, the researcher did get many similar answers and hardly any new insights from the participants. Moreover, when comparing the results with previous studies, a red thread could be seen.

CONCLUSIONS A leaders role is to be active, involved, positive and interested, which can support staff to stay focused and achieve sustainable outcomes. Challenges include lack of time and staff and know-how about QI. However, they get support from improvement coaches. The structure and order, which imprints the coaching method, can free time for other tasks and result in more efficient organizations. To increase the use of NQR´s, they should be developed considering e.g. data management, relevance of data and more frequent reports.

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16. EXAMINING THE EFFECTIVENESS OF BLENDED LEARNING FOR TEACHING EVIDENCE-BASED MEDICINE

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BACKGROUND Evidence-based medicine (EBM) requires mastery of a variety of disciplines including clinical epidemiology, biostatistics, informatics and information literacy. To accommodate these different disciplines and learning styles, a multifaceted approach to teaching EBM has been proposed. Few studies have been performed to inform how best to teach EBM to medical trainees. Evidence to date has confirmed that any form of teaching increases learner competency in EBM. However, there remains little evidence to distinguish which form of teaching is most effective at increasing learner competency in EBM.

AIMS The aim of this study was to compare the effectiveness of a blended learning versus didactic approach of teaching EBM to medical students with respect to competency, self-efficacy, attitudes and behavior toward EBM.

METHODS A mixed methods study consisting of a randomized controlled trial (RCT) and qualitative case study was performed with medical students undertaking their first clinical year of training in EBM. Students were randomly assigned to receive EBM teaching via either a blended learning approach or the incumbent didactic approach. Competency in EBM was assessed using the Berlin questionnaire and the "Assessing Competency in EBM" (ACE) tool. Students' self-efficacy, attitudes and behavior was also assessed. A series of focus groups was also performed to contextualize the quantitative results.

RESULTS A total of 147 students completed the RCT, and a further 29 students participated in six focus group discussions. Students who received the blended learning approach to teaching EBM had significantly higher scores in 5 out of 6 behavior domains, 3 out of 4 attitude domains and 10 out of 14 self-efficacy domains. Competency in EBM did not differ significantly between students receiving the blended learning versus didactic approach [Mean Difference (MD) = -0.68, (95%CI -1.71, 0.34), p=0.19]. No significant difference was observed between sites (p=0.89) or by student type (p=0.58). Focus group discussions suggested a strong student preference for teaching using a blended learning approach, which integrates lectures, online learning and small group activities.

LIMITS Whilst students were compliant in their uptake of the teaching intervention, less than 30% completed the outcome assessments. This unexpected low completion rate may have underpowered the RCT. Students with a higher ability and affiliation with the teaching content are more likely to respond to survey requests and assessments in projects.

CONCLUSIONS A blended learning approach is no more effective than a didactic approach at increasing medical students' knowledge and skills in EBM. However, a blended learning approach to teaching EBM was significantly more effective at increasing student attitudes toward EBM and self-reported use of EBM in clinical practice. Given the various learning styles preferred by students, a multifaceted approach (incorporating blended learning) may be best suited when teaching EBM to medical students.

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17. PERCEPTIONS AND ATTITUDES OF PRIMARY CARE PHYSICIANS TOWARD LOW-VALUE PRACTICES AND UNNECESSARY CARE

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BACKGROUND ESSENCIAL is a healthcare project launched in Catalonia (March 2013) which promotes and develops actions towards avoiding overdiagnosis and overtreatment in the clinical practice. Physicians play key role in these processes and their views provide valuable information for better targeted policy interventions to reduce unnecessary care.

AIMS Our objective is to explore and describe physicians' knowledge, attitudes and perceptions towards overdiagnosis and overtreatment in primary care.

METHODS Anonymous online survey targeting general practitioners (GPs). Issues covered include: general awareness and understanding of concepts, perceived role, views on driving forces and need for interventions to support change in diagnostic and prescription routines. Survey was piloted before its launch and specific strategies to maximize the response rate - user-friendly format, pre-notification and reminders - were applied. Response frequencies are calculated and correlation analyses run for pre-selected variables.

RESULTS The validation of the questionnaire led to improvements and resulted in 25 questions. The preliminary analyses of the initial responses suggest that the GPs are aware of existing practices of overidiagnosis and overtreatment (67,5% consider them frequent and 54,0% identify them in their daily practice). Reported as driving forces: clinical uncertainty (75,6%), lack of time for meaningful conversation with the patient (62,1%), insufficient evidence knowledge (43,2%) and patient demand (43,2%). The majority report speaking with their patients about the potential harms and side effects (56,7%), but less frequently about the care cost (41,0%). Interventions to support doctor-patient shared decisions are identified among the enablers to lower unnecessary care.

LIMITS Response rate is limited to date, but this is an ongoing study and more extensive analyses of the findings will be presented at the conference.

CONCLUSIONS Overdiagnosis and overtreatment practices are frequent in primary care and GPs are aware of that and of existing driving forces behind these phenomena. Training and evidence-based updates, as well as tools to support doctor-patient shared decisions have important potential to lower unnecessary care.

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18. REFLECTING UPON LONG TERM SUCCESS: A NEW APPROACH TO ASSESSING SUSTAINABILITY IN QUALITY IMPROVEMENT INITIATIVES

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BACKGROUND Strategies such as models and frameworks have been proposed to influence sustainability in healthcare improvement projects but the practical application of these strategies is often not considered and the translation of these frameworks into everyday practice poses a significant challenge to professionals. From 2008-2013 teams at Collaboration for Leadership in Applied Health Research and Care for Northwest London (CLAHRC NWL) used the NHS Institute for Innovation and Improvement Sustainability Model (SM) to help teams identify factors affecting sustainability and take action to improve long term success. The SM was useful in measuring teams' views on sustainability but securing engagement with the model was a significant challenge. To maximise the use and impact of using such strategies there is a need to assess and adapt them in healthcare settings with those who will use them in practice.

AIMS To update and adapt the SM to develop a practical and user-friendly approach for teams to promote long term success of their projects.

METHODS A review of the literature was conducted to validate factors included in the SM as well as determine the need for further factors to be included and explore methods of articulating concepts in intuitive, user-friendly ways. Fifteen strategies for influencing sustainability were identified and common themes were extracted. Facilitated group discussions allowed stakeholders from improvement teams to share their thoughts on clarity and relevance of the factors identified and identify any missing factors (n=74). Interviews to gather information on value and design of an updated approach were held (n=12), and a pilot version of the approach was trialed with stakeholders including project members, academic partners, and patients and carers (n=84). Overall perceptions and opinions were gathered and used to iteratively adapt the framework and tool.

RESULTS The updated approach has adapted SM domains with stakeholders and has added additional factors not originally covered such as aligning improvements with the external political and financial environment, explicitly considering resources needed for the improvement and involving people other than clinical staff members in the work. The 'Long Term Success Framework and Tool' have been designed based on current literature, past experience and continual stakeholder input and testing. The framework provides improvement teams with an overview of 12 factors known to influence sustainability of improvements. The chosen factors have been carefully selected and refined by stakeholders to achieve clarity and shared understanding (listed below): 1.Commitment to the improvement 2.Involvement 3.Skills and capabilities 4.Leadership 5.Team functioning 6.Resources in place 7.Evidence of benefits 8.Progress monitored for feedback and learning 9.Robust and adaptable processes 10.Alignment with organisational culture and priorities 11.Support for improvement 12.Alignment with external political and financial environment Each factor is accompanied by a short prompt as well as questions to consider which allows team members to reflect upon elements involved within each factor and consider what it might mean for them in their settings. The 'Long Term Success Tool' provides a structured mechanism to put the framework into action. It allows team members to individually rate the factors and have their team scores aggregated into a project level report which includes simple statistics and visual charts highlighting areas of risks and areas where the team is doing well.

LIMITS While attempts have been made to respond to stakeholder preferences it is important to note that some challenges could not be avoided and remain the subject of study in the next phase of this research. For example the use of "multiple barreled questions" (within every factor multiple components must be judged) was raised as an issue by some stakeholders. In order for the tool to remain concise and practical, expanding all factors was not deemed desirable. The issue of finding balance between usability and comprehensiveness was a key challenge throughout this work.

CONCLUSIONS This work provides valuable information on the process of developing an approach to sustainability that works for those in practice and provides much needed insight into how strategies can be adapted in order to maximise engagement and impact. The development of the Long Term Success Framework and Tool has reinforced the importance of designing strategies not only for stakeholders but with stakeholders. The value of receiving ongoing feedback from those who will use the approach cannot be underestimated. Formative evaluation has identified many issues with language, length, and practicality that have resulted in a tool with greater practical application and value. The tool is now being tested by all teams at CLAHRC NWL. Further development and adaptation l are planned in the next year to respond to user needs and address any identified issues.

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19. DEVELOPMENT AND VALIDATION OF THE EVIDENCE-BASED PRACTICE ASSESSMENT TOOL (EPAT)

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BACKGROUND Evidence-Based Practice (EBP) has been proposed for optimal patient care for more than three decades, yet competence in EBP among health professionals remains difficult to measure. Existing assessment tools are limited to measure the participants' searching and critical appraisal skills while the application of evidence through effective communication with clients and evaluation of quality of care are not included. Thus, there is a need to develop a new tool for measuring all five steps of EBP competence in healthcare professionals.

AIMS To develop and validate an assessment tool for measuring evidence-based knowledge and skills in healthcare professionals (This is a multi-phase study thus only the content evaluation of the ePAT will be presented at the conference)

METHODS The development of the evidence-based Practice Assessment Tool (ePAT) was based on the elements within the EBP competency framework (Displayed at the poster session), the Shared Decision Making Model and the Transtheoretical Model of Health Behaviour Change. The ePAT is a modified Fresno test consisting of five main questions developed for use by a range of healthcare professionals thus a common illness in children is used in the clinical scenario. The estimated time for completing the tool is 30 minutes. Question 1 measures the skills of participants' in writing a focused clinical question for a defined clinical scenario (Adapted from the Fresno test), followed by two multiple choice questions where the study type and design relevant to the clinical question are to be selected. Question 2 assesses the literature searching skills for research evidence (Adapted from the Fresno test). Question 3 consists of six short questions where the critical appraisal skills in interpreting findings from an evidence summary will be measured. Question 4 measures how research evidence is integrated with the bio-psycho-social context of patients through the conceptual framework of shared decision making. Question 5 evaluates the quality of care for the clinical problem through engagement with relevant clinical behaviours (activities) linked to the EBP processes.
The content evaluation of the ePAT: A panel of 42 medical and healthcare academics, researchers and clinicians from different Australian universities evaluated the representativeness (content relevance and coverage), clarity (item construction and wording) and comprehensiveness (coverage of content domains) of the ePAT against the elements within the EBP competency framework from August to December, 2013. A purpose-specific questionnaire was developed to record their views and agreements to construct items of the ePAT. This study was approved by the Human Research and Ethics Committee of the university and all questionnaires were completed anonymously.

RESULTS Content expert agreement on the representativeness (ICC: 0.79, 95% CI: 0.67-0.87; P<0.0001) and clarity (ICC: 0.66, 95% CI: 0.48-0.80; P<0.0001) of the ePAT ranged from good to substantial. The majority of the panel (97%) agreed that the ePAT has a comprehensive coverage of elements for measuring competence in EBP.

LIMITS The limitations of this study are the sample size and the use of purposive sampling through the academic network of only one university, however, this network did extend across a number of affiliated educational institutions and research centres within Australia.

CONCLUSIONS The development of the ePAT is innovative and imperative to evidence-based practice healthcare education and research. The findings suggested that the content validity of the ePAT is deemed to be good. The research team is in a process of testing other psychometric properties of the ePAT and results will be available by mid 2016.

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20. PHYSICIAN PROBABILITY THRESHOLDS FOR RULING OUT AND INITIATING TREATMENT FOR COMMON CLINICAL CONDITIONS

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BACKGROUND In medical decision making literature, little data exists regarding how health care providers decide when to treat suspected clinical conditions and when to comfortably 'rule out' clinical conditions.

AIMS The purpose of the study is to gather data on the decision making practices of family physicians regarding common clinical scenarios. This study helps provide insight into how physicians view the diagnostic workup and treatment of these scenarios, and how varied these views are between physicians and across different clinical conditions.

METHODS This is an observational study of physician estimates of 'rule out' and treatment initiation thresholds of common clinical diseases. Resident and faculty physicians at a Family Medicine Residency in Westminster, CO are selected to complete a survey. Within this group no exclusion criteria is defined. For several common diseases, the physicians are asked to define two thresholds; one for their probability threshold at which they feel comfortable 'ruling out' the common clinical condition, and one for their probability threshold for initiating treatment for the common clinical condition. The diseases surveyed include strep pharyngitis, pulmonary embolism, pediatric appendicitis, meningitis, and influenza. Providers are asked to record their probability thresholds as percentage numbers between 0 and 100%, with 0% meaning that the patient has a 0% likelihood of having the given disease and 100% meaning that the patient has a 100% likelihood of having the given disease. Partially completed surveys are included in the analysis for the parts of the survey that were completed. Non-number responses or number responses outside of the 0-100 range are not be included in the analysis.

RESULTS Data collection for this study is currently in progress. Means will be presented for each clinical condition for both treatment initiation and 'rule out' probability thresholds. Standard deviation data will be presented for each clinical condition to illustrate the degree of variation in probability thresholds that exists across providers. Data will also be broken down by education level to illustrate how probability thresholds differ across education level. To evaluate the differences in probability thresholds across different clinical conditions, a 2-sided, paired t-test calculation will be run head to head for strep pharyngitis vs. pulmonary embolism to determine if the 'rule out' thresholds are statistically significantly different between diseases (P

LIMITS The study size is not intended to be large enough for validation purposes; rather it is designed as a sample size to collect initial investigatory data. Secondly, responses to the survey may be subject to round number bias.

CONCLUSIONS 1. It is hypothesized that physicians will have a narrow variation of probability thresholds for 'ruling out' disease. For each separate clinical condition, the standard deviations of this probability threshold data, on a scale of 0-100% disease probability, will be less than 10% disease probability. 2. It is hypothesized that physicians will have a narrow variation of probability thresholds for initiating treatment for a disease. For each separate clinical condition, the standard deviations of this probability threshold data, on a scale of 0-100% disease probability, will be less than 10% disease probability. 3. Physicians will have lower probability thresholds for 'ruling out' diseases with more severe negative consequences (strep pharyngitis vs. pulmonary embolism). 4. There will be a qualitative difference between the 'rule out' thresholds of PGY-1 residents, PGY-2 residents, PGY-3 residents and faculty physicians for any of the diseases.

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21. RESEARCH-COMPETENCIES ASSESSMENT INSTRUMENT FOR NURSES (R-CAIN)

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BACKGROUND Translating health-related research findings into practice and policy is essential for improving quality and efficiency of health services and care provider, patient, and system outcomes. Registered nurses (RNs) as knowledge workers and professionals need to be equipped with certain competencies in using evidence, and research findings in particular, to make clinical decisions. In British Columbia, Canada, the Health Services Researcher Pathway (HSRP) study was commissioned by the Michael Smith Foundation for Health Research (MSFHR; http://www.msfhr.org) to develop a comprehensive professional development tool for research competencies (i.e., knowledge, skills, attitudes) for registered nurses at different career stages. The initial tool illustrates nurses' involvement in research process, data analysis literacy and knowledge translation activities; and guides progress through five levels (i.e., the first three articulated as research users and the latter two as research producers) in research competencies using various criteria and indicators to demonstrate enactment of these research competencies and self-study resources for professional development. Based on this initial work (http://www.msfhr.org/health-services-researcher-pathway-0), we developed the "Research-Competencies Assessment Instrument for Nurses (R-CAIN)".

AIMS To describe the newly developed R-CAIN and report the preliminary findings of its psychometric properties.

METHODS Using the peer-reviewed literature and focus groups and interviews with registered nurses, the self-administered R-CAIN was developed. The six-point Likert research-competencies measure includes items assessing nurse perceptions on competencies of research process, knowledge synthesis and knowledge translation activities. We are in the process of collecting data. We recruit study participants through the INnovative health Services and Practice Informed by Research and Evaluation NETwork (InspireNet - http://www.inspirenet.ca), which is British Columbia's Health Services Research virtual network with more than 4,000 members. Our target population is RNs who are employed in any healthcare facility within British Columbia; engaged in clinical practice, leadership (e.g., managers, supervisors, CSNs), education (i.e., instructors, faculty members), administration (e.g., managers, directors), and/or research (e.g. nursing researchers); and are members of the InspireNet. The collected data will be used for testing the psychometric properties of the R-CAIN.

RESULTS We will report the preliminary findings of the psychometric evaluation in the presentation.

LIMITS 1. Specific target population (i.e., registered nurses in British Columbia) and convenient sample 2. Long survey questionnaire (i.e., about 60-70 min to complete)

CONCLUSIONS Nurses should be able to appraise the literature, choose the best available evidence and apply research findings for evidence-based practice and quality of care. The newly-designed R-CAIN tool, derived from the HSRP study, is a valuable source for professional development to potentially improve nurse research competencies; assesses modifiable personal characteristics in nurses; and has the potential to explain variance in important practice processes and healthcare-system and patient outcomes. The R-CAIN can be used by practicing nurses, educators, and healthcare employers to assist: • Nurses themselves in improving research knowledge and skills by continuing education; • Educators in developing curricula in order to nursing students and graduates accomplish research competencies; and • Healthcare organizations in achieving consistent and sustainable evidence-based care for high quality health outcomes and efficient system performance. Further assessments of the R-CAIN psychometric properties are underway.

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22. TRANSLATING EVIDENCE INTO RECOMMENDATIONS IN THE CONTEXT OF RAPIDLY EVOLVING EVIDENCE AND URGENCY: EXPERIENCE WITH EBOLA RAPID ADVICE GUIDELINES

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BACKGROUND The 2014-2015 outbreak of Ebola virus disease in West Africa led to widespread outcry for evidence to inform decisions related to care. An area of risk that had largely been ignored during the current and previous EVD outbreaks was the area of surgery and anesthesia. Consequently, surgeons, anesthesiologists, obstetricians, midwives, and other members of the surgical team have had to independently make decisions regarding the tradeoffs of continuing to provide surgery and other invasive procedures during an Ebola outbreak (wherein patients may present with diagnosed or unsuspected Ebola infection) versus reducing or abandoning usual service provision due to the inherent risks. In collaboration with the World Health Organization, we attempted to develop rapid advice guidelines for Evidence-Informed Surgical Decision-Making in the Context of Ebola.

AIMS 1) To compare and contrast the originally-defined scope and timelines with the actual scope and timelines (limited by realities of the evolving evidence base and changing relevance) of the Rapid Advice Guidelines development group. 2) To share and reflect on our experience of attempting to produce rapid advice globally-relevant guidelines in the context of complex evidence, changing dynamics of disease, and contextual issues not related to evidence. 3) To derive and discuss take-forward lessons for future situations where rapid evidence-informed guidelines are required in the context of high-stakes decision-making rapidly evolving evidence.

METHODS In collaboration with the World Health Organization, along with global and West African experts in infectious diseases, surgery, and anesthesia, we drafted a scoping document to outline potential clinical questions (PICOs) to be addressed in the rapid advice guidelines. Based on feedback the original 5 overarching PICOs were multiplied into more specific sub-PICOs. Rapid advice guidelines were planned according to the methodology outlined in the WHO Handbook for Guidelines (2014).

RESULTS Based on the original inclusion criteria, no evidence was found to inform any of the PICOs. This could have been the end of the process, and would have resulted in recommendations reliant on opinion rather than evidence (albeit, within planned timelines). However, the GDG was not satisfied that there was 'no evidence' to inform this high-stakes issue. In addition, the epidemic was changing rapidly, and surgical teams were exposed to EVD risks daily in West Africa. Consequently, the inclusion criteria was revised into a series of if/then statements, to outline a priority sequence of levels of evidence for eligibility in order to increase sensitivity (while sacrificing specificity) in the evidence (ie, RCT of EVD patients preferred; if none, then comparative observational studies of EVD patients preferred; if none, then non-comparative observational studies of EVD patients preferred; if none, then modeling and mathematical analyses preferred; if none, then case series or case reports preferred; if none, then repeat the sequence for other viral hemorrhagic fevers or other infectious agents which pose risk of transmission in the surgical and anesthesia setting. Since repeated searching across multiple databases and across multiple if/then statements was anticipated to be a challenge, we decided to perform a simple search in each database with maximized sensitivity (ie, ebola OR ebolavirus OR filovirus OR lassa or Crimean-congo OR bundibugyo OR "hemorrhagic fever" OR "haemorrhagic fever") without any limitations by study design, patient type, setting, or language. Using this sensitive search, all full-text articles related to ebola or hemorrhagic fever were collected. When electronic searches still failed to identify studies meeting the inclusion criteria, we manually screened the fulltext of each article. Interestingly, despite electronic searches failing to identify relevant studies, our 'manual' approach uncovered a significant evidence base. Also, unexpectedly, this approach revealed significant information to inform the Evidence to Decision Tables (ie, feasibility, cost, values, preferences) for issues which are typically reliant on opinion. However, this approach required several additional weeks.

LIMITS -

CONCLUSIONS In the context of new and emerging diseases with extreme time pressures, such as in the Ebola outbreak of 2014/2015, traditional approaches to evidence-informed guideline development may fail to identify the best evidence, and may lead to premature closure (and subsequent reliance on opinion) based on 'no available evidence'. Innovations for rapidly and effectively capturing, filtering, and synthesizing available evidence are urgently needed so that rigor can be maintained and reduce premature reliance on opinion. Furthermore, these innovations should allow for simultaneous capture of additional factors beyond the traditional evidence base which need to be incorporated into developing recommendations (ie, feasibility, costs, values and preferences).

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23. WHAT PROPORTION OF ANESTHESIA AND PERIOPERATIVE EVIDENCE IS VALID, RELEVANT AND PUBLISHED? WHAT PROPORTION IS WASTED?

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BACKGROUND Anesthesia, perioperative medicine and critical care represent areas of intense clinical intervention. The extent of evidence underlying this area of practice remains broadly uncharacterized and unquantified. Specifically, the proportion of evidence generated in the area of anesthesia, perioperative medicine and critical care has not been estimated. A better understanding of this evidence base would help to understand the extent of research waste, and could better inform future research priorities.

AIMS To estimate the extent of evidence in anesthesia, perioperative medicine, and critical care that is valid and relevant, and to quantify the proportion of research that is wasted.

METHODS Three methodologic approaches were employed to inform the successive research questions for the area of anesthesia, perioperative medicine, and critical care research: 1. What proportion of published studies are valid and relevant? 2. What proportion of proportion of studies remain unpublished (and of these how many would have been considered valid and relevant if published)? 3. What proportion of research is 'wasteful'? For interventions, validity was defined as studies that were randomized, and relevance was defined as studies reporting outcomes of clinical relevance. For the first question, all journals related to anesthesia, analgesia, critical care, and perioperative care indexed on MEDLINE were identified. For the second question, the www.clinicaltrials.gov database was queried for all studies related to this area since its inception, up to 2012, and linked to whether the study has been published to date. Unpublished studies are automatically defined as 'wasteful'. For published studies, those not meeting validity and relevance criteria are defined as 'wasteful'. The cumulative total of wasteful studies as a proportion of all studies in this area was calculated by combining published and unpublished 'wasteful' studies as a sum, divided by all studies published in this area.

RESULTS A total of 63 journals met the inclusion criteria. Of the studies published in these journals since the date of their inception to the end of 2014, the proportion that were valid and relevant will be defined. In addition, the trend over time will be demonstrated using dynamic bubble charts. Association of validity and relevance with Impact Factor will also be demonstrated using dynamic bubble charts. The unpublished evidence base in the area of anesthesia, perioperative medicine and critical care will be reported for the years since the inception of the www.clinicaltrials.gov database to 2012 Based on the information from #1 and #2, the estimated proportion of wasted research will be quantified, and the opportunity cost will be discussed. An appeal to the audience for improving future directions for research will be made, and feedback will be sought on how to crowdsource better solutions for "real-time" corrections in the evidence generation and synthesis process.

LIMITS Definitions of validity and relevance are necessarily pragmatic. Sensitivity analysis of a subset of journals, with more permissive definitions, will be reported.

CONCLUSIONS The proportion of studies in anesthesia, perioperative medicine, and critical care that are not valid and relevant, and the proportion of research in this area that is wasteful, is inexcusable. Future research should not proceed unless it is going to advance the knowledge beyond what is already known, and with the requirement that the results are made transparent upon completion.

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24. KAIZEN PRACTICE IN HEALTHCARE: A QUALITATIVE ANALYSIS OF HOSPITAL EMPLOYEES' SUGGESTIONS FOR IMPROVEMENT

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BACKGROUND Kaizen, or continuous improvement, lies at the core of lean, one of the most predominant management approaches in healthcare. While there is evidence that kaizen can contribute to short-term efficiency and quality gains, there are doubts about its long-term achievements.

AIMS The purpose of this study was to describe the content of employees' improvement ideas captured through kaizen templates, specifically in relation to the reactiveness or proactivity of the suggestions; organizational processes, degree of complexity, and outcomes addressed; and the compliance in the use of the template.

METHODS All kaizen templates produced by employees in eight units at a Swedish hospital during 2013 was collected. The text in the forms was analysed using directed content analysis and by calculating the proportion of templates that belonged to each category, i.e. reactive or proactive; technical, support, or clinical care process; simple or complex improvement area; operational or socio-technical outcome addressed; and degree of compliance.

RESULTS The 125 employees produced 186 improvement suggestions. Seventy-two percent of the improvement suggestions were categorized as reactive. Support, technical, administrative, and primary clinical processes were involved in 47, 38, and 16 percent of the suggestions respectively. In 89 percent of the cases, staff addressed problems and/or proposed suggestions categorized as simple. In 72 percent of the suggestions operative aspects of performance were addressed. The degree of compliance to items in the kaizen template varied, generally higher for items concerning problem identification and identification of possible solutions, and low for items related to test and implementation of solutions.

LIMITS The calculated frequencies and proportions constructed from information in the kaizen forms were based on qualitative judgements of two researchers in order to provide an overarching pattern and shall be interpreted with caution. To ensure reliability and validity in the analysis data was classified by two judges independently. Some kaizen forms contained less information and this may have introduced some bias as they were more difficult to categorize, hence the consensus discussion in the procedure.

CONCLUSIONS Kaizen empowers staff to identify inefficiency in their daily work and to improve operational performance in support and technical administrative processes. However, for healthcare organizations to overcome the pitfall of merely focusing on the short-term gains of improvement, CI programs need to be anchored in strategic goals and ensure cross-functional collaboration to address the complex task of improving the clinical care processes across organizational boundaries.

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25. INTEGRATING SELF-MANAGEMENT SUPPORT INTO CLINICAL PRACTICE

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BACKGROUND Diabetes Clinical Practice Guidelines highlight the importance of using self-management support (SMS) strategies in clinical practice. Key messages include the importance of using collaborative and interactive strategies, teaching problem-solving skills, and using strategies that empower individuals to make informed decisions. While embracing the importance of SMS, the task of actually integrating these strategies into daily clinical care presents a challenge for clinicians.

AIMS The aim of the project was to involve staff in a two-step process to implement and integrate SMS into professional practice in the eleven diabetes centres of a provincial health region.

METHODS Two diabetes centres volunteered to participate in the pilot phase. Project objectives were collaboratively developed and implementation sequence, defining what "SMS implementation" meant, and designating staff roles were determined. Collectively staff agreed which strategies were to be used with clients. The PDSA process was used to trial SMS techniques followed by a debriefing meeting one-month later. In addition, a logic model was developed and used to elicit and address perceived implementation challenges. As documentation is an integral part of SMS, a "stand alone" Excel spreadsheet was used by staff to enter SMS strategies used with clients. Integrating this type of documentation into the client record was addressed by the region's IT department and is now part of the patient record. An overall outcome of integrating SMS into clinical care was that clients would have greater knowledge, skills and self-efficacy in managing their diabetes. An activation measurement tool (Patient Activation Measure) was used to gauge client activation at baseline and again at 6 months following treatment. At the completion of the 12-month implementation process staff engaged in a process to reflect on their involvement in the project and to assess their experience in terms of what they had learned and ways which client care had been influenced. To assess the impact of incorporating SMS into clinical care on patient outcomes, staff participated in a nominal group process where they identified 30 ways that using SMS had influenced the interaction they had with clients. In order of importance, the 5 most important ways that client care had been influenced were: they were focussing on what was most important for the client; they were more organized in their delivery; they had partnership relationships with clients; there had been a change in the "power" relationship they had with clients; and they felt that clients were now more connected to the Diabetes Health Education Centre. To ascertain how the experience had influenced clinical practice, each team member wrote a one-page description on what they had learned during the project and whether their skill as a diabetes educator had been influenced. Team members indicated that they felt more connected and helpful to their clients because of the partnership relationship, that clients usually had their own agenda and would be more involved and engaged when they were given opportunities to participate in planning their own care. They mentioned SMS skills and strategies, particularly the skills to teach clients to make action plans and how to solve problems. Also highlighted were the techniques that enhance effective communication (e.g., ask-tell-ask and closing the loop), determining readiness to change, and general group skills such as brainstorming. The pilot team felt that their practice was now more organized in that they had a process and a framework to work with, and that all team members were now "on the same page." Also, they felt less pressured by not having to just present information. Overall, the team felt proud of what they had accomplished and were positive regarding how they were delivering diabetes services in that it aligns with best practice guidelines and the SMS strategies and techniques were "tried and true". Following the pilot, the remaining units formed three groups according to geographic region and convened three times over a four-month period to follow the same integration process.

RESULTS Self-management support was implemented and integrated into professional practice in the eleven diabetes centres of a provincial health region.

LIMITS Sustainability was identified as a pivotal consideration in deciding whether the process was successful. An ongoing committee comprised of diabetes educators was established, i.e., community of practice, to plan and implement ongoing activity to enhance continuity of self-management support in the diabetes centres.

CONCLUSIONS In this project we attempted to integrate self-management support into health professional clinical practice. Integration activities were consistent with processes recommended by evidence-based practice which included: incorporating best research evidence; acknowledging health professional' clinical expertise; considering the context in which clinicians work; and considering the patients' unique values and circumstances.

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26. RE-THINKING BERWICK: REDUCING WASTE IN HEALTH SERVICE COMMISSIONING AND DELIVERY IN ENGLAND

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BACKGROUND The NHS Five Year Forward Review (Stevens et al 2014) identified a funding shortfall for the NHS of almost £30 billion by 2020/21. A projected increase in the number of older people and those with long-term conditions will put pressure on health care budgets which will not rise at the same rate as need. It is clear that efficiency savings and re-design of services will not completely close the gap in funding and further measures are needed, particularly to ensure the sustainability of the NHS into the future. Estimates in the US suggested waste accounted for 20% healthcare expenditure and proposed a “wedges” model for reducing spending using a “stabilisation triangle” (Berwick 2012). Berwick et al calculated that reducing waste year on year could achieve stability and sustainability. An NHS programme called Future Focused Finance is a five-year vision for NHS finance professionals, clinicians, patients, and the public. The “close partnering” work stream of the programme promotes closer partnership working between clinical decision makers and finance staff and is examining how partnering between finance and clinical services can inform the reduction of waste in health care spending, specifically in the areas of overtreatment, over prescribing and failures in care delivery. The UK based Academy of Royal Colleges has also identified waste reduction and sustainability as key challenges for the NHS.

AIMS To test out models of waste reduction for applicability in the NHS and to develop a methodology for reducing waste in NHS health care.

METHODS A feasibility study to test out a methodology for reducing waste in the NHS: - Critical review of the literature - critically review existing models of waste reduction - identify and review sources of data - a pilot study using data from a mental health Trust - identify areas of good practice and successful waste reduction - identify and define areas of waste that can successfully reduce overtreatment and failures in care delivery.

RESULTS Identification of the challenges in developing a methodology Identified areas of successful waste reduction and application and impact of waste reduction tools Agreed definitions of waste reduction and identification of meaningful categories of waste in the NHS Agreed methodology.

LIMITS The lack of evidence to support a methodology that will lead to successful reduction in waste in health care delivery.

CONCLUSIONS A need to further develop the evidence base and methodologies for successful waste reduction.

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27. EFFECTS OF POSTGRADUATE EBP TRAINING ON SPEECH-LANGUAGE THERAPISTS MOTIVATION AND COMPETENCY

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BACKGROUND Education in evidence-based practice (EBP) was introduced in our curriculum of Speech-Language Therapy (SLT) 15 years ago. So, we should assume that many SLTs already know how to practice evidence-based, according to the methods they learned in University. However, the curriculum is still being modified and students' competencies in this area are getting more developed every year, so competencies of the practitioners show a gaps with those of students. In postgraduate courses for SLTs, there is a need for additional training in EBP. But what kind of training is suitable for filling the gaps between students and practitioners? Furthermore, effective EBP needs motivated practitioners, because there are many barriers that impede full implementation of EBP; it is often regarded as time-consuming and difficult to understand (when it concerns the appraisal of scientific literature). Therefore, it is useful to study how the motivation of practitioners is affected by postgraduate EBP training.

AIMS This study aims to describe effects of postgraduate training in EBP for SLTs in order to determine sustainability of EBP competencies. Furthermore, motivation for EBP is measured in order to relate this to changes in EBP competency.

METHODS This study describes a pre-post comparison of EBP competency and motivational beliefs in a group of nineteen SLTs who asked for an EBP training. The intervention comprised three training sessions following the the five steps of the EBP process according to Sackett (2000), starting with the formulation of clinical questions, relevant to the participants themselves, and ending with a written Critically Appraised Topic (CAT). The EBP competency was measured with an online version of the Dutch Modified Fresno test (DMF; Spek et al., 2012), which previously was administered to SLT-students and their lecturers. Motivational beliefs and self-efficacy of EBP were measured by a queationnaire (Spek et al., 2013). Additionally, post-test participants were additionally asked to evaluate the EBP-training by answering a small set of open-ended questions, these were qualitatively analyzed. The time interval between pre- and post-testing varied between 5 and 8 months.

RESULTS All nineteen SLTs completed the pre-test and nine of them completed the post-test. First, results from the pre-test are compared to scores from students and lecturers to identify the gaps between the three groups. Second, pre- and post-test scores will be compared in order to identify changes in competencies and atiitude towards EBP. Finally, qualitative analyses will result in additional data regarding the effectiveness of the training.

LIMITS Although this group of participants is not fully representative for all Dutch SLTs and post-test data are not complete, this study provided an opportunity to gain insight in possible effects of a short EBP training for SLTs and possibilites for using this type of training in comparable settings.

CONCLUSIONS Conclusions will be presented in regard to filling the gap in EBP competencies between graduate and postgraduate SLTs by using a short training. Finally, recommendations wil be given for continuation of this training in SLT and other disciplines.

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28. NATIONAL CLINICAL GUIDELINES FOR CANCER TRANSLATING EVIDENCE INTO PRACTICE: THE IRISH EXPERIENCE

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BACKGROUND The National Cancer Strategy (in Ireland, recommended that site specific multidisciplinary groups should be established at national level to develop guidelines for quality in major cancers, as there were no national evidence-based guidelines for standardised multidisciplinary patient care for cancer in Ireland.

AIMS The guidelines were developed to provide recommendations to clinicians in the Irish setting.

METHODS The methodology employed for the development of the guidelines was based on the steps of evidence-based practice1: Step 1. Develop Clinical Questions in PICO format • This defines the scope of the guideline, while focusing on areas of clinical practice where there was identifiable variation in practice or where there was new or emerging evidence. Step 2. Search for the evidence • Commences with International Guidelines. • Primary literature is searched based on the hierarchy of evidence. Step 3. Appraise the literature for validity & applicability • Guidelines are appraised using AGREEII instrument. • Primary papers are appraised using validated checklists. Step 4. Make recommendations • The evidence is applied in conjunction with clinical expertise and population values. • Recommendations are graded for each question. Step 5. Draft guideline prepared • Internal stakeholder review. • External international peer review. Step 6. Implementation The guideline development group involved a multidisciplinary team including radiologists, pathologists, surgeons, medical oncologists, radiation oncologists, palliative care consultants, nurses, librarians, researchers, economist, methodologist and project manager. Stakeholders were invited to review the draft guideline, including designated cancer centres, academic faculties, the GP/Family Doctors national representative body and patient support and advocacy groups. The implementation is based on a framework for analysing target behaviours in context and selecting the appropriate intervention functions and policy categories, using the Behaviour Change Wheel2 and WHO implementation outcome variables – acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, coverage and sustainability3.

RESULTS The NCCP breast cancer, prostate cancer and gestational trophoblastic disease guidelines are now available via the following web link:http://www.hse.ie/cancer/. The lung, gastrointestinal and gynaecological cancer guidelines are nearing completion. All cancer guidelines will be submitted to the National Clinical Effectiveness Committee (NCEC) in the Department of Health in Ireland for appraisal and national endorsement.

LIMITS The development of the guidelines is resource intensive and is a multi-year project. A wide range of disciplines was required for the guideline development process which required input from specialists outside the NCCP such as librarians and health economists

CONCLUSIONS The effects of change will be measured through NCCP Key Performance Indicators and National Cancer Registry data. The development and implementation of evidence based clinical guidelines requires commitment from a broad multidisciplinary group of clinicians, research staff and health service managers. Evidence based clinical guidelines will ensure standardised multidisciplinary care for patients, putting evidence into practice to improve patient outcomes. References 1. Sackett et al (2000). Evidence Based Medicine: How to practice and teach EBM. Churchill Livingstone, Edinburgh. 2. Michie et al (2011). The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions. Implementation Science 2011, 6:42. 3. WHO (2013). Implementation in Health. A Practical Guide.

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29. STANDARDS FOR QUALITY IMPROVEMENT REPORTING EXCELLENCE (SQUIRE 2.0)

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BACKGROUND The SQUIRE 1.0 guidelines were published in 2008 to reduce uncertainty about the information required in scholarly reports about healthcare improvement and to increase the completeness, precision, and transparency of those reports. Since then, the science of the field continues to advance with guidance now existing for how to do the following: apply formal and informal theory in the development and interpretation of improvement programs; identify, assess, and describe context; and describe interventions completely and clearly to improve reproducibility.

AIMS Revise SQUIRE 1.0 to capture the current state of the field yet leave space for further development. We describe the development of SQUIRE 2.0 and its key components.

METHODS SQUIRE 2.0 was developed from 2012-2015 using three components: (1) semi-structured interviews and focus groups with 29 individuals to evaluate SQUIRE 1.0 and feedback from an 18 member international steering group, (2) two face to face consensus meetings to develop interim drafts, and (3) pilot testing with 44 authors and an open public comment period.

RESULTS SQUIRE 1.0 was viewed as helpful in designing and doing improvement, but was deemed less helpful when writing about improvement. Using the process described above, SQUIRE 2.0 is now substantially revised and applicable to the wide range of methods used to improve healthcare. It also contains a glossary of key terms. SQUIRE 2.0 more clearly emphasizes the three key components that define current thinking about what is necessary in scientific efforts to improve the quality, value, and safety of healthcare. These components include the use of formal and informal theory in the planning of improvement work, a clear description of the context in which the work is done, and methods aimed at studying the intervention itself, not simply documenting its effects.

LIMITS This developmental program used multiple methods. The mix of qualitative and quantitative analysis, expert panel, pilot testing, and public feedback creates a rich milieu of information, but does not create evidence about the usability or efficacy of SQUIRE. This remains as part of future, necessary work. It is possible that a broad set of guidelines such as these may not be detailed enough for any one of the multiple methodologies that are used in the improvement of healthcare.

CONCLUSIONS SQUIRE 2.0 manifests changes in four areas: (1) terminology, (2) addressing theory, (3) describing context, and (4) studying the intervention(s). It is applicable to the wide range of systematic methods used to improve the quality, value, and safety of healthcare. SQUIRE 2.0 resulted from a detailed analysis of SQUIRE 1.0 and thorough pilot testing. Methods to improve healthcare are many and can be complex, multi-dimensional; consequently, SQUIRE 2.0 provides the common ground for these discoveries to be shared in the scholarly literature so as to advance the field.

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30. EXPLORING RETURN OF EVIDENCE-BASED PRACTICE BEHAVIOURS TO BASELINE AT FOLLOW UP AMONG CLINICAL INSTRUCTORS IN PHYSIOTHERAPY EDUCATION

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BACKGROUND The impact of an interactive and multifaceted training program (6 ECTS-credits) in evidence-based practice (EBP) on the knowledge, skills, attitudes and behaviour of clinical instructors (CIs) has previously been assessed in a non-randomized controlled trial, with 6-month follow-up. The 6-month training program (October 2008 - April 2009) consisted of four half-day workshop sessions covering the EBP steps and processes, including how to supervise students in EBP, written assignments related to real patient situations, supervision of these assignments and an exam. We assessed the impact of this intervention using three self-administered questionnaires at pre- and post-intervention, and at six-month follow-up: 1) The Adapted Fresno test (AFT), 2) the EBP Belief Scale and 3) the EBP Implementation Scale. The intervention was successful in improving CIs' EBP knowledge, skills and beliefs at both post-intervention and at 6 month follow-up. EBP behaviour change was achieved only at post-intervention.

AIMS To explore why long term EBP behaviour change measured by EBP Implementation Scale was not sustained among CIs who participated in an interactive and multifaceted training program in EBP.

METHODS In addition to the AFT, the EBP Beliefs and EBP Implementation Scale, we collected other types of quantitative and qualitative data during and after the intervention. We collected quantitative anonymous survey data on satisfaction with the training program among all participants (n=13), during the intervention (December 2008), and after completion of the intervention (May 2009). Participants rated their satisfaction with the intervention (useful, in line with expectations, program schedule/timing, course material, setting) on a scale from 1 - 5 (very poor to very good). Descriptive statistics, including mean, range and standard deviation (SD) will be calculated. In the surveys, participant also had to describe their positive and negative experiences with the intervention. One month after the completion of the intervention (May/June 2009), we conducted two focus group interviews among the participants, centering on their experiences related to: 1) the intervention, 2) use of EBP during and after the intervention, and 3) use of EBP in supervising students. After the intervention (May 2009) participants were asked to describe three EBP goals that they would work towards, and after the follow up (January 2010) they were asked to respond via email as to whether they had achieved the goals, and if not, what hindered them.

RESULTS Preliminary analyses of the focus group interviews indicate that some behaviour changes occurred shortly after the post-intervention period (May/June 2009). Participants described that they used their EBP knowledge and skills after the intervention to ask clinical questions, to search for research evidence, to teach EBP to colleagues, to critically appraise research evidence with students, to develop local clinical guidelines and to apply for funding for projects. Simultaneously, potential explanations emerged in these preliminary analyses that might explain why long term EBP behaviour change was not sustained. Participants experienced typical barriers such as lack of knowledge and skills in statistic and lack of time, as well as lack of confidence in EBP and a feeling of EBP not being integrated in their behaviour. Participants received support and supervision to practice evidence-based during the intervention, but after the intervention they might have felt left alone without this continued support. The final results from the quantitative surveys, including description of goals set and achieved, and results from the focus group interviews will be presented at the conference. With a more detailed analysis we aim to provide information on the degree to which the participants continued using EBP after the completion of the interventions and whether any actions for sustainability were initiated at the workplace, and to provide further explanations to why long term EBP behaviour change was not sustained.

LIMITS In hindsight, it is clear we did not plan or evaluate any aspect of sustainability during this project.

CONCLUSIONS Lack of an action plan for sustainability could explain why long-term EBP behaviour change was not achieved after participation in a training program in EBP.

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31. LOW-ADHERENCE TO RECOMMENDATIONS FROM AN AUTHORITATIVE CONSENSUS CONFERENCE ON TRIALS IN CGVHD LED TO OVERESTIMATION OF TREATMENT EFFECT

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BACKGROUND In a number of clinical areas, as oncology and rare diseases , the lack of robust methodology hinder the generation of reliable evidence to design therapeutic strategies for unmet clinical needs. To solve this problem, guidelines are often issued by experts consensus to help future research acquire valid data. However, the uptake and impact of these recommendations are unknown as well as the possible consequencies of an eventual low-adherence to them and the magnitude and direction of the results published.

AIMS To gain some insight in this matter, we studied Steroid-refractory Graft-versus-Host Diseases (SR-GVHD) for which, in spite of the 2006 NIH cGVHD Consensus Project recommendations (NIH-cGVHD-REC), three recent guidelines emphasized the lack of valuable evidence to support therapeutic recommendations.

METHODS A quasi-systematic review of non randomized studies for systemic treatment of SR-cGVHD was performed. Eighty-two studies (9 interventions) were retrieved. Most of them (73%) were funded by non pharmaceutical (academic, institutional) sponsors. Papers were published both in low-impact (under 4.5 points, 63%) or in high-impact journals (37%). To measure adherence to NIH-cGVHD-REC, we applied a 61-item checklist derived from the NIH Consensus Documents. Four trained, blind and independent investigators checked the articles for eventual deviations from consensus methodological recommendations and registered the Global Response rate (GR) for each treatment tested. Disagreements among investigators were resolved by majority rule or discussion (in case of a tie).

Meta-analysis was performed to measure pooled effect size for Global Response rate.

Meta-regression analysis verified the influence on GR of deviations from NIH-cGVHD-REC.

RESULTS Deviations were high in all studies published in the last 15 years and did not change significantly after publication of the NIH documents. Better adherence to NIH-cGVHD-REC items was associated with a significantly lower GR ($p=0.001$). Adherence to a specific subset of NIH-cGVHD-REC related to response determination appeared to be of particular importance in preventing an overestimation of the treatment effect.

LIMITS This investigation has been conducted in a field characterized for a particularly high number of obstacles opposing to the achievement of a good methodological quality, due to the rarity of the disease and the characteristics of the clinical picture.

CONCLUSIONS Significant methodological flaws conducting toward a relevant overestimation of treatment efficacy affect the large majority of the analyzed studies and the global uptake of NIH-cGVHD-REC was limited. Neither the provenience of funding nor the importance of the journal correlated with the quality of the published paper. In this setting academic research did not seem to perform better than the industries granted research.

A clear and strong correlation was found between the violation of recommendations coming from the authoritative methodological consensus conference held by NIH in 2006 and the probability to show a (unrealistically) high efficacy of the experimental drug. This distortion of the results could enhance an inappropriate exposure of patients to specific therapies, could prevent projecting and approving trials involving null or placebo arms and could also hinder the definition of a reliable historical benchmark. A pre-defined and adequately funded strategies of active implementation involving all the pertinent stakeholders (e.g. researchers, editors, responsibles for the allocation of research funds) appear to be of utmost importance to improve the adherence to future methodological consensus conference recommendations.

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32. ENHANCING UTILITY AND UNDERSTANDING OF EBP THROUGH UNDERGRADUATE NURSE EDUCATION

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BACKGROUND The concept of evidence-based practice is very relevant in the current societal and Healthcare climate. Great 'lip-service' is continually paid to the notion of evidence-based practice and many would claim that it is already the reality (McKenna, Ashton and Keeney, 2004). However, this claim does not stand up to scrutiny when examined in the philosophy and context of what evidence-based practice is. Such an anomaly clearly has implications for nurse education and in particular the way in which research is presented and delivered to students. With this in mind, a new undergraduate Evidence Based Practice module has been developed by the lead author and commenced in October 2014 (Evidence Based Nursing 1 – EBN1). This compulsory module is delivered throughout the year 1 undergraduate nursing programme.

AIMS To evaluate EBN1 through eliciting the attitudes and beliefs, knowledge level and utilization of evidence-based practice of undergraduate student nurses before and on completion of the module.

METHODS The study design is a descriptive exploratory approach using non-probability convenience sampling of the October 2014 undergraduate student nurses (n=328) taking the compulsory "Evidence Based Nursing Module 1" at a University within the United Kingdom. The sample is made up of undergraduate adult, mental health, learning disability and children's nurses. This research involves students anonymously completing two validated scales (Evidence Based Practice Beliefs Scale© (EBPB) and Evidence Based Practice Implementation Scale© (EBPI)) (Melnyk et al, 2008) online via surveymonkey. Data collection is at two time points. Time 1 prior to undertaking the "Evidence Based Nursing Module 1"; Time 2 on completion of year 1 (and EBN1). Full ethical permission to undertake this study and permission to utilize the validated scales was secured prior to the study commencing.

RESULTS The first stage of data collection was completed in October 2014 and the second stage will be completed in May 2015. This will be the first conference to aid dissemination of the results from this study. Quantitative descriptive and parametric statistics will be used to summarise and interpret the findings of this study, including ascertaining the change in mean differences over time (anova).

LIMITS The study is limited to only one group of students. Furthermore, while there were over 300 students within this group, participation was voluntary and not all students completed the questionnaire, thus findings may not be representative of the whole cohort. Nonetheless, this study is novel as it has exposed the same groups of students to EBN1 and explored their attitudes and beliefs, knowledge level and utilization of evidence-based practice.

CONCLUSIONS This study seeks to formally evaluate a new evidence based practice education module in undergraduate nursing education using a quantitative pre and post-test design through eliciting the attitudes and beliefs, knowledge level and utilization of evidence-based practice of undergraduate student nurses before and on completion of the module. The importance of embedding evidence-based practice in nurse education programmes cannot be underestimated if evidence based practice and its positive patient outcomes are to be realised in healthcare settings.

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33. E-LEARNING FOR EVIDENCE-BASED HEALTHCARE: WHICH E-LEARNING COMPONENTS ARE NECESSARY FOR SUCCESSFUL EBHC E-LEARNING?

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BACKGROUND There are numerous studies evaluating EBHC learning strategies including e-learning, face-to-face and blended learning. E-learning in particular has received a lot of attention in recent years. It is therefore important to assess the characteristics and components of effective e-learning interventions in order to inform development of EBHC learning initiatives. We conducted a systematic review on the effectiveness of EBHC e-learning to increase EBHC competencies amongst healthcare practitioners.

AIMS To describe EBHC e-learning intervention components and to identify the distinctive components of effective interventions

METHODS We followed the systematic review methodology set out by the Campbell Collaboration. Data was extracted according to a pre-specified data extraction form, informed by a logic model, allowing us to capture all the components of the interventions, as well as how the interventions were delivered. We then categorised and mapped the components of each intervention using a matrix. Studies comparing two interventions (i.e. not comparing an intervention to no learning) that found significant results for EBHC knowledge, skills, attitudes or behaviour were examined in more detail. We identified intervention components of pure e-learning or blended learning interventions that were distinctive to the intervention group. We described these components and synthesised the results narratively.

RESULTS We included 19 studies (17 randomised and 2 quasi randomised controlled trials) comparing e-learning to no learning, face-to-face learning or other types of e-learning. Overall, studies had moderate risk of bias, with 10 studies having high risk of attrition bias due to large amounts of loss to follow-up. Interventions were heterogenous and we were unable to combine results in a meta-analysis. Compared to no learning, EBHC e-learning significantly increased EBHC knowledge, skills, attitude and behaviour (5 studies). When comparing EBHC e-learning to face-to-face learning, EBHC knowledge, skills, attitude and behaviour improved in both groups, but there was no significant difference between the groups (9 studies). Comparing different types of e-learning showed varying results – while in some studies, one e-learning intervention seemed superior to another, in other studies, both types of e-learning interventions yielded similar results (5 studies). Fourteen of the 19 included studies compared two interventions. Six of these compared pure e-learning to face-to-face learning, three studies compared blended learning to face-to-face learning, three studies compared pure e-learning to blended learning and two studies compared two purely e-learning interventions. For all included interventions, we identified 12 e-learning and 6 face-to-face learning components. E-learning components comprised recorded PowerPoint presentations; online tutorials; online exercises, assignments and clinical scenarios; access to databases; online support and feedback from a tutor; online tools including checklists and calculators; asynchronous discussion lists; online journal clubs; access to online teaching site and material; newsletters; interactive online courses; and mobile learning at the bedside. Face-to-face components comprised clinical activities and assignments; access to clinical tutors; didactic lectures; interactive workshops; small-group discussions; and hands-on computer-based training. Six of the 14 studies that compared two interventions found significant improvements in EBHC knowledge, skills, attitude or behaviour, compared to the control. All interventions were multi-faceted (included more than one intervention component) and had learning components that were distinctive to the intervention group, namely recorded PowerPoint presentations, online exercises and assignments based on clinical scenarios, asynchronous discussion lists, access to an online site with teaching materials, mobile learning at the bedside, clinical activities and assignments and access to a clinical tutor and facilitator. All but one intervention included more than one distinctive learning component and for one intervention the distinctive learning components were face-to-face components (clinical activities and assignments and access to clinical tutor).

LIMITS Due to the heterogeneity of interventions, we were unable to synthesise results in a meta-analysis and were thus also not able to perform subgroup analysis to statistically determine the effectiveness of various e-learning components. High risk of attrition bias needs to be considered when interpreting findings.

CONCLUSIONS Multifaceted interventions are needed for effective EBHC e-learning. Blended learning, with relevant clinical activities and access to clinical tutors appears to be more effective than pure e-learning. Our findings resonate with international literature on EBHC teaching and learning, which advocates interactive, integrated and multi-faceted learning.

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34. RESEARCH-BASED QUALITY IMPROVEMENT IN THE EMERGENCY DEPARTMENT

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BACKGROUND Length of stay (LOS) is a key measure of emergency department (ED) throughput and a marker of overcrowding. Excess LOS in the ED has been identified as a relevant indicator for measuring quality of care in the ED and has been linked to an increase in risk for patients. Time studies that assess key ED processes could help clarify the causes of patient care delays and prolonged LOS and contribute to develop innovative and cooperative strategies that should lead to improving patient flow within the ED and improve quality of care and patient satisfaction.

AIMS This abstract aims to describe a process of quality improvement supported by health services research aimed to identify factors associated with LOS in the ED to support and propose solutions addressing identified those issues in a University Hospital in Madrid, Spain.

METHODS This study was conducted at the General ED of Hospital La Paz, a University urban tertiary care centre located in Madrid, Spain. Hospital La Paz catchment area covers 850.000 people. The ED saw over 104.000 patients a year and is staffed by 24 attending emergency physicians. Hospital La Paz ED consists of three levels of care: I. Walk-in clinic (WIC); II. Emergency Care Unit (ECU); III. Acute Medical Care Ward (AMCW), with 24 beds. The source of information for this work was a statistical representative sample obtained from all patients attending the General ED of Hospital La Paz from 3 years: 2008 (33,7%), 2010 (28,1%) and 2013 (38,2%). The sample selected patients from 3 months (August, February, May, November), and 3 days of the week (Sunday, Monday, Wednesday). Information was retrospectively extracted from medical records as well as from clinical administrative data bases. Analysis was conducted through multivariable linear regression considering LOS in the ED as dependent variable.

RESULTS Overall, data was obtained from 956 patients, being 54.2% female, and 3.3% functionally dependent. 59.3% were allocated to the WIC, 7.1% to the ECU, and 33.4% to the AMCW. Mean age was 55.7 and Charlson index was 1.5. Mean LOS was 552.5 minutes and median was 315.0 minutes. A hospital admission was indicated for 19.8% of all patients. The most relevant use of clinical resources was: consultation with specialists (32.5%), urinalysis (10.0%), diagnostic imaging (46.9%), and blood test (60.5%). No significant differences in LOS were obtained by number of patients attending the ED, year, month, day of the week, hour of admission to the ED, age, sex or Charlson index. Variables showing a significant effect on LOS in a multivariable regression analysis were: dependency status, level of care, blood tests, diagnostic imaging, urinalysis, consultation with a specialist, and type of discharge from the ED. An interaction was found between hospital admission and level of care, as patients admitted to the AMCW who were eventually hospitalized have lower LOS than patients who were discharged from the ED.

LIMITS Data gathered in this work would have limitations in terms of its external validity to be extrapolated to other ED.

CONCLUSIONS These data shows that both internal (requesting of both consulting and diagnostic services, and the process of care in the AMCW) and external factors (delivery of consulting services and diagnostic tests) should be investigated and taking into consideration in a comprehensive research-based strategy aimed at optimizing LOS in the Hospital La Paz General ED.

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35. LAY OF THE LAND OF HEALTH PROFESSIONS EDUCATION SYSTEMATIC REVIEWS: SCOPE AND METHODOLOGICAL QUALITY OF BEME SYSTEMATIC REVIEWS

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BACKGROUND Systematic reviews produced by the Best Evidence Medical Education (BEME) Collaboration enhance evidence-informed education by strengthening teaching and learning in the health professions field.

AIMS Our aim was to take stock of existing BEME systematic reviews to (1) create awareness of these reviews as potentially valuable resources to consider when improving current educational practices, to (2) describe the scope of the reviews, and to (3) improve confidence in the reviews' findings by assessing the robustness of the methodology used.

METHODS The authors developed a reference framework comprising pertinent categories relating to health professions education to map the scope of existing BEME reviews. This framework was shared with two higher education experts who provided input, before it was finalised. All BEME reviews with the available protocols and supplementary material were downloaded from the BEME website. One researcher extracted all data with a self-developed, pre-piloted data extraction form. Data extracted included date of last search and publication; types of participants, interventions, comparisons and outcomes; time point of outcome assessment; search strategy; quality assessment tool used for judging the risk of bias of included studies; synthesis methods; number and location of included studies; declared conflict of interest and funding source(s) of the review and of the included studies. The developed reference framework was applied to the existing BEME reviews. Lastly, the methodological quality of the reviews was assessed with the validated AMSTAR tool for systematic reviews. A research assistant verified all extracted data by comparing the data against the published review articles and supplementary material for accuracy. Discrepancies were discussed and consensus reached. We mapped the scope of existing BEME reviews in tables, one for each category in our reference framework. We narratively interpreted the coverage of existing BEME reviews in light our framework.

RESULTS All twenty-seven existing BEME reviews (until March 2015) have been included. Not all supplementary material as referred to in some reviews could be found on the BEME website. The categories developed in the reference framework were (a) teaching strategies, (b) teaching methods, (c) teaching and learning environment and resources, (d) assessment, (e) curriculum, (f) entry criteria, (g) evaluation and feedback, (h) continued professional development, (i) clinical skills teaching, (j) student support, and (k) graduate attributes. The majority of BEME reviews fell into Categories a, d, and i. No reviews were placed in Categories g, h or j. Thirteen reviews included all clinical fields while 14 reviews focused mainly on the medical field. All reviews pre-specified the intervention under investigation, 20 reviews did not pre-specify a comparison group and 19 reviews pre-specified that any type of studies (some further limited eligible studies to quantitative studies) could be included. Outcomes mostly included Kirkpatrick levels for evaluating educational interventions and change in participants' knowledge, skills, attitudes or behaviour. In 3 reviews no outcomes were pre-specified. Preliminary results showed that the average AMSTAR score (maximum score of 11) across the BEME reviews was 4.6, with a median of 4 indicating poor methodological quality. The range was between 2 (poor quality) and 9 (high quality), but only one review (BEME No.14) was judged to be of high quality. Questions 2 and 4 of the AMSTAR criteria were often judged as inadequate, but this potentially could be because of poor reporting and not necessarily because the criteria were not met. Search strategies in most reviews included a number of good sources, but often were limited to only English language and/or published studies. A variety of different risk of bias assessment tools were used, but very few reviews reported the judgements per domain for each included study. Only 3 reviews adequately took the methodological quality of the included studies into account when drawing conclusions. Some reviews declared their funding source(s), but no review reported the funding sources of the included studies. For most BEME reviews the time from the last search date to publication was on average 28 months, with a median of 24.5 months and the range between 13 and 47 months.

LIMITS Due to cost and time constraints one researcher extracted all data while a second person verified all extracted data for accuracy.

CONCLUSIONS BEME reviews address a variety of important topics in health professions education and are a valuable resource to inform decision-making in this field. However, this study suggests that the reviews can benefit from improved methodology and reporting, to ensure that more robust relevant reviews are being produced for decision-making in health professions education, with the overall aim of producing better skilled healthcare professionals for better patient care.

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36. ADAPTING MOODLE FOR TEACHING EBM USING TEAM-BASED LEARNING IN A LARGE CLASSROOM: A DESIGN AND DEVELOPMENT RESEARCH CASE STUDY

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BACKGROUND Team-Based Learning (TBL) has proved to be an effective teaching strategy to promote small-group collaborative learning of Evidence-Based Medicine (EBM). However, providing reading material and performing and keeping track of the complex tasks required by TBL is cumbersome.

AIMS To experiment the adaptation of the open access learning platform Moodle for teaching EBM using TBL in a large class.

METHODS We blended TBL with e-learning, adapting the use of the popular e-learning platform Moodle to support EBM teaching in the classroom. Participants were 173 5th year medical students of the University of Siena, without previous exposure to medical literature or to TBL. After showing the conventional TBL methodology and obtaining acceptance of the method in a plenary meeting, the class was divided in 30 teams of 5-6 students, who participated in 8 further encounters, repeated 4 times. each with 8-9 teams, in a 50 seats computer classroom. The evaluation agreement with the class was to give a low weight in the final score to individual and group RATs (readiness assurance tests), and a larger weight to a final test consisting in a Critical Reading Question (CRQ), the critical appraisal of a scientific paper relevant for addressing a specific clinical case. Beside using Moodle for communication and to deliver reading material before class, the quiz module was used to perform individual and group RATs (using the quiz module in “deferred response” and “adaptive” mode, respectively, the latter using a single account for each team) and to deliver team problems during the sessions, the online assignment module to perform the final CRQ, and the gradebook to keep record of attendance and individual and team scores. Sessions were dedicated to an introduction to medical literature, to literature searches for background and foreground questions (using Pubmed and Scholar), critical appraisal of articles about therapy, diagnosis, screening, systematic reviews and practice guidelines, to clinical audit and to shared decision making.

RESULTS Development of reading material and assessment questions and problems was straightforward, given the tradition of EBM teaching deeply rooted in Problem-Based Learning. Participation was active and lively, with over 85% of attendance each time. Using the individual RAT mostly to keep track of attendance, with little weight on the final grades, greatly reduced cheating (easy in a crowded classroom), enhancing its correct purpose of reflecting on personal resources. The “adaptive mode” of the quiz module effectively mimicked the conventional scratchcards for the group RATs, promoting participation in the team discussions. The availability of computer seats allowed for group problems requiring complex hands-on work, including literature searches. The CRQ allowed for an accurate evaluation, including complex aspects such as addressing preferences and values of patients sketched in the clinical scenarios. The use of paper was virtually abolished. Learning was good, with average scores of 75±3% of the maximum possible grade. Students feedback was overly positive, and the great majority of students considered this approach greatly superior to conventional lectures.

LIMITS The presence of a control group was considered to be unnecessary in this case study.

CONCLUSIONS Moodle can be effectively used to support TBL for hands-on teaching of EBM in a computer classroom, greatly improving the experience and decreasing the complex administrative burden of TBL.

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37. ENGAGING LAPSED REGISTRANTS ON A RETURN TO NURSING COURSE WITH CASP TO APPRAISE RESEARCH FOR USE IN CLINICAL NURSING PRACTICE

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BACKGROUND Despite the variability in educational qualifications, clinical background, clinical time served and period of lapsed registration, (from 3 to 20 years) the Return to Nursing programme (a 15 credit, Level 6 module lasting 14 weeks) is to ensure clinical confidence and competence to enable the student to meet re-registration requirements of the UK Nursing and Midwifery Council. Using the CASP framework the students are expected to engage in the appraisal of research and submit an assignment based on this process of seeking appropriate research and appraising its value to their practice.

AIMS To ensure that Return to Nursing students are able to seek appropriate evidence based research articles and appraise their value for use in clinical practice. To ensure that Return to Nursing students are able to function well in the demanding, contemporary practice setting and influence their peers and pre-registration students in seeking practice improvements.

METHODS Working in PC labs for 2 half days and supplementing time spent with personal tutorials and group discussions, students were introduced to the principles of evidence based health care, and the methods for conducting literature searches and then appraising their value using a user friendly and easily accessible online tool

RESULTS Of the 32 students who have undergone this form of assessment 30 passed their assignment at first attempt. The remaining 2 passed it at second attempt. The presentation will report on the challenges of teaching and engaging this group of students in an activity that they initially resisted, found complex to navigate and often unfamiliar to their mentors in practice and clinical nursing colleagues. they were unclear as to the relevance of pursuing this activity and being assessed on their skills in undertaking it.

LIMITS This is a presentation of the reflections of an educationalist attempting to engage a diverse range of students, some with no experience of university education in a short period of time with an activity which they find challenging which they discovered was not commonly understood by their nursing peers or mentors in clinical practice.

CONCLUSIONS The reflections of the author will identify the challenges in teaching and learning this group and the implications for extending use and familiarity with the CASP tool by link lecturers to clinical colleagues to ensure that nurses in practice are able to influence and improve their practice by critical appraisal skills. This process of reflection has also led to new research ideas and projects which will be discussed further.

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38. SPEECH-LANGUAGE THERAPY STUDENTS DISCUSSING EVIDENCE-BASED PRACTICE IN CLINICAL PLACEMENTS

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BACKGROUND Because evidence-based practice (EBP) is recognized as an important tool to enhance the quality of care, speech–language therapists (SLTs) are expected to use EBP principles during their clinical decision-making. In the Netherlands, SLT students learn to weigh the available scientific evidence against their expertise as a professional and the values, wishes and possibilities of their clients in using the EBP cycle. This requires a professional attitude in which students reflect on both their own and their client's behaviour during the decision-making process. During placements, SLTs act as important role models for students. They not only guide students in using professional skills and knowledge in the real-life context, but also serve as role models as regards professional attitude. Studies on medical professionalism have shown that role models are important in the development of a professional identity. Positive role modelling can strongly enhance the development of the professional identity of students. The uptake of EBP as part of the professional identity of SLTs, however, is not without problems. Although most SLTs have a positive attitude towards EBP at the start of their careers, later also negative attitudes and beliefs are reported. If students encounter role models who hold negative attitudes towards EBP, this might be a barrier to their becoming competent practitioners of EBP.

AIMS The aim of this study was to explore how students perceive the EBP behaviour of the SLT supervisors who guide them during clinical placements and how they think this affected their own EBP competency.

METHODS For this qualitative study, we derived data from four focus groups of students who were on placements. The students were in the final phase of their study and could reflect on both the formal and informal parts of the EBP curriculum. A moderator and an observer were present during the focus group meetings; both were unknown to the students and had no prior knowledge about them. The moderator started with a brief introduction and then defined EBP. After this, a few open questions were asked, when necessary, to cover all relevant topics Data were transcribed literally by a research assistant and analysed by the researchers using a grounded theory approach.

RESULTS Students expect from SLT supervisors they formulate PICO questions and search for and critically appraise the evidence. When starting placements, students expect to see the five EBP steps used by their supervisors. Students, however, do not often see this kind of behaviour in their supervisors. When asked 'How do you perceive EBP at your workplace?' students replied: "I never see her [the supervisor] behind the computer searching in databases. Perhaps she does this at home, but I never see it" (st2ndFG), "I never saw a PICO question in the wild". (st2ndFG). Because students do not see their supervisors formulating PICO questions and searching databases, they perceive a lack of use of scientific evidence and feel uncomfortable with this: "But, well, I'm just a trainee, so I can't say much. But there are things of which I.., yeah, then I think why do you start this treatment and why don't you search the evidence for the best treatment for this patient instead of just beginning? Yes, this annoys me sometimes". (st1stFG). Some students discard this culture, in which they believe everything is based on clinical expertise; other students simply step into this culture and conclude that EBP is not feasible in clinical practice: "Let's be honest. I also don't see myself doing this in the future: searching for evidence". (st2ndFG)

LIMITS Our conclusions are based on a small sample of possibly more motivated students. In coding the fourth focus group, however, no new data emerged, indicating that saturation had been reached. Another limitation is that, as in most qualitative research, the researchers made choices regarding what seemed relevant in the data purely on the basis of their judgment. We worked as independently as possible, however, and weighed our judgments against evidence in the literature.

CONCLUSIONS On the basis of what they experienced during their years at the educational department, students expect that EBP in day-to-day clinical practice will look like the five EBP steps and disregard the role of clinical expertise in EBP. This mismatch between what students expect and reality at the workplace leads to negative emotions in many students, who then either actively reject EBP or disapprove of their role model. Managing students' expectations is an important task of an educational institute and should be a part of the EBP curriculum. This could stimulate the uptake of EBP in future healthcare professionals.

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39. EVALUATING PATIENT SAFETY INDICATORS IN ORTHOPEDICS BETWEEN ITALY AND USA

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BACKGROUND Patient safety is an increasing priority for healthcare organizations worldwide as a high number of patients still experience adverse events during hospitalization. Surgery accounts for a disproportionate share of adverse outcomes, and orthopedic and trauma procedures account for 30% of all surgical errors. The Agency for Healthcare Research and Quality (AHRQ) designed standardized algorithms that use inpatient administrative data to screen for inpatient preventable Adverse Events (AEs), known as Patient Safety Indicators (PSIs). Italy has a National Healthcare Service (NHS) that is controlled and financed by the central government. It provides all citizens and legal foreign residents universal coverage. A large portion of the US healthcare system is based on private insurance, but the federal government provides universal coverage for adults over 65 years of age or disabled (Medicare). In both countries, the reimbursement system uses the Diagnosis Related Group (DRG) system.

AIMS This study aimed to assess standard US accountability measures (PSIs) in 17 major orthopedic procedures in a national orthopedic reference center in Italy, and to compare these rates with a similar US population.

METHODS Retrospective analysis of administrative data extracted from the hospital discharge record databases in Emilia-Romagna, Italy (Rizzoli Orthopedic Hospital, IOR), and in Florida, US (State Inpatient Database (SID), distributed by AHRQ). Preventable adverse events were identified using AHRQ's PSI software (version 4.5a) to calculate 10 provider-level PSIs in the 17 major orthopedic principal procedures in both countries. These were: biopsy of bone, except facial bones (ICD-9-CM code 77.49); other partial ostectomy of tarsal and metatarsal bones (77.88); removal of implanted devices from femur (78.65); removal of implanted devices from tibia and fibula (78.67); closed reduction of fracture with internal fixation of femur (79.15); open reduction of fracture with internal fixation of humerus (79.31); open reduction of fracture with internal fixation of femur (79.35); open reduction of fracture with internal fixation of tibia and fibula (79.36); dorsal and dorso-lumbar fusion, posterior technique (81.05); lumbar and lumbosacral fusion, posterior technique (81.08); other repair of knee (81.47); total hip replacement (81.51); partial hip replacement (81.52); total knee replacement (81.54); excision of lesion of other soft tissue (83.39); rotator cuff repair (83.63); excisional debridement of wound, infection, or burn (86.22). Patients aged =18 years receiving one of these procedures between 2011-2013 were included in the study.

RESULTS A total of 17,491 and 312,909 patients were identified in the IOR database and the Florida SID, respectively. The mean age of the two populations was 60.1 vs 66.6 and percent males were 44.35% and 40.63%, respectively. The average number of diagnoses coded per discharge record was 2.27 and 9.09. Rates (per 1000 discharges) for PSIs between Italy and the US included: Pressure Ulcer Rate (4.01 vs 1.16 respectively), Death Rate among Surgical Inpatients with Serious Treatable Conditions (13.33 vs 67.97), Iatrogenic Pneumothorax Rate (0.05 vs 0.16), Central Venous Catheter - Related Blood Stream Infection Rate (0.26 vs 0.37), Perioperative Hemorrhage or Hematoma Rate (1.81 vs 1.17), Postoperative Physiologic and Metabolic Derangement Rate (1.42 vs 0.12), Postoperative Respiratory Failure Rate (3.72 vs 4.70), Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate (2.06 vs 5.84), Postoperative Sepsis Rate (1.15 vs 3.89), and Accidental Puncture or Laceration Rate (0.39 vs 0.34).

LIMITS These indicators are based on administrative data, therefore granular clinical details are limited. PSI Risk adjustment was not performed, as AHRQ PSIs' risk-adjustment models are based on the US population and use variables (i.e. race or payer), which are not applicable to the Italian population.

CONCLUSIONS Comparison of indicators between Italy and US indicates that the two populations showed similar observed rates for 8 indicators, however there were important differences in rates for medical-related condition, such as serious treatable conditions and metabolic derangements. Overall, these results underscore similarities in PSIs between the two countries with different healthcare systems and a different type of reimbursement of hospital services. Despite important differences in healthcare coverage and possibly access, the two countries mostly show similar adverse event rates for hospitalized orthopedic patients. This study can represent a starting point for further comparative studies of patient safety, considering different case-mix and coding practices, in order to identify areas for quality improvement, and to extend analyses to other regions in Italy and the US.

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40. EVIDENCE FOR SUSTAINABILITY OF INTEGRATED HEALTHCARE DELIVERY

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BACKGROUND An aging population and success in treating acute events have increased the number of individuals with complex needs who require ongoing care from multiple health care providers. These changes necessitate well-coordinated, high-quality care across the health system to reduce duplication of services/waste, medical errors, and improve the delivery of care in order to ensure a sustainable health care system. Studies of inter-professional and interdisciplinary teamwork in health care indicate that collaboration is a contested process in which health care professionals from various disciplines have to learn to work together. However, the process by which this type of learning is enacted remains poorly understood in the delivery of integrated care to patients with complex needs.

AIMS This research examines the behavioral underpinnings of how learning and knowledge exchange processes unfold within and across inter-professional and inter-organizational teams to impact quality of health care.

METHODS In depth semi-structural interviews were conducted with Community Care Coordinators embedded in multiple interdisciplinary teams of health care professionals providing integrated care to patients with complex needs. Interviews were complemented by observations of group meetings and listening-in on patients' case study group discussions.

RESULTS Findings reveal that health system sustainability is challenged by system complexity, weak ties and poor alignment among health professionals and organizations, a lack of funding incentives to support collaborative work, and a bureaucratic environment based on a command and control approach to management. Policies and management practices are needed that promote system awareness, relationship-building and information-sharing, and that recognize change as an evolving learning process rather than a series of programmatic steps. The data highlighted that much of what makes sustainable integrated health care delivery successful or challenging is in the professional backgrounds, personalities, attitudes, preferences and expectations of individual providers and how each health care provider defines and enacts the concept of collaboration and communication in the context of care provisions. Interdependence among health care professionals and collaboration among team members generally increased over time as team members recognized the value of others' knowledge and expertise and became accustomed to drawing on that knowledge in care provisions. Learning occurred through active participation as a collective social process rather than an individual process without points of contact, through four inter-related behaviors: interaction, feedback, reflection, and self-directed learning.

LIMITS Limitations stem from local biases that are introduced within the context of the study in the province of Ontario, Canada.

CONCLUSIONS This research makes a number of conceptual contributions that highlight the limits of both the "best practice approach" and the search for a universal solution to integrated care, independent of context and local contingencies of learning. The results of the study can be used to identify ways to better support health care professionals in collaborating for integrated care delivery and a sustainable health care system, as well as to create work environments that facilitate learning and knowledge exchange across organizational and professional boundaries within a patient-focused care model. By bringing together knowledge and expertise from various levels and sectors of health care, this research takes a vital step towards fulfilling important gaps in partnership formation, knowledge exchange, and coordinated actions toward increasing value, while reducing health care costs for a sustainable health care system.

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41. EVALUATING EBP COMPETENCIES OF STUDENTS, LECTURERS AND PROFESSIONALS OF ALLIED HEALTH AND NURSING PROFESSIONS

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BACKGROUND Evidence-based practice (EBP) is integrated in the education of students of allied health and (occupational therapy, speech-language therapy) nursing professionals. Recently, the challenge for higher education is to meet increasing demands towards (practice-based) research. To educate health care professionals who are expected to provide evidence-based care, we are implementing an integrated approach of teaching EBP competencies, including knowlegde, skills as well as a positive attitude towards EBP, in the curriculum. To be able to evaluate the results of this integrated approach, EBP knowledge and skills and attitude of students, lecturers and professionals are measured.

AIMS This study aims to identify the current level of EBP competencies of students, lecturers and professionals of several allied health and nursing professions.

METHODS To measure EBP knowledge and skills, the Dutch Modified Fresno test (DMF) was used (a modification of the Fresno test of Ramos et al.). We invited 2nd year and 4th year students (before and after internship) and lecturers of occupational therapy and speech-language therapy as well as lecturers of nursing to participate in the study. Subjects also completed a questionnaire on motivational beliefs towards EBP, developed and validated by Spek et al., 2013. Differences between groups were tested with Mann-Whitney U test and Kruskal Wallis test for overall diffferences between three groups. Spearman correlation was calculated for associations between Fresno scores and scores on motivational beliefs.

RESULTS In total, 132 lecturers and students from occupational therapy, speech-language therapy and nursing participated. In addition, occupational therapists and speech-language therapists (N=19) from professional practice completed the questionnaire. Results of 2nd and 4th year students, lecturers and professionals and nursing will be presented. EBP knowledge and skills and motivational beliefs of students, lecturers and professionals will be compared within and between programs.

LIMITS Results might be biased since participation in the study was voluntary. Study samples were relatively small and more competent students might be over-represented. Results of professionals are from participants of a (short) training to develop research skills.

CONCLUSIONS Measuring EBP knowledge and skills as well as motivational beliefs towards EBP of students, lecturers and professionals of allied health professions can be useful to evaluate if the current curricula contribute to competent EBP practitioners. However, to maintain and further develop their EBP competency, professionals (colleagues) should serve as role-models and apply evidence-based practice. Based on the results of this evaluation, tailored training programs for lecturers and professionals are designed. In the future, a follow-up study may show results of the the upgraded curricula and training programs for lecturers and professionals.

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42. THE PERSPECTIVES OF THE PUBLIC AND HCPS ON MEDICATION WASTAGE: FOCUS GROUPS

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BACKGROUND According to the World Health Organization global estimates published in 2004, more than half of all medication is inappropriately prescribed, dispensed or sold with a resultant wastage of limited resources. There is a need to develop and implement wastage reduction strategies and promote appropriate utilisation of finite resources. Paying attention to behaviour change theories significantly impacts the positive implementation of evidence into healthcare practice. The Theoretical Domains Framework (TDF) provides a constructive conceptual basis for gauging implementation issues, designing interventions to enhance healthcare practice, and understanding behaviour-change processes.

AIMS To understand medication wastage beliefs and behaviours and explore potential wastage reduction strategies from the perspectives of the Maltese general public and healthcare professionals (HCPs).

METHODS A qualitative, phenomenological study of five (two public and three HCPs) focus groups of 11 pharmacists, 6 doctors and 6 members of the general public. Participants were purposively selected from those indicating willingness in a previous questionnaire research phase. The focus group topic guide was based upon the 14 TDF domains and key findings of the questionnaire phase of data collection. Focus groups of around 90 minutes were audio recorded and transcribed verbatim. The Framework Approach to data analysis was performed by two independent researchers, reaching consensus over the coding frame. Ethics approval was obtained.

RESULTS Potential solutions to reduce wastage were described under the domain of behavioural regulation in terms of facilitators to alter behaviour. The key emerging themes were: 1) system effects (stock management, budgeting, independent body governing free healthcare system, pharmaceutical identity card, infrastructure, incentives, medication fee, reimbursement, compulsory private insurance, medication take-back scheme with cash card, high consumption medication, disease prevention); 2) practitioner effects (correct prescribing and accountability, medication use reviews, improved documentation, improved communication); 3) patients effects (increase patient reassurance, patient empowerment); 4) political effects (reduce political interference); 5) awareness and educational effects (increase awareness, strategies and settings to deliver education).

LIMITS Despite employing purposive sampling, a wider range of participants, such as unemployed or less educated members of the general public, dentists, pharmacists from the pharmaceutical industry or more GPs, may have impacted the findings. The inability to capture the views of nurses or HCP students is a key limitation, given their roles or future roles in patient care.

CONCLUSIONS This study has employed a theoretical framework to provide new insight into beliefs and behaviours in relation to medication wastage (such as system, practitioner and patient effects) which require attention (e.g. lack of education and information, and political interference) as part of strategic development. Findings may also assist health authorities when designing tailored interventions to minimise medication wastage.

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43. EXPERIENCES AND LESSONS LEARNT FROM THE IMPLEMENTATION OF CLINICALLY INTEGRATED TEACHING AND LEARNING OF EVIDENCE-BASED HEALTHCARE

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BACKGROUND Clinically integrated teaching and learning are regarded as the best options for improving evidence-based health care (EBHC) knowledge, skills and attitudes. Yet, little is known about how to implement clinically integrated EBHC teaching and learning.

AIMS To inform implementation of such strategies, we assessed experiences and opinions on lessons learnt of those involved in such programmes. The study objectives were (1) to describe approaches used to clinically integrate EBHC teaching and learning in undergraduate programmes, (2) to determine successes and challenges faced by those involved in national and international academic programmes focussing on EBHC teaching and learning in the undergraduate curricula, and (3) to determine the lessons learnt in teaching and learning of EBHC in an integrated manner.

METHODS We conducted semi-structured interviews with 24 EBHC programme coordinators from around the world, selected through purposive sampling. Interviewees, from mainly medical programmes, were senior academics from a variety of different disciplines, including dentistry, emergency medicine, general practice, internal medicine, nephrology, paediatrics, physiotherapy, and public health. Following data transcription, a multidisciplinary group of investigators carried out analysis and data interpretation, using thematic content analysis. The Faculty of Medicine and Health Sciences, Stellenbosch University, Health Research Ethics Committee provided ethics approval for the study.

RESULTS Successful implementation of clinically integrated teaching and learning of EBHC takes much time. Typically, learning started in pre-clinical years through the use of real clinical scenarios and subsequently was consolidated with application to real patient settings and assessment within the clinical years. The EBHC curriculum content needs to cover the full spectrum of EBHC and not be focused on critical appraisal only. Learning is supported through partnerships between various types of staff including the core EBHC team, clinical lecturers and clinicians working in the clinical setting. While full integration of EBHC learning into all clinical rotations is considered necessary, this was not always achieved. Critical success factors were pragmatism and readiness to use opportunities for engagement and including EBHC learning in the curriculum; patience; and a critical mass of the right teachers who have EBHC knowledge and skills and are confident in facilitating learning. Role modelling of EBHC within the clinical setting emerged as an important facilitator. The institutional context exerts an important influence; with faculty buy-in, endorsement by institutional leaders, and an EBHC-friendly culture, together with a supportive community of practice, all acting as key enablers. The most common challenges identified were lack of teaching time within the clinical curriculum, misconceptions about EBHC, resistance of staff, lack of confidence of tutors, lack of time, and negative role modelling.

LIMITS Strengths of our study include the international scope of the participants who are linked to institutions in various regions, and the trans-disciplinary nature of the research team with postgraduate academic backgrounds in medicine, nursing, evidence-based health care, public health and higher education. While a potential limitation of our study is that most participants were involved with medical programmes, the experiences and lessons learnt from medical settings seemed to resonate with those reported within other programmes.

CONCLUSIONS Implementing clinically integrated EBHC curricula requires institutional support, a critical mass of the right teachers and role models in the clinical setting combined with patience, persistence and pragmatism on the part of teachers.

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44. THE IMPACT OF CLINICAL MATURITY IN EVIDENCE BASED MEDICINE

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BACKGROUND With many medical schools moving toward a graduate-entry model, it has been suggested that the outcomes of teaching EBM skills may differ between undergraduates and graduate-entry students. Previous research has suggested that greater previous clinical experience and refined learning/study techniques may favour graduate-entry medical trainees.

AIMS This study aimed to identify how the clinical maturity of medical trainees impacts upon their competency in EBM.

METHODS Undergraduate and graduate-entry medical trainees entering their first year of training in the clinical environment were recruited for this study. Competency in EBM was measured using a psychometrically validated instrument. EBM competency scores were analysed using student t-tests, in order to differentiate between undergraduate and graduate-entry trainee performance. Ten focus group discussions were conducted with undergraduate and graduate-entry trainees. Audio transcripts were thematically analysed.

RESULTS Data on a total of 883 medical trainees was collected over a five year period. Undergraduate trainees had significantly higher EBM competency scores during years in which the program was presented in a didactic format (MD±SEM=1.24 ± 0.51; 1.78 ± 0.71; 2.13 ± 0.49). No significant difference in EBM competency scores was observed between cohorts when a blended learning approach to teaching EBM was adopted (MD±SEM=-0.27 ± 0.57; -0.39 ± 0.60). Qualitative findings indicated that differences in learning and teaching preference amongst undergraduate and graduate-entry trainees influenced the level of competency obtained in EBM.

LIMITS The study is limited by the single use of the Berlin questionnaire in measuring competency in EBM. During the study period the only other validated instrument available was not used due to the length of time required to administer it. Use of these tools to examine all facets of EBM competency including knowledge, attitudes, skills and behaviour is required.

CONCLUSIONS Clinical maturity is only one factor that may influence medical trainees' competency in EBM. Other predictors of EBM competency may include previous training and exposure to epidemiology, biostatistics and information literacy. Whilst graduate-entry medical students may have more 'life' experience, or maturity, it does not necessarily translate into clinical maturity and integration into the clinical environment.

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45. PERCEPTIONS AND SELF-PERCEIVED KNOWLEDGE OF EVIDENCE-BASED HEALTHCARE AMONGST REGISTERED NURSES AND MIDWIVES IN RURAL AREAS OF THE WESTERN CAPE

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BACKGROUND Evidence-based health care is a problem-solving approach that integrates the best research evidence with clinician expertise and patient preferences and values. Currently, there is no published study that assesses practicing registered nursesâ€™ understanding, perception and self-perceived knowledge of evidence-based health care in the South African context

AIMS The Aim is to describe registered nurses and midwivesâ€™ perceptions and self-perceived knowledge of evidence-based health care

METHODS A descriptive cross-sectional study was conducted, using a validated paper-based questionnaire. The questionnaire comprised of two sections. The first section consisted of questions related to registered nurses and midwivesâ€™ demographical data, educational level and understanding of evidence-based health care. The second section assessed the participant's attitude and behaviour on evidence-based health care. Lastly, the barriers to and suggestions for improvement of practicing evidence-based health care were explored

RESULTS Overall, the response rate was 52% (125/240). Most registered nurses and midwives reported that they had heard about the term evidence-based health care as part of their post-basic studies. Registered nurses and midwives were confident in their ability to perform the steps of evidence-based health care. The majority had a positive attitude towards it, although they said that they did not engage in the steps of evidence-based health care on a regular basis. Identified barriers included resistance to change amongst older nurses, lack of evidence-based health care knowledge and lack of role models. Suggestions to improve the practice of evidence-based health care focused on training all nurses through in-service training, attending of conferences and other courses

LIMITS The instrument used for this study was a self-administered questionnaire, which could be subject to personal bias and the participants' abilities to assess their skills. A competency test could help to determine the actual skills, particularly regarding literacy skills. As EBHC is an information-intensive activity, a more comprehensive study investigating information literacy skills of nurses would be desirable. This study will serve as a baseline study to get a better picture of the EBHC knowledge and skills needs of nurses. Future studies could provide more in-depth answers.

CONCLUSIONS Registered nurses and midwives lacked evidence-based health care knowledge and skills, and they did not engage in evidence-based health care on a regular basis. Strategies to increase evidence-informed decision-making should include all healthcare professionals at all levels â€“ managers, doctors and other members of the multidisciplinary team

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46. AVOIDING LOW-VALUE PRACTICES: IMPLEMENTATION OF ESSENCIAL PROJECT IN CATALONIA

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BACKGROUND Improving healthcare quality through discontinuation of low-value practices requires a change in clinical practice led by healthcare professionals. Essencial Project in Catalonia is aligned with international initiatives to reduce unnecessary care through recommendations and is currently in the implementation phase in primary care.

AIMS 1) To implement clinical recommendations of Essencial project in primary care. 2) To evaluate the impact of recommendations on general practitioners (GPs) practice.

METHODS The intervention consists in: 1) Nomination of clinical leaders to promote the project among their primary care teams (PCT) and to lead the implementation activities by identification of barriers and enablers for change in clinical practice towards avoiding low-value practices. 2) Selection of recommendations to be implemented and definition of corresponding activities to be carried out by each PCT according to the specific characteristics of their organizations. 3) Development of related indicators and comparison between baseline status and change at 6, 12 and 18 month.

RESULTS 74 PCT (covering 28,4% of the Catalan population) participate in the pilot project. 12 recommendations were selected for implementation, including: bisphosphonates in post-menopausal women with low risk of fracture, antibiotics in pediatric otitis, PSA screening and statins for primary prevention of cardiovascular disease. Needs expressed by GPs include training in evidence based medicine for low-value practices and patient information tools as supporting material during visits.

LIMITS Limitations are related to the heterogeneity of the intervention which needs to be adapted to the particular needs of each of the involved organizations.

CONCLUSIONS This is the first experience in Catalonia and Spain of implementation of recommendation to avoid low-value practices with early involvement of target professionals. Real change in clinical practice should be promoted and led by health professionals as it has been planed in the pilot. Monitoring by indicators and feedback to GPs will be able to show if the project's objectives are reached.

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47. DEVELOPMENT OF A COMPETENCY FRAMEWORK FOR EVIDENCE-BASED PRACTICE IN NURSING: A DESCRIPTIVE SURVEY STUDY

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BACKGROUND Evidence-based practice (EBP) has been proposed for optimal patient care for more than three decades, yet competence in EBP knowledge and skills among nurse clinicians remains difficult to measure due to the lack of explicit competency criteria. To date, there has been no EBP competency framework across health professions so we have developed one for nursing.

AIMS To develop a nursing-specific competency framework for EBP and to elicit the views of health educators/researchers about the elements proposed for measuring evidence-based knowledge and skills within the framework.

METHODS The EBP competency framework was designed to measure nurses' knowledge and skills for using evidence in practice. The competency elements are integrated into a grid covering the five steps of evidence-based practice. Three groups of health academics/educators, clinicians; and researchers were invited to serve as an expert panel to comment on the proposed elements for measuring evidence-based knowledge and skills. A purpose-specific questionnaire was developed to record their views. Using three groups of content experts from different roles in health and academia enabled us to solicit a broad perspective on EBP competence assessment. All survey participants were recruited through the email network of the medical and nursing schools of a large research-focussed university and the Nurse Teachers' Society of New South Wales, Australia. The questionnaire consisted of two sections: (a) a series of rating of questions about the structure and relevance of the framework using a 5-point Likert scale, and (b) two dichotomous questions followed by open-ended contingency questions for collecting participants' opinions about the elements proposed for measuring EBP knowledge and skills. The study was approved by the Human Research Ethics Committee of the University. All questionnaires were completed anonymously. Quantitative survey data were analysed using the Statistical Package for Social Sciences (SPSS) Version 22. Simple thematic analysis was used to collate and synthesise participants' opinions about the proposed knowledge and skills elements of the survey. The themes generated from this analysis were used to triangulate the interpretation of quantitative components.

RESULTS Of 67 content experts invited to participate, 42 (63%) completed the questionnaires. Content expert agreement on the structure and relevance of the framework was substantial, ICC: 0.80, 95%CI: 0.67-0.88, P

LIMITS The limitations of this study are the small sample size and the use of purposive sampling through the academic/research network of only one university, however, this network did extend across a number of Australian states. In addition, some participants were not currently in an EBP teaching role, and even if they were, their EBP teaching experience was not included as part of the analysis. This may have biased the findings if participants were uncertain about the concepts and process for EBP implementation themselves.

CONCLUSIONS The findings of this study suggest that this framework is acceptable to a range of health professionals and educators, and may be of value to EBP education and research in nursing. However, there remains some uncertainty and disagreement about the levels of EBP competence required across the health professions. Much effort is required to clarify the language used for measuring competence in consideration of clinicians' experience and obstacles in EBP implementation within nursing. These challenges further implicate the need for setting a reasonable EBP competency benchmark with a broader group of stakeholders in nursing.

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48. MATTRESS TYPE FOR IMPROVING OUTCOMES FOR CHRONIC LOW-BACK PAIN: A SYSTEMATIC REVIEW

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BACKGROUND Back pain is reported as one of the leading causes of disability and inability to work across the world affecting all cultures in equal numbers and is the most common reason for people attending a medical consultation. There is a belief that certain mattress types have a positive effect on back pain, and especially a hard mattress is commonly believed to have a positive therapeutic effect. A survey done in the USA of a group of orthopaedic surgeons suggested 95% believed that mattress type contributed to the management of back pain and a firm mattress was recommended by 76%. This belief subsequently led to bed manufactures introducing the term "orthopaedic mattress" which has no medical meaning or defined standard, but to those with back pain it is often perceived to have potential medical benefit. The evidence supporting the use of a firm mattress is lacking. Mattress companies advertise and market their products claiming health benefits with little more than anecdotal evidence in the form of customer quotes, for example "we have nothing but praise for the mattress", "my back hurts less and now I sleep soundly and comfortably". Of the three million mattresses and beds are sold in the UK every year it has been estimated that up to 30% of the sales are people trying to help alleviate their back pain, and 35% of those sold do not meet the expectation of the purchaser. Clinically, people with back pain often turn to medical practitioners for advice on treatment. Frequently, they ask what type of mattress is best for their pain and many appear to have spent large sums of money in trying to find the best mattress type for their back pain. People spend nearly a third of their lives sleeping 19 and despite the frequency of back pain there appears to be few papers published that examine the relationship between mattress type and back pain. In knowing most back pain episodes will improve regardless of the intervention there is a risk back pain sufferers will credit their improvement to the intervention, such as changing their mattress. Driven by the apparent lack of research and current uncertainties in practice, a systematic review was required to evaluate and compare the efficacy of mattresses as an intervention for treating back pain.

AIMS The primary aim of this study was to systematically review the evidence to determine the effectiveness of mattresses in the treatment of chronic low-back pain.

METHODS Electronic databases were searched completed to find eligible studies including Central, MEDLINE, EMBASE, PsycINFO, CINAHL, AMED, PEDro, conference proceedings, trial registers and reference lists up to November 2011. Studies were included that evaluated mattress(s) when used as an intervention for adults with chronic low-back pain. No restrictions were applied to the study type. Two reviewers independently assessed studies for inclusion and risk of bias, clinical relevance and extracted data. Primary outcomes were selected a priori based on clinical relevance and the Cochrane Back Review Group guidelines.

RESULTS Nine published studies were found which reported interventions aimed at reducing low-back pain by using different mattresses. Due to differences in the interventions assessed and outcomes evaluated the data for outcomes could not be meta-analysed. One randomised controlled trial (RCT) suggests chronic low-back pain related disability might be reduced when using a medium-firm mattress when compared to a firm mattress but overall the study failed to reach statistical significance.

LIMITS Eight studies were at high risk of bias and due to poor reporting of many of the studies it was not possible to make a clear judgement of risk. As a result of factors related to study design, variation in interventions and within-study biases meta-analysis was not possible, thus reducing confidence in the magnitude of effects and ability to draw robust conclusions. Despite criticisms by commentators on the poor quality evidence and lack of research on mattresses as an intervention for chronic low-back pain there have been no previous systematic reviews. This is the first systematic review investigating the effect of mattresses on chronic low-back pain. In comparing the current findings to those in published back pain guidelines that considered mattresses as an intervention the conclusions are comparable.

CONCLUSIONS There is no high quality evidence currently available to the support advice to use a particular type of mattress for the treatment of chronic low-back pain. Therefore, based upon the current body of evidence, both clinicians and policy makers are still truly unable to advise patients on what is the best mattress for them to purchase or indeed if mattresses have any real effect in managing chronic low-back pain. Further high quality RCTs are needed to determine the effectiveness of different mattress types as an intervention for the treatment of chronic low-back pain.

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49. IMPLEMENTING EVIDENCE BASED SKILLS INTO HEALTHCARE PRACTICE THROUGH HIGHER EDUCATION

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BACKGROUND The promotion of a sustainable evidence-based health care practice is a goal requiring multiple efforts. Master's level courses in health sciences in Sweden reach practicing health care professionals, and integrating knowledge and skills related to evidence-based practice into higher education is one way of reaching this goal. At Lund University in Sweden, the course Evidence Based Practice, 7.5 ECTS, has been given to nurses, physiotherapists and occupational therapists at the Master of Medical Sciences program since 2012. Almost all students work at their ordinary workplaces in parallel. The learning activities are interprofessional, with each student taking a bearing on their main field. The mode of teaching applied is Targeting Specific Skills of Evidence Based Practice.

AIMS The aim of this study was to describe the implementation of the course in Evidence based practice and to investigate the implementation of evidence-based knowledge and skills in terms of research use in everyday health care practice among course participants.

METHODS The learning activities on the course are inter-professional, with each student taking a bearing on their main field. The course has been run three times, taken by in total 66 students. The course was evaluated in two different ways: 1) Immediately after the course, by means of the standard evaluation of at the Faculty of Medicine, Lund University. Seventeen questions targeting e.g. the content and appropriateness of the course for their professional practice were asked, 2) Evaluation of instrumental, conceptual and persuasive research use one and two years after the course. A questionnaire comprising nine questions with fixed response alternatives was used. Three of the questions were based on profession specific case scenarios. The questionnaire is previously validated and used within the LANE project, a Swedish study targeting nursing students and practitioners. N=55 students were included, 3) Using the same questionnaire, one student cohort (N=11) evaluated their research use before and after the course.

RESULTS In the evaluations immediately after the course the students express above all that they after the course search and review scientific papers more systematically and critically. They state that they now know how to frame clinical questions and that they apply the acquired knowledge and skills in professional practice. Concerning the evaluation of research use before the course (n=11) the students report that they commonly use indirect as well as direct use of research in every day practice, persuasive used by approximately one third of the participants. The majority of the students reported not being sure about their ability to apply evidence based practice (before the course). When it comes to the one- and two-year evaluations of research use, the students report that they use research in their everyday practice, in particular indirectly. Students that were involved in research projects at their workplace or were working in specialized health care used research more directly, while persuasive use was not so prevalent. All of the participants were confident about being able to apply evidence based practice.

LIMITS This study is limited to only 66 participants and to one specific course on evidence based practice.

CONCLUSIONS There was a slight shift in research use: before the course, indirect use was dominating, direct use also common and persuasive use occurred , at one-year evaluation indirect and direct use was equally and persuasive somewhat less than before the course. At two-year evaluation direct use was dominating, indirect also used but persuasive hardly used at all. The uncertainty about being able to apply evidence based practice disappeared after the course.

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50. EVIDENCE-BASED NURSING EDUCATION PROGRAM FOR UNDERGRADUATE NURSING STUDENTS

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BACKGROUND The culture of healthcare is shifting to decision-making on basis of best scientific evidence. To enhance nurses' competency of evidence based nursing practice (EBNP), effective education should be provided at the undergraduate level.

AIMS The aim of this study was to develop educational program of EBNP for nursing students at undergraduate level.

METHODS This is a methodological study to design a blended learning module of EBNP education program based on the ADDIE and the Integration ladder models. In the Analytical phase, need assessment from the learners and the teachers, and the systematic review of the literature and the related curriculums were performed. In the Development and Design phases, core contents of EBNP blended learning module were developed based on SR and benchmark EBP courses from nursing schools. Content validity of the developed educational contents was examined with the CVI from 9 nursing faculty group. The face validity was checked with 12 newly nursing graduates.

RESULTS The 3 credits per 15 weeks educational program of EBNP for undergraduate nursing students was designed utilizing various blended learning methods such as problem based-/computer based-/lecture, etc. Content validity of the developed program was CVI of .89 from the nursing faculty group. Feasibility was confirmed with the 9.64 minutes for defining clinical problem from the scenario and 75 percent in accuracy. In the focus group interview, students expressed that team-based learning method motivates them although there has been some limitation on searching skills.

LIMITS Not available.

CONCLUSIONS The developed module could be utilized to the undergraduate nursing students and the effects in EBNP competency need to be investigated. The result indicates EBP education programs utilizing blended learning module is necessary to facilitate EBP education for undergraduate nursing students.

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51. REHABILITATION IN INTENSIVE CARE UNIT: A PROTOCOL FOR AUDITING CURRENT PRACTICE (RE-BREATH: REABILITATION OF RESPIRATORY FAILURE AUDIT IN HOSPITAL)

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BACKGROUND Rehabilitation in Intensive Care Units (ICU) is crucial for the future prognosis of the patient. Most patients surviving critical illness have significant physical and non-physical morbidity and undergo a lengthy convalescence. This morbidity is frequently unrecognised and, if identified, may not be appropriately assessed or managed. Because of the detrimental sequelae of long-term bed rest, there is need for rehabilitation throughout the critical illness and thereafter, to address these effects. The amount of rehabilitation performed in ICUs is often inadequate and, as a rule, there is a need to standardize pathways for clinical decision-making and education, and to define the professional profile of physiotherapists in detail. Prior to fully implementing the guidelines, an audit of current practice needs to be undertaken, thus the purpose of this audit protocol. A clinical audit of current rehabilitative practices in the ICU of Ospedali Riuniti of Ancona (RE-BREATH: REaBilitation of REspiratory failure AudiT in Hospital) is therefore being conducted in order to evaluate the impact of an expert-driven vs event-driven rehabilitative management of patients with respiratory failure hospitalized in intensive care units, using a systematic approach based on daily assessment of patients rehabilitative needs rather than an occasional approach consequent to the demand of the physician who has the patient in care.

AIMS The aims of this audit are measure the adherence of physicians behaviors to the recommended best practice, improve rehabilitative service quality, measure the impact on clinical and organizational outcomes and eventually export the model to other settings. The relevance of this audit is underlined by high costs, high volume, high variability and high complexity of the rehabilitation management in critical care.

METHODS After a proper literature research, a multidisciplinary team made by methodologists, physiotherapists, physiatrists and anesthesiologists gathered up in order to select recommendations from best evidence about expert-driven rehabilitative management of patients hospitalized in intensive care units and to agree upon criteria to build indicators. The methodological phase lasted two months, with several team meeting during this period.

RESULTS The criteria were derived from the NICE guideline “Rehabilitation after critical illness”, published in 2009. A consensus list of data items to be captured was identified by the audit team during preliminary meetings. These items, including patient demographics, reason for admission, time to referral for rehabilitation management, successive physiotherapy iter, hospital length of stay and ventilator-free days were included as part of the audit. Health professionals involved in data collection (physiatrists and physiotherapists) were specifically identified and trained before the audit started. A pilot audit have been also conducted to test the feasibility of the audit protocol and the subsequent refinements to the protocol have been then undertaken. The comprehensive prospective audit process has been estimated to last about three months, until the recruitment of at least 130 patients. Data will be collected with a dedicated data entry paper table and encoded to be analyzed using MS Excel, then reported as means and percentages as appropriate.

LIMITS Provision of evidence-based medical and rehabilitative management in this setting is challenging due to environmental, social and local health system issues. Thus, available best evidence on ICU Rehabilitation were contextualized to draft recommendations relevant for our local setting.

CONCLUSIONS This ambitious project aims to identify possible strengths and weaknesses of usual clinical practice in an area of interest (rehabilitation) lacking strong high quality evidence. Our results will constitute an important platform for implementation of evidence-based management in rehabilitative and critical care settings focused to achieve best patient and health outcomes.

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52. ENGAGING HEALTHCARE PROVIDERS IN DESIGNING BEST PRACTICE FOR DISCHARGE COMMUNICATION

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BACKGROUND Discharge from a pediatric emergency department (ED) can be a time of significant vulnerability for parents/caregivers who provide ongoing care to their child when they return home. Discharge communication in the context of pediatric emergency care is not well understood or supported by evidence based policies.

AIMS We sought to identify the most important barriers and facilitators for discharge communication in a pediatric emergency care context.

METHODS We conducted focus groups with clinicians (physicians and nurses) from 5 pediatric EDs in Canada. A semi-structured interview survey based on the Theoretical Domains Framework (TDF) was used to guide focus group discussion. Focus groups were audio recorded, transcribed and managed using NVivo10 software. A directed content analysis approach was used to first classify focus group data into one of 14 domains described in the Theoretical Domains Framework. A thematic analysis was then carried out to identify important barriers and facilitators for the delivery of discharge communication. Two independent reviewers coded all transcripts and discrepancies were addressed through discussion and consensus.

RESULTS A total of 44 clinicians (18 physicians, 26 nurses) participated in the focus groups. The majority (75%) had more than five years' experience in a pediatric emergency context. Important barriers and facilitators were identified in the following areas: knowledge (policy and guidelines); environmental context and resources (time, expectations regarding patient flow, competing tasks, parent health literacy, access to available web resources); beliefs about consequences (return visits to ED, parent anxiety); emotion (parent frustration); social influences (parent expectations); and social professional role/identity (intersection between disciplinary roles).

LIMITS Due to the use of a convenience sample, it is possible that not all barriers and facilitators to discharge communication were identified. While physicians and nurses were included in the same focus group because of the interdisciplinary nature of their work, this may have limited expression of discipline specific barriers during discussion.

CONCLUSIONS Providing discharge communication in a busy ED can be challenging. We identified a number of volitional factors that influence discharge communication in a pediatric ED context. Findings from this work will be used to inform the design of best practice interventions to enhance the discharge communication process.

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53. PARTICIPATION AND ENGAGEMENT BY DESIGN: MAXIMISING THE RETURN ON INVESTMENT OF MEDICAL AND CLINICAL LEADERSHIP AND QUALITY IMPROVEMENT PROJECTS

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BACKGROUND The aftermath of the Sir Robert Francis Inquiry into Mid Staffordshire Hospital has led to a greater scrutiny of mortality and patient quality in hospitals in the UK. Medical Leadership is seen as a key factor to address improving the quality of care for patients and improving patient safety. A Clinical Leadership programme was commissioned from the Centre for Leadership, Sheffield Hallam University by one of the identified 'failing hospitals' in June 2014. 38 Clinical leads were identified by the Medical Director as being in an appropriate role to benefit from the programme. 34 Clinical leads agreed to participate in the programme, with three leaving either their post or the hospital midway through the programme. A total of 31 completed the programme and 10 (32%) submitted quality improvement projects at the end of the programme in March 2015. An analysis of these reports utilising the Return on Investment methodolog and with the use of specific process and outcome metrics, identified a Return on Investment of 270%.

AIMS The aim of the programme was to co-design, co-create and deliver a Clinical Leadership programme that was seen as relevant, useful and appropriate by clinical leads and that in turn would result in their engagement and participation. A participatory research methodology, guided the overall approach. All Clinical Leads were offered a 1:1 interview to explore their current role, strengths, areas for further development and factors that enthuse and motivate as well as barriers to engagement with a leadership programme. At this meeting Clinical Leads were asked to identify what motivates and excites them in their role as Clinical Lead and how what motivates them in this role could lead to their focus on a Quality Improvement project for the leadership programme. The project was registered with the University Research ethics committee.

METHODS In addition to a pre-programme qualitative 1:1 interview, leadership diagnostics metrics were completed at the outset of the programme to self-assess leadership behaviour and styles of the Clinical Leads. The Clinical leads were also asked to complete a self-assessment of quality improvement skills, knowledge and expertise. Statistical Process Control skills were introduced to the Clinical leads and they were all asked to identify data within their medical, dental, surgical or therapy speciality for an area that they had identified would be a focus for the quality improvement project on the leadership course. Analysis of data was communicated to the clinical leads via email feedback and the feedback was made relevant to the aims of their quality improvement project. Quality Improvement methodology and leadership and management theory and approaches were facilitated over 7 study days located at the Hospital between October 2014 and March 2015. Action Learning Sets were used as a mechanism to facilitate an on-going exploration of any particular challenge or barrier to advancing their Quality Improvement Project. There were two opportunities for all 31 Clinical leads to present progress on their Quality Improvement project to the whole group over the 7 study days.

RESULTS Ten Clinical leads have submitted Quality Improvement reports. Out of the ten projects, four of the projects have provided sufficient metrics and evidence for a Return on Investment calculation to be made. Case Study 1: identified excessive use of acute general hospital bed by neuro rehabilitation patients while awaiting a panel decision for a rehab bed. By changing the process a saving of £58,250 can be made in 2015. Case Study 2: identified incorrect coding for hospital surgical procedures saving £413,000. Case Study 3 Laboratory errors were addressed through a change in the process saving the time of one WTE consultant and finally in Case Study 4 a review of a business model showed how the current business model wasn't able to undertake all commissioned work but left a deficit of £2,064 and increased demand of 22%. The cost of the Leadership Programme was £136,000, providing a return of £377,314 which is a Return on Investment of 270%. The remaining six projects have the potential to generate outcome data to evidence a return on investment. Return on Investment calculations can be made up to one year after the programme.

LIMITS The limitation of this return on investment evaluation is that we are unable to report on the remaining two thirds of the participants who engaged in the programme within this report. We are unable to identify or account for the quality improvement projects that are not known to us as they have not been submitted in writing. We are commissioning an independent researcher to undertake the follow up 1:1 interviews to provide further learning generated by the Clinical Leads.

CONCLUSIONS We feel that our approach in participatory design was crucial in gaining the trust and engagement of the Clinical Leads. We are encouraged that by Our return on investment calculations show that in a relatively short space of time (less than a year) there have been significant financial returns attributed to this programme.

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54. IMPACT OF WEEKEND ADMISSION AND DISCHARGE ON HOSPITAL LENGTH OF STAY: AN ANALYSIS OF EMERGENCY AND ELECTIVE CONDITIONS IN ENGLAND 2002/3-2007/8

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BACKGROUND Prolonged hospital length of stay (LoS) is undesirable for hospitals, particularly those funded by the Diagnosis Related Group system, due to the high cost of inpatient care. Patients with hospital stay longer than necessary are exposed to greater risk of infectious complications. Studies suggested that a large proportion of unnecessary hospital stay is caused by delayed diagnosis and treatment after admission, and/or delayed discharge when long term care needs to be arranged. Such delays could be associated with the traditional 5 day working model which involves reduced staff and service availability over the weekend. Much attention has focused on poorer patient outcomes for those admitted over the weekend. Extending hospital service to 7 days a week has been proposed in a few countries. Few studies have looked systematically into the association between LoS and day of the week for admission and discharge. However, to understand the pattern of LoS is fundamental for identifying factors associated with prolonged LoS. Substantial savings could be achieved by reducing unnecessary inpatient stay for health care providers and ease the financial burden of 7 day service.

AIMS We examine the extent to which LoS varies for patients admitted and discharged throughout the week after controlling for patient case-mix and hospital characteristics. Conditions of stroke, hip replacement and hernia repair were analysed. Using day of the week as proxy of hospital service availability, we aim to identify whether or not the variation in LoS can be attributed to the traditional 5 day working model within and across health care settings. This could provide insights for policy makers on the causes of prolonged hospital care.

METHODS We have identified all patients admitted for stroke, hip replacement and hernia from the English national Hospital Episodes Statistics (HES) database from 2002/3 to 2007/8. Our sample is restricted to those discharged alive and contains 359,694 patients with a main diagnosis of stroke, 478,008 patients who had hip replacement, and 413,049 patients who had hernia repair. Negative binomial and probit models were applied to patient data on spell level. The primary variables included in the regressions were admission and discharge day of the week, patient case-mix and hospital characteristics.

RESULTS Age, gender, deprivation and patient complexity are associated with longer LoS for both emergency and elective conditions. Compared with Wednesday when hospitals were at full capacity, stroke patients admitted on Friday stayed 1 day longer, whereas those admitted on Saturday and Sunday were associated with shorter LoS by 0.8 and 1.5 day, respectively. For patients who had hip replacement, Saturday admission is associated with shorter stay by 0.5 day than admissions on any other day. Moreover, discharge day of the week is a significant predictor of LoS for patients who had stroke or hip replacement. Using Wednesday as benchmark, stroke patients discharged on Saturday had shorter LoS by 7.1 days, and those discharged on Sunday had shorter LoS by 9.4 days. Monday discharge is associated with longer LoS by 4.6 days. We found a smaller effect for those who had hip replacement: weekend discharge was associated with the shortest LoS and Monday discharge was associated with longer stay by 0.3 day.

LIMITS LoS is expected to be influenced by the management and efficiency of individual hospitals, as well as the coordination between hospitals and local social services.However, inferences based on a few hospitals would be difficult to generate policy implication on national level. One primary advantage of this study is the use of the English national HES database, through which we identified all patients admitted to hospitals funded by the NHS with the conditions of our interest. Hence, we were able to control for hospital status and estimate an average effect across all NHS hospitals in England. One limitation is the lack of variables to capture the variation in service arrangement throughout the week by hospitals and local authorities. A more balanced analysis would be desirable for future research.

CONCLUSIONS Stroke patients admitted on Friday had the longest LoS, whereas those admitted at weekend had the shortest. Weekend discharge is associated with shorter LoS and Monday discharge had the longest stay for both stroke and hip replacement patients. This pattern of LoS is generally consistent with the 5 day working model in both health and social care sectors. Patients admitted toward the weekend could spend the first few days waiting for initial tests and diagnosis, which prolong the treatment process. Patients due for discharge to community care could have to wait till Monday when such service can be arranged. Either scenario would contribute to excessive LoS and higher hospital cost. 7 day hospital care could help reduce the variation in LoS due to limited service accessibility, the cost of which could be partly offset by the savings from shorter LoS.

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55. AGILE: A GUIDING PRINCIPLE FOR HEALTHCARE IMPROVEMENT?

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BACKGROUND Hospitals are often characterized as particularly complex systems situated in a dynamic environment, interacting with a wide variety of heterogeneous actors, interests and factors, often with disparate demands. These features create an externally turbulent environment, which tends to become increasingly complex and unpredictable with time. Recently, there has been an increasing focus on how to cope with internal complexity to increase the efficiency of hospitals. Process development strategies in general and lean-influenced approaches in particular have been widely adopted to efficiently manage and improve quality and patient safety . There is however an increasing concern about the limitations of applying a lean approach in health care. Most studies of lean applications in hospitals settings describe narrow technical solutions, a limited system approach, and a focus on internal efficiency, with limited consideration of external effectiveness. This intra-organizational focus does not reflect the inter-organizational and interactive reality that public services, such as a hospital, functions within. This concern has already been voiced in the manufacturing industry, where the idea of "lean manufacturing" and the "lean enterprise" has its origin. Current research suggests that lean seems insufficient for handling the increasingly turbulent external complexity that characterizes hospital environments. Researcher within the manufacturing industry has identified a need for organizations to rapidly meet an ever-increasing variety of demands by being agile, especially in contexts where the demand is complex and unpredictable and where the customer requires variety in products and services. Maybe, agility could influence hospitals to better cope with and act on the ever-changing environment. To understand the potential to become agile and combine internal efficiency and external effectiveness for hospitals, it is necessary to describe what an agile organization is, how organizations become agile and to further explore the relationships between lean and agile. Such knowledge can contribute to determining the potentials of agile for the development of hospital organizations.

AIMS To contribute to increased understanding of the concept agile and its potential for hospital managers to optimize design of organizational structures and processes to combine internal efficiency and external effectiveness.

METHODS An integrative review was conducted using the reSEARCH database. Included articles met the following criteria: 1) a definition of agility, 2) descriptions of enablers of becoming an agile organization, and 3) discussions of agile on multiple organizational levels. Sixty articles qualified for the final analysis.

RESULTS Organizational agility rest on the assumption that the environment is uncertain, ranging from frequently changing to highly unpredictable. Proactive, reactive or embracive coping strategies were described as possible ways to handle such uncertain environments. Five organizational capacities were derived as necessary for hospitals to use the strategies optimally: transparent and transient inter-organizational links; market sensitivity and customer focus, management by support for self-organizing employees, organic structures that are elastic and responsive, Flexible human and resource capacity for timely delivery. Agile is portrayed as either the "new paradigm" following lean, the needed development on top of a lean base, or as complementary to lean in distinct hybrid strategies.

LIMITS Our findings provide some support for the use of a combination of lean and agile principles in order to optimize for hospital organizations to handle variations in demand. Empirical studies is though needed on how this may be organized in real hospital settings will be needed in order to test the assumptions of such conceptual model.

CONCLUSIONS For hospitals to better cope with the increasingly turbulent environment there must be a shift from an assumption of continuity and a focus on operations, to an assumption of discontinuity and a focus on adaptive capacities meeting the real and changing needs inherent in health care provision. An agile organization seems to assume discontinuity as a constant characteristic of the environment. Environmental uncertainty might be structured as general, task and/or work-related uncertainty and matched with embracive, proactive and/or reactive coping strategies. This structure might help hospital management to better combine internal efficiency and external effectiveness. Our findings provide some support for the use of a combination of lean and agile principles in order to optimize for hospital organizations to handle variations in demand.

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7th International Conference for EBHC Teachers and Developers
Evidence for sustainability of healthcare
Increasing value, reducing waste
Taormina (Italy), 28th – 31st October 2015

OTHER SELECTED ABSTRACTS (NOT PRESENTED)

GIMBE
EVIDENCE FOR HEALTH

OTHER SELECTED ABSTRACTS (NOT PRESENTED)

56. **Systematic assessment of the methodology of randomized controlled trials of fresh frozen plasma in surgery**
Abraha Iosief, Marchesi Mauro, Germani Antonella, Cozzolino Francesco, Orso Massimiliano, Montedori Alessandro

57. **The degree of understanding of evidence-based medicine the medical-students in Kazakhstan**
Akanov Amangali, Kostyuk Alexsandr, Tuleshova Gulnara , Derbissalina Gulmira, Sholanova Madina

58. **Mini-HTA: a tool in support of hospital therapeutic committees choices, the case of subcutaneous trastuzumab**
Angelelli Mariacristina, Calabrò Concetta, Crapolicchio Claudia, Ferraiuolo Simona, Laforgia Mariarita, Nardulli Patrizia

59. **EBM-5 (Evidence Based Medicine minus five): clinical governance project based on EBM and ethic responsibility**
Bellomo Francesco, Roti Lorenzo, Ardis Sergio

60. **Urological-surgical short intensive observation: a precious resource for improving the suitability of admissions**
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56. SYSTEMATIC ASSESSMENT OF THE METHODOLOGY OF RANDOMIZED CONTROLLED TRIALS OF FRESH FROZEN PLASMA IN SURGERY

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BACKGROUND Inappropriately designed randomized trials may introduce bias and their findings can mislead clinical practice. Fresh Frozen Plasma (FFP) is a human plasma product that contains procoagulant factors and is widely used in surgical practices. The use of FFP has been tested in various randomised trials and results have been incorporated in systematic reviews. Based on the evidence from these systematic reviews guidelines have been produced for clinical plasma use in diverse setting but crucial to any recommendations is, among other issues, the methodological quality of the evidence. Hence, an assessment of the characteristics and the of randomized trials of FFP use for surgical patients is warranted.

AIMS To assess the characteristics, risk of bias and their time trends in randomised trials of FFP use for surgical patients.

METHODS We searched randomized trials studies that evaluated the efficacy of FFP for surgical patients in Pubmed and the Cochrane Library. Full texts of relevant abstracts were obtained and screened to identify relevant randomized trials. Pairs of reviewers independently screened titles, abstracts and full texts. We assessed the quality of each study according to the risk of bias criteria suggested by the Cochrane Collaboration. The following domains were taken into account: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting and other potential items that can be a source of bias. Disagreement were resolved by discussion and, if necessary, by a third independent reviewer.

RESULTS Preliminary data: The percentage of trials satisfying risk of bias criteria were: adequate sequence generation (79%), adequate allocation concealment (48%), participants' blinding (29%), outcome assessors' blinding (44%), intention to treat analysis (45%), no selective outcome reporting (55%), balance of baseline characteristics (86%). The reporting of adequate allocation concealment and intention-to-treat improved overtime.

LIMITS The influence of the methodological quality to the treatment effect was not evaluated.

CONCLUSIONS A considerable number of randomized trials that evaluated the efficacy of FFP have deficiencies in key methodological characteristics. Future trials of FFP should be designed more rigorously and adequately reported.

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57. THE DEGREE OF UNDERSTANDING OF EVIDENCE-BASED MEDICINE THE MEDICAL-STUDENTS IN KAZAKHSTAN

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BACKGROUND Terms understanding of the principles of evidence-based medicine (EBM) are different in different circumstances.

AIMS We must need to know how to equally understand the principles and tools of evidence-based medicine the students in different learning levels.

METHODS We conducted a study on 498 respondents. It was developed a questionary. Questions were aimed at clarifying the retention the skills of evidence-based medicine. A comparison among students - Bachelor (3 and 5 year of study) and masters of the three medical higher schools of Kazakhstan.

RESULTS As a result, it was revealed the relevance of evidence based medicine for students, the degree of practical application of evidence-based tools, the degree of availability of resources for the understanding of evidence-based medicine, quality consulting tutors evidence-based medicine. There was obtained a target for these criteria and evaluated. Indicator actualization gave 97%, an indicator tools-EBM has given 94%, the indicator on the resources made 81.5%, an indicator of quality tutors gave 94% of bachelors. Indicator actualization EBM gave 71.7%, an indicator tool-EBM gave 89.1%, light on resources made 37.9%, quality indicator tutors gave 55.4% of undergraduates.

LIMITS The study had a limitation of the the territory (Kazakhstan), the respondents - onlystudents (no comparison with the criteria of medical practitioners), were compared pre- and post-graduate students. The survey was conducted independently without an interview.

CONCLUSIONS We made the analysis. The analisis of the personal data was a significant trend towards the applicability of the principles of EBM in clinical disciplines, thus, there is a significant ambiguity in understanding the necessity of the use of EBM in their own clinical practice. Necessary to improve the management of multi-disciplinary support EBM in higher medical schools of Kazakhstan to improve the quality of the educational process, it helps to create a qualified specialist of quality health care services.

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58. MINI-HTA: A TOOL IN SUPPORT OF HOSPITAL THERAPEUTIC COMMITTEES CHOICES, THE CASE OF SUBCUTANEOUS TRASTUZUMAB

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BACKGROUND Being increasingly limited the economic resources in health field, the Technology Assessment represents a determining tool to evaluate clinical options. Within hospital therapeutic committees, the pharmacists have to contemplate an increasing number of drugs and pharmaceutical formulations and need appropriate tools for establishing their concrete impact from clinical, managerial, ethic and economic points of view. The difficulty is much more evident in oncology, where the economic burden of antitumor drugs does not consent evaluation mistakes, that translate in wasting huge resources and time. Within HTA policy, the Danish mini-HTA model requires the elaboration of a mini-report that justifies or not the introduction in clinical practice of a new technology in short time and concise manner.

AIMS The aim of this mini-report is to evaluate the advantages/disadvantages of the therapeutic use of Trastuzumab subcutaneous formulation and, consequently, its introduction within hospital manual (PTO), by means of an accurate pharmaco-economic study between the two Trastuzumab commercially available formulations, in relation to different aspects (handling, medical devices, work- and administration times). Trastuzumab is a monoclonal antibody that entered the large arsenal of antitumor drugs for the treatment of both initial and metastatic HER2-positive breast cancer. Currently, its commercial intravenous (iv) formulation is in form of 150 mg powder vial to pre-dilute with injectable sterile water and then to dilute in saline solution in a large range of dose (2-6 mg/kg) after a loading dose of 8 mg/kg. The more recent subcutaneous (sc) formulation is in form of 600 mg ready-to-use solution and is administered to patients in fixed dose once in a 21 days therapeutic cycle.

METHODS The Anticancer Drug Unit (U.Ma.C.A.) in “Giovanni Paolo II” Cancer Institute in Bari, is provided of a software which contented to extract the number of patients who received iv Trastuzumab in 2014 for the first time. Then, by means of a mini-HTA form, the costs sustained by Pharmacy for both formulations were calculated by considering, for iv Trastuzumab, a patient’s medium weight of 70 kg and a 21 days administration schedule with a 8 mg/kg loading dose. The difference between the costs of the two formulations was referred to the 2014 economic charge, foreseeing for 2015 a comparable number of patients receiving first sc administration.

RESULTS The clinical use of sc Trastuzumab leads to reduced administration and recovery times, thanks to its infusion of only 5 minutes, against 90 and 60 minutes for the first and the following iv administrations, respectively. As a consequence, more patients can be treated, the professionals involved in handling and administration can better organize their work with optimization of time and human resources. In terms of costs, the first cycle of iv Trastuzumab requires about € 2.300,00 against about € 1.600,00 for sc formulation, also including the cost of the medical devices for handling and administration. Considering that in 2014 the patients who received iv Trastuzumab for the first time were 39, the foreseeing economic saving for 2015 is € 27.300,00 only for the first cycles and translates in € 68.000,00 including the following 6 mg/kg cycles.

LIMITS The recent Trastuzumab sc formulation represents an important clinical option from different points of view. It appears evident the important saving time, human and economic resources, also considering that wasted residual drug does not exist at the end of the working day; this aspect is particularly important in the still several hospitals without U.Ma.C.A., where unused residual drugs in handling workspaces (ambulatory, recovery, DH) in different wards (oncology, onco-hematology) are not recovered. From a clinical point of view, patients’ safety is granted by the reduced risk of mistakes both in dose calculation in the prescription step and in pre-dilution and dilution steps during handling. Unfortunately, the therapeutic shift from iv to sc Trastuzumab formulation has not been sufficiently studied, poor data in literature are present. One of the weak points of mini-HTA report is the too short time frame during which the method has been applied, so that all clinical aspects cannot be evaluated.

CONCLUSIONS The utility of mini-HTA studies in health sector is no doubt, as they are founded on the rational evaluation of new technologies, which leads to important qualitative choices. The mini-HTA report on sc Trastuzumab shows a patient’s better quality of life with a sickness perception helping his compliance to treatment, thanks to the short time spent in hospitals. In the light of all aspects, the knocking down of direct and indirect costs related to Trastuzumab sc injection translates in important advantages also for patients, their relatives and the whole society.

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59. EBM-5 (EVIDENCE BASED MEDICINE MINUS FIVE): CLINICAL GOVERNANCE PROJECT BASED ON EBM AND ETHIC RESPONSIBILITY

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BACKGROUND Clinical governance (CG) is "a framework through which NHS organisations are accountable for continually improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish." Among all the governance techniques, the position statement of GIMBE in "Il governo clinico nelle aziende sanitarie"(2009) focalizes on the Evidence Based Practice: spread of the EBM among health professionals, whom should be able to: - formulate clinical-assistencial questions; - research, as efficiently as possible, the best available medical evidences - know the principles of critical appraisal: internal validity, clinical relevance and applicability - integrate the evidence in the clinical-assistencial decisions Ethics of responsibility (Weber, Jonas) is the basis of a behaviour that considers not only the immediate (hic et nunc) effects of one's actions and decisions, but also takes in to consideration the global heritage for future generations. In the national health service both strategic-managerial decisions and all clinical decisions have to take in to account limited resources.

AIMS Main objective The main objective of the project is the creation of a clinical governance system, focused on the improvement of the quality and performances of the Local health authority. The system should begin from a bottom-up process of involvement and should be based on scientific evidence and ethic responsibility. Secondary objectives To promote professional research and update. Professionally motivate and create sense of belonging. To contribute to the increase of the eudaimonical levels of well-being (job satisfaction) Make the professionals aware of prioritizing choices in a finite resource system.

METHODS Action 1 – Establishment of the professionals' network The professionals that will take part in the project will establish a network for Evidence Based Practice (EBP). Evidence Based Medicine will be the first network established, then an Evidence Based Nursing network will follow and so on with other medical staff (psychologists and general medical staff) and finally an Evidence Based Education network will be set up. This will involve the professionals of the ASL who are also professors in the nursing degree. The project is opened to the younger professionals. Action 2 – Training start Once the participants have been identified, a training start will take place in order to introduce EBM working methods to the Permanent Conference for EBP. Part of the training will focalize on ethics of responsibility. Action 3 - Permanent conference for Evidence Based Practice (CAP for BP) Based on a scientific evidence and ethic responsibility methodology, the Permanent Authority Conference for EBP (CAP for EBP) is conceived as a place where professionals of the ASL can discuss upon matters related to their job. Every member of the CAP for EBP is asked to examine in depth a topic related to his professional field. The topic will be agreed upon and will be included in the work programme of the Conference. The CAP for EBP report is organized every three months. It consists of a day of compulsory training with ECM to which all the medical staff of the ASL will participate. During the meeting, the professionals will make presentations regarding their in-depth analysis and will have the chance to discuss with their colleagues the studied topics. After the conference, all reports will be made available to all the medical staff. Action 4 - Collaboration in defining the ASL's paths and procedures. Following the first six month, the members of the Permanent Conference will have the chance to collaborate with the S.C. Governo Clinico in defining assistencial paths and clinical procedures based on evidence and ethic responsibility.

RESULTS Results evaluation Establishment of the groups before the deadline indicated in the timeline schedule . Drafting of the Reports of the Permanent ASL Conference for EBP. Indicator: n. conferences taken place/per year Expected results: =3 Number of EBM in-depth analysis per year Indicator: n. analysis/ per year Expected results: =20 Implementation, monitoring and review. Number of paths (PDTAr) implemented, monitored and reviewed: 3/per year.

LIMITS No limits known of.

CONCLUSIONS At the moment, the project is being implemented. By the end of 2016 it will be possible to carry out a preliminary evaluation of the results.

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60. UROLOGICAL-SURGICAL SHORT INTENSIVE OBSERVATION: A PRECIOUS RESOURCE FOR IMPROVING THE SUITABILITY OF ADMISSIONS

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BACKGROUND The trend of accesses in the emergency department and the need to develop clinical diagnostic pathways that aim to ensure the best level of appropriateness of the activities of hospitalization, indicate/suggest the need to define and formalize the set of activities, implemented also in clinical practice in Italy and in the Umbria region, relative to the observation of patients who access in a non-programmed form for shelter facilities called Short Intensive Observation (OBI).

AIMS The OBI is identified as an area with short-medium term care functions, in which it implements: -assessment diagnostics and short-term treatment of urgent diseases with a high degree of criticality but potential low gravity that may not require hospitalization; -prolonged observation and evaluation of patients with low criticality but potential severity to allow at the same time reduction of the number of hospitalizations and a safe hospital discharge

METHODS In the Perugia Hospital in conformity to regional resolution related at specialists OBI, have been involved the General Surgery and the Urology Clinic with 8 beds in total. The application of OBI procedure and the respect of the timing are entrusted to a referring physician who interacts with the Medical Hospital Direction. Hospitalization in OBI does not generate SDO (Hospital Discharge Register) and medical records but only a ambulatory medical record that derives from First Aid management software.

RESULTS From 2015/03/15 to 2015/04/30 in the surgical OBI, were treated 105 patients, 64 (61.0%) of whom discharged, 34 (32.3%) hospitalized and operated, 7 (6.7%) discharged volunteers. The patients have stopped an average of 32 hours, with a utilization rate of 53%. Comparing the same period of the previous year, standardizing for hospital admissions, there has been a reduction in medical LEA, from 36 to 24%, resulting in an increase of appropriateness with a percentage of surgical ordinary hospitalization increased from 46 to 55% . The analysis of diagnostics description to DRG that the admission would have produced in discharged, shows that would have saved a total of 132 days in hospital for potentially inappropriate DRG. In the same period, in the urological OBI have been accepted 67 patients, 49 (73.1%) discharged, 14 (20.9%) hospitalized and 4 patients (6%) discharged volunteers. The patients have stopped an average of 21 hours, with a utilization rate of 67.4%. Comparing the same period of the previous year, no substantial difference is detected. Going by the diagnostics description to DRG that admission would have produced in discharged, shows that it would have saved a total of 130 days in hospital for potentially inappropriate DRG.

LIMITS -

CONCLUSIONS The complex structures of surgery and urology clinic find themselves to manage clinical situations that consist of a specific type of patient care that arrived at PS requires a specific observation of the clinical situation in protected and specific reserved areas for the purpose to clarify its actual needs assistance. The use of the OBI resource has allowed, through an adequate response diagnostic-therapeutic, the achievement of two objectives: -Increase the appropriateness of admissions (especially reduction of 183 DRG “abdominal pain” and 324 DRG “calculosis (valutare lithiasis) without complications” that are highly inappropriate DRG for treatment in ordinary hospitalization) -the improvement of the quality of service delivered to the patient and his family.

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61. DEFINITION OF A TRANSITION PATHWAY FROM THE HOSPITAL TO COMMUNITY SETTINGS FOR THE EVALUATION AND ENDORSEMENT OF THE OFF-LABEL DRUGS

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BACKGROUND The Local Pharmaceutical Committee (LPC) was established in February 2007 by the Piedmont Region (DGR 76-4318 of 11/2006) in order to: promote independent medicines information and support pharmaceutical care activities, monitor that the medication prescribed is appropriate for the patient's needs, improving transitions from the Hospital to Community settings. The LPC is a multidisciplinary group consisting of pharmacists and clinicians specializing in various disciplines. The LPC meetings frequency is once a month. Among the various activities the LPC takes care of patients who had a prescribed treatment out of the approved indications in the SCP (Summary of Product Characteristics).

AIMS Primary endpoint was: evaluate the requests of the clinicians based on scientific evidence in the literature, define care transition process about off-label therapy, carry out pharmacovigilance activities considering lack of safety and efficacy data, in order to inform side-effects, ADR, discontinuation therapy reasons, hospitalization. Secondary endpoint was: check and monitor the off label prescriptions considering also the farmacoeconomic evaluation.

METHODS Clinicians and general practitioners send to the LPC an authorization request that must include: clinical report, trails and scientific literature, other approval experience in other Local health Units in Italy. Clinicians and general practitioners have to prove that doesn't exist a valid therapeutic alternative up to now. The Scientific Secretary (SS) of the LPC check the clinician's request and takes care bibliographic research through databases, national and international medical journals. In collaboration with the clinician, pharmacists processes the farmacoeconomic evaluation and extrapolate the main evidences writing a relation to be presented to the commission. The Scientific Secretary also prepares the cost analysis of the treatment at issue. During the meeting, LPC analyzes the cases and if evaluated positively authorizes the therapy and its duration. The positive opinion is evaluated based on the clinician's request, clinical report, trails and scientific literature. The cases discussed during LPC meetings are recorded on a informatic tool for their evaluation. The recorded data include: patient's full name, date of birth, address, diagnosis, date of prescription, prescribed drugs, dose, time and route, duration. These data allow to carry out assessment of pharmacoepidemiology and define a clinical pathway of the patients.

RESULTS Definition of the transition pathway: LPC analyzes the cases and authorizes or denies therapies. The SS writes a report about cases discussed during LPC meetings and sends a copy of this report to all members of the LPC. Than the SS prepares a letter with the point of view expressed to be transmitted to the clinicians or general practitioners who made the request. If LPC authorizes the treatment, the letter contains pathway of drug distribution and the duration of the authorization. - Following, the patient will sign the informed consent and the distribution takes place through the hospital pharmacy. The Piedmont Region monitors the therapies and the costs related every six month. This data are recorded in a computer program called FILE F for economic report. -In order to highlight possible patients not compliant to this process, the Pharmaceutical Office crosschecks biographical details with pharmaceutical prescriptions contained in the database. From 2012 to 2014 LPC evaluated 138cases: Antipsychotic drug prescribed to minor patients for longer periods than the SCP:49 authorized cases (in collaboration with child and adolescent neuropsychiatry); Low-Molecular-Weight Heparin for prophylaxis and treatment of deep venous thrombosis:35authorized cases (for pregnant women, patients with cancer, therapy for longer periods than the SCP); Hospital drugs required by the Cancer Department and the Department of Infectious Diseases:12authorized cases; Cnn drugs (not reimbursed by the NHS and prices not negotiated between the AIFA and the Pharmaceutical Companies) for non-responders patients in the absence of a valid therapeutic alternative:22 authorized cases; Single cases: 9 authorization -11non authorized cases

LIMITS A clinical report by the clinician about the outcome of the treatment authorized, is not present up to now. It would be interesting to give a feedback on the efficacy and safety of the off-label therapy. Our perspective is to assess the treatment outcome through a clinical report by the prescriber after the off-label therapy end. It could be useful especially in terms of sharing the off-label local experience, helping the LPC decision-making practice in future evaluations of similar cases.

CONCLUSIONS The work carried out by LPC about the off label prescription has defined a new standard operating procedure that can be repeatable for each new case. This procedure is necessary to ensure the high quality of performance and allowing comparison with clinicians and general practitioners.

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62. THE "LEAN ORGANIZATION" APPLIED TO OPERATING ROOMS IN AN ITALIAN HOSPITAL

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BACKGROUND The planning of operating sessions must take into account several factors first of all the transparency and fairness to the citizens ,that according to the national and regional provisions, are entitled to the consultation of position on the waiting list at the Hospital Medical Direction, the responsible of compliance with the dispensing criteria of performance waiting within the deadlines provided by law. The following elements, as indicated by the Surgery Management Improvement Group, are indicators of an inappropriate operating room schedule "out of balance" : ? Waiting the patient from the call from reception to the arrival in the room ? Waiting the surgeon and / or of the anaesthetist ? Waiting for changing time patient ? Planning beyond the operable with a consequent referral of patients ? Planning "Holes" ? Changes of position in the patients waiting list

AIMS Optimize operating sessions and ensure that all operations are carried out without delays

METHODS In March 2014 it was established a multidisciplinary working group that studied the following data: 1) the daily use of operating rooms in relation to the performance of surgical elective program (the number of hours of use compared to the number of hours available). For this purpose is defined as: • "normal time", full use of the operating room from 8 to 15 (with continuity of anesthesiologic and surgical procedures, with an interval between two consecutive cases

RESULTS Comparing a pre-and post-lean period we observe an increase in the number of surgical interventions, the entrance to the operating room within 30 minutes (80% of interventions) and an increase in the time “value” (surgical time).

LIMITS -

CONCLUSIONS The optimization of the use of operating rooms led to a major change in time. After a year of testing, important results were obtained leaving space to some organizational improvement.

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63. CANADIAN HEALTH POLICYMAKERS ORGANIZATIONAL CAPACITY FOR EVIDENCE-INFORMED HEALTH POLICY

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BACKGROUND Health policymakers require evidence in a timely manner to rationalize health policy decisions. In government ministries, the organizational structures and processes can support or impede evidence use for decision making. Commonly cited barriers to evidence use among organizations are: an existing culture that does not support evidence use, high staff turnover and limited capacity to appraise evidence, and limited resources to implement actionable messages from the evidence. Research evidence can be misused to support previously determined decisions, respond to contentious issues in the media, or in response to political motivation -- especially among organizations that lack a formal and transparent process for incorporating research evidence into decision making. Organizations successful at evidence informed health policymaking are: structured with dedicated funding and plan opportunities for evidence use; have leadership supportive of and accountable for evidence use in its products and decisions: possess a staff of the right size and skill to carry out evidence informed health policymaking; and have established linkages for information sharing. Despite these issues, little is known about the impact of the organization on evidence-informed health policy.

AIMS The purpose of this study is to assess the organizational capacity of Canadian health policymakers to utilize evidence in health policy decision making.

METHODS A cross-sectional telephone survey of Canadian policymakers was carried out using a purposeful sample of policy analysts and senior managers in provincial health ministries. The Self-Assessment for Organizational Capacity Instrument was used to assess the organization's capacity to use evidence for health policy decisions. The instrument subscales examined: organizational culture; ability to set priorities for evidence use; capacity to assess quality and applicability of the evidence; use of evidence to inform decisions; monitoring and evaluation of policies and programs; and opportunities for continuing education on evidence use.

RESULTS Based on descriptive analysis of 57 policymaker respondents across 9 provinces, the mean and standard deviation was computed for each subscale of the instrument. The highest score was found for the organizational culture and values to support evidence use subscale for policy analysts (mean=22.16, SD=5.60) and senior managers (mean=23.90, SD=4.90). This suggests that respondents felt that the ministry maintained a culture supportive of evidence use. Results from an independent sample t-test comparing policy analysts and senior managers found a statistically significant difference for the subscale related to the organization's ability to monitor and evaluate policies and programs. This suggests that policy analysts and senior managers differed in their perspectives regarding how well the organization was equipped to monitor and evaluate existing policies and programs.

LIMITS Limitations of this study include a small sample size and warrant further study of a larger pool of health policymakers. The other challenge is that results showed similarities across policy analyst and senior managers and a more diverse sample of policymakers might lead to different perspectives.

CONCLUSIONS The results from this study suggest that policy analysts and senior managers have different evidence needs and competencies in searching for and appraising evidence for its quality. Because of the difference in roles within government, it may be more important to focus on building capacity among policy analysts to search and critique evidence and senior managers to assess that a formalized process for evidence use has been undertaken.

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64. THE FACTORS OF FIRST AID FOR HOME ACCIDENTS AMONG GRANDPARENTS WITH 0-4 YEAR OLDS IN TAIWAN

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BACKGROUND Home is the most frequent place of occurrences in unintentional injuries for children 0-4 years old. Sixty-one percent of the unintentional injuries occur at home in a survey in Taiwan. Children aged 0-4 years normally stay at home and grandparents usually are nannies for caring young children in Taiwan. There is no study have investigated grandparents' knowledge of unintentional home injury of first aid.

AIMS The purpose of this study is to explore the factors affecting grandparents' knowledge of first aid for home accidents in children aged 0-4 years.

METHODS The study was a cross-sectional design. The sample consisted of 71 grandparents who were nannies with 0-4 years children; recruited by purposive sampling at community health center in the middle Taiwan. Measurements were a 30-question self-reported questionnaire, including demographic data, first aid knowledge, and related indicators.

RESULTS The participant's mean age was 57.68 (SD=4.25), with the majority being females (85.9%, n=61). Knowledge of first aid had a mean score of 23.47(SD=2.37) with ranged from 17 to 28. The participants total rate of correct knowledge of first aid was 78.2% by the type of accident, the participants had 86.5% correct knowledge of burns, 74.0% correct knowledge of choking, 82.9% correct knowledge of CPR, 78.1% correct knowledge of poison. The participants' gender (man) and age (56-60y) were associated with knowledge of choking first aids. Health sources of first aid information obtained from health personnel was associated with knowledge of trauma first aids. Health sources of first aid information obtained from books and magazines were associated with knowledge of CPR first aids. Only participants' gender was a predictor of the knowledge of choking first aids. However, the grandparents' knowledge of first aids and knowledge of poison first aids were negative correlated with their first aids information from friends /relatives.

LIMITS First, the participants were recruited only at community health center in the middle Taiwan. The results cannot be generalized to the population in Taiwan. Second, the use of self-reported data led potentially to a reporting bias in social desirability. Last, a large regional survey would assess grandparents' knowledge of first aid for young children.

CONCLUSIONS The results revealed that grandparents obtained first aid information primarily from mass media. Sources of first aid information from friends and relative were found as a risk factor for grandparents' knowledge of first aid in unintentional injuries at home. This study suggests that medical services should provide first aid information, especially with regard to CPR and poison, to enhance knowledge of first aid for caring young children at home.

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65. INTERNET-BASED COGNITIVE BEHAVOIURAL THERAPY FOR ADULTS WITH POST TRAUMATIC STRESS DISORDER: A SYSTEMATIC REVIEW

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BACKGROUND Posttraumatic stress disorder (PTSD) results from exposure to a traumatic event that poses actual or threatened death or injury and produces intense fear, helplessness, or horror. Dissemination and effective delivery of short-term, efficacious, evidence-based treatments for PTSD is an urgent priority to address this growing public health problem and to prevent the development of costly chronic mental health disorders (especially for current serviceman and veterans). It is well established in current literature that cognitive behavioral therapy is an effective treatment for post-traumatic stress disorder in adults, children, and adolescents. However, not much research has been done on the effectiveness of internet-based cognitive behavioral therapy for the prevention and treatment of the disorder. Web-based cognitive behavioral therapy has been proven by reviewers to be an effective treatment for similar disorders such depression, anxiety, and panic. These internet-based therapies for posttraumatic stress could be useful to focus on self-management and innovative methods of providing care to large numbers of people who do not have access to mental health care or who may be reluctant to seek care due to stigma. Recent findings suggest that CBT-based online therapy may be an efficient, effective, and low-cost method of providing PTSD treatment following a traumatic event to a large number of people. Further study is needed to improve treatment use and completion and to test Internet based PTSD therapies in a larger study population. Reviewing the effectiveness of current internet-based cognitive behavioral therapy trials for PTSD would give valuable insight into the potential role of web-based therapies in increasing the effectiveness and efficiency of dissemination of PTSD treatment.

AIMS Systematically review the effectiveness of internet-based cognitive behavioural therapy (CBT) interventions for adults with PTSD

METHODS A systematic search for relevant studies was conducted through appropriate databases for all years – e.g Cochrane, Campbell, Medline, Embase, Web of Science. Inclusion criteria were an internet-based CBT intervention (RCT) for adults with PTSD with a primary outcome of decreasing or improving post traumatic stress symptoms. Included comparators were no intervention (e.g. wait-list control) or internet-CBT with therapist vs. therapist alone . Studies were excluded if they compared specific variations of CBT treatment (e.g. exposure vs. non-exposure CBT), if participants were clinically diagnosed with other personality or mental health disorders, abused drugs or alcohol, or had suicidal intentions. The Cochrane risk of bias tool was used to assess risk of bias, and the RevMan was used to conduct meta-analyses.

RESULTS Nine RCTs were included (n=626), and six were meta-analysed (n=501). A separate analysis was conducted for each of the subscales of the IES-R to obtain the average mean differences (intrusion (n=501, -6.4 [-8.5-4.2]), avoidance (n=501, -7.0 [-9.4-4.7]), and hyper-arousal (n=389, -4.7 [-6.1-3.3]), and sizeable reductions of symptoms in the experimental group are found. In each of the trials, the use of the intervention resulted in a statistically significant and clinically relevant reduction of symptoms – with a majority of participants changing diagnostic category.

LIMITS The evidence on this topic is limited. Also, the sample sizes are small in the included studies, which limits the generalizability and power of the results. Moreover, outcome assessment bias was not mentioned or unclear in most of the studies, so reporting bias is a challenge that may have skewed the level of positive results. Similarly, most outcome measures (including the primary IES-R) are self-report, which poses potential challenges if individuals are untrue when providing answers. Additionally, implementation fidelity is not mentioned in the studies, and is already a major problem when considering that there is not one standardized outline for the treatment. There are also modern limitations that must be acknowledged: user engagement, dropouts, digital divide, etc. The internet is a fairly new technology, and some individuals may not have ready access to a computer, so practical concerns such as these must be addressed by researchers who wish to implement this treatment. Missing data is also an issue in some studies.

CONCLUSIONS Overall, web-based cognitive behavioral therapy seems to be a promising and innovative treatment for reducing the severity and frequency of PTSD symptoms, especially for individuals with fear of stigmatization or limited access to healthcare. However, more controlled trials need to be conducted to substantiate their effectiveness.

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66. COMPLEX INTERVENTIONS IN HEALTHCARE: THE IMPORTANCE OF CONSIDERING EARLY THEORETICAL DEVELOPMENT, IMPLEMENTATION AND DESIGN ISSUES

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BACKGROUND The Medical Research Council's Framework (2010) “guidelines for the evaluation of complex interventions” stresses the importance of early theoretical development and the need to link interventions with implementation and design issues. It highlights how all the stages of developing, evaluating, piloting, reporting and implementing a complex intervention, are equally important.

AIMS To explore implementation science principles and explore teething issues around developing and implementing complex interventions; and, to explore how early, theoretical development and modeling approaches can address for these issues.

METHODS A modeling approach to developing interventions is considered to provide a guide to the active ingredients, appropriate measures, best intervention points and techniques, which can be then tested quantitatively in trials. Modeling a complex intervention, prior to a full scale evaluation, can provide important information about the design of both the intervention and its evaluation. It is therefore important to develop a theoretical understanding of the likely process of change, by including from an early point onwards those targeted by the intervention (service users). A gap continues to exist between what is known to be effective and what is actually delivered in the usual course of healthcare. A participatory action research (PAR) approach is presented in this paper as, particularly, appropriate for use in healthcare research, as it recognizes the importance of relationships, feedback loops and the ability of participants to self-organize (Leykum at al, 2009).

RESULTS A focus on trials often leads to researchers neglecting adequate development or proper consideration of the practical issues of implementation, leading to “weaker interventions, that are harder to evaluate or less likely to be implemented” (MRC, 2010). Implementation Science Research principles similarly support this approach. Issues highlighted in the literature in relation to developing complex interventions, such as difficulty of standardizing the design and delivery of those, point to the importance of early stages of developing and modeling interventions. Involvement of a team of key individuals, particularly those with a fundamental knowledge of the context and need for improvement, enables a 'joint' leadership structure, which lead to more effective implementation and, therefore, more effective interventions (Leykum at al, 2009). Examples will be provided from a study on a theoretical modeling approach to the development of education resources for the self-management of fatigue in clients with rheumatoid arthritis.

LIMITS Researchers need to be aware of the potential pitfalls when undertaking participatory action research. More specifically they have to be comfortable with the fact that this entails much more than a "consultation" exercise, and it therefore requires a shift towards actual, active involvement of participants in the research process.

CONCLUSIONS When developing complex interventions, such as educational resources for the self-management of symptoms of chronic conditions, researchers should acknowledge the importance of gaining a theoretical understanding of the likely process of change, as well as the importance of early exploration of issues which might forecast implementation problems.

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67. IMPLEMENTATION CAN WE BE TOO SUCCESSFUL?

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BACKGROUND In Australian health care we have committed significant resources to promoting health care workers behaviour changes to implement and improve patient safety. In infection prevention and control this has included adherence to universal precautions, body substance isolation, standard and transmission based precautions. Have we been too successful? Have some elements of these 'safety' initiatives been sustained past their 'use-by' date? Have some of the interventions that apply to patient safety in health care been inappropriately applied outside the health care environment?

AIMS This paper will look at the concept of 'hygiene' as safety intervention and the introduction of hygiene awareness and compliance programs in health care and then translation into society.

METHODS Questions to be discussed: Has sustainability of glove use had an adverse effect on hand hygiene compliance in the health care system? How do we modify or undo what we spent so much effort implementing? Do healthcare hygiene requirements translate into society?

RESULTS In Australia, the WHO based 5 Moments for Hand Hygiene safety imperative has been a national program since 2008. This has been evaluated as a successful program locally and internationally. One of the barriers to success of this program is health care providers often misguided and inappropriate use of gloves in the health care environment and how it inhibits the correct application of the 5 Moments for Hand Hygiene. Hand hygiene requirements in health care are focused on patient safety does this translate into society? There are several patient safety initiatives linked to infection prevention that apply in healthcare settings may not so effectively translate into society with the desired effect. For example use of disinfectant agents or wipes. The adaption of principles with no consistency of application can lead to a potential increase in risks to society. This can also impact on risks for health services with the movement of people between society and healthcare services.

LIMITS Nil known

CONCLUSIONS Success of any initiative requires appropriate context, relevance to the intended audience, be adaptive and responsive to change when change is indicated. Look at the big picture when considering what barriers may impact on the success of the safety initiative and how these barriers can be broken down if they are entrenched behaviour. Identify and respond to risks and benefits of standardised approaches to hygiene requirements in health care and society.

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68. SUSTAINING A NATIONAL HAND HYGIENE PROGRAM

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BACKGROUND In 2008, the Australian Commission on Safety and Quality in Health Care (the Commission) contracted Hand Hygiene Australia to launch the National Hand Hygiene Initiative (NHHI) across all states and territories in Australia. This initiative was based on the WHO program "Clean Care is Safer Care" program. By mid-2010 all states and territories had implemented the national program. Since the introduction of the national program, the Commission has continued to support to the sustainability of the program.

AIMS When considering a national program such as introduction of the NHHI consideration of the long term goals and what is needed to sustain the project to meet these goals. The NHHI included standardising the process used to teach when hand hygiene is required to be undertaken and the use of standardised audit and assessment methods to determine compliance with hand hygiene in direct patient care settings across Australia.

METHODS Initial engagement was obtained to have a National program from jurisdictional representatives and Health Ministers from all nine (states/ territories and the Commonwealth) jurisdictions. The Commission contracted Hand Hygiene Australia to develop the implementation plan and education and training resources to be used to train auditors and health care professionals in the 5 Moments for Hand Hygiene. To maintain the integrity and consistency of the National program, successful completion of Hand Hygiene Australia approved training was a requirement of any auditor and annual updates were required to maintain assessment skills for Gold Standard auditors. Initially all data collected on compliance with the 5 Moments was manually collated and submitted to a national database 3 times per year. With reports being provided to jurisdictions and then facilities (public sector organisations) and direct to facilities (private sector organisations) for local quality improvement activities. With improvements in technology, data can now be real time entered into the national database and real time reports received by the organisation for use for immediate performance feedback.

RESULTS Since the introduction of the NHHI in Australia, data has been reported 3 times per year and has demonstrated a significant and sustained improvement across all jurisdictions, health care worker groups and within individual moments. Since 2010 public hospitals (and some private hospitals) have reported hand hygiene and SAB rates publicly on the MyHospitals® website. Training of hand hygiene assessors had been undertaken to maintain auditor skills developed for both Gold Standard auditors and compliance auditors. Support resources including online training modules were developed and refined over time. Additional group specific resources were developed (including medical, nursing, allied health, non-clinical) With the introduction of the National Safety and Quality Health Service (NSQHS) Standards in January 2013, Standard 3 – Preventing and Controlling Healthcare Associated Infections (Item 3.5) requires - An organisation to be able to demonstrate with evidence that they have a workforce trained and assessed in line with the NHHI; - Reporting of compliance rates to the highest level of governance within the organisation; and - Demonstrated response/action taken to improve compliance or the inability to comply with the requirements of the NHHI; Have all been powerful drivers to support sustainability of the program a part of an organisations quality and safety initiatives to prevent preventable healthcare associated infections. The results of this program five years after implementation have allowed organisations to demonstrate improvements at an organisational level, participate in local benchmarking and have national data that can be benchmarked internationally.

LIMITS Nil reported.

CONCLUSIONS The NHHI is based on an evidence based model that has been replicated internationally. The program has been supported with financial and logistic resourcing at the highest level and sustained throughout the conceptualisation, planning, implementation and sustainment phases. This is important to the long term success of a nationally consistent project. The benefits of a national program include standardisation of education and audit practices across states and territories, minimising duplication of resources and infrastructure, and support for local implementation derived from being part of a national initiative. When evaluating a safety initiative such as hand hygiene, some of the areas to be considered include review of the context and relevance of the program to risk, society/patient expectations, the allocation of resources to sustaining the program for success and identification of cost minimisation strategies that can be implemented without compromising the integrity of the national program. Since 2008, the NHHI in Australia remains a valid means of collection and collection and benchmarking of data relating to the key elements of the NHHI.

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69. SPECIALIZED HEALTH CAMP, A NEW TOOL FOR UNIVERSA L HEALTH COVERAGE: EXPERIENCE FROM GONOSHASTHAYA KENDRA (GK), BANGLADESH

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BACKGROUND In Bangladesh less than 40% of the populations have access to primary health care (ILO, 2013). GK has pioneered pro-people health care systems in Bangladesh (World Bank, 2007). Achieving the UHC the SHC has integrated services for Medicine, General Surgery, Urology, Cardiology, Gynecology and Obstetrics, Pediatrics, Orthopedics, Eye, ENT, Physiotherapy. All essential medicine and investigations at field level are provided including blood transfusion. All surgical operations were carried out by Consultant and Medical College teacher. General, Spinal and Local Anesthesia was commonly applied.

AIMS The purpose of Specialized Health Camp (SHC) is to provide affordable secondary health care services in hard to reach areas population especially to the poor and vulnerable segments, with the long-term aim to achieve UHC.

METHODS This strategy has been developed through a participatory process in implementing of SHC by involving local partner NGOs, local government, educational institutions and host community for periodical health service delivery.

RESULTS A total 73,874 patients were given to different types of health care services through 42 Health Camps held during September 2011- December 2014. Out of 73,874 patients, 23,041 (31.19%) were Medicine & cardiology, 12,224 (16.55%) Pediatrics, 13,151 (17.80%) Ophthalmology, 9,742 (13.19%) Gyne and Obstetrics, 6,272 (8.49%) ENT, 5,930 (8.03%) Surgery, 1,571 (2.13%) Physiotherapy, 1,360 (1.84%) Orthopedic, 165 (0.22%) Urology and 418 (0.56%) dental.

LIMITS N/A

CONCLUSIONS Specialized health camp reduces patients travel time and travel cost, hospital stay and other expenses for out of pocket. It is now a beacon of hope for the underprivileged people in rural areas. Further, can be important contributors to improve health status and to achieve Universal Health Coverage in Bangladesh.

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70. DEVELOPING AN MEASUREMENT ON KNOWLEDGE AND SELF-EFFICACY OF UNINTENTIONAL HOME INJURY IN PARENTS WITH YOUNG CHILDREN

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BACKGROUND Accidents are a vital cause of death among young children. Children aged 0 to 4 years normally stay at home. However, parents usually panic and sent their child to a hospital without proper first aid when accident occurred. Thus, assessing the knowledge and self-efficacy of unintentional home injury in parents with young children is urgent in children health care.

AIMS The purpose of the study is to develop an assessment instrument on First Aid Knowledge and Self-efficacy of Unintentional Home Injury (FKUHJ) in parents with young children.

METHODS The measurement of first aid in unintentional home injury was established by Delphi method and psychometric testing. Two round of Delphi technique was used with a panel (n=11) of researchers and clinicians in young children care in Taiwan. The measurement is self-reported questionnaire with 30 questions related first aid and prevention knowledge and self-efficacy of unintentional home injury. A total of 302 parents with young children were recruited from 6 health community centers. The validity of instrument was determined by measuring the content validity, and construct validity. Internal consistency reliability and test-retest reliability were also examined to estimate the stability of the measurement.

RESULTS All of indicator achieved a level of consensus ? 80%. The final version of the FKUHJ showed good internal consistency reliability (KR20= 0.71 in knowledge of first aid, Cronbach's alpha = 0.877 in self-efficacy of first aid) and test-retest reliability (Pearson's correlation P< 0.05). The construct validity of the FKUHJ was evaluated by factor analysis and conformed factors. Each item's discriminate power was over 0.9.

LIMITS The use of self-reported data might have a reporting bias in social desirability.

CONCLUSIONS The result reveals that a symmetric testing provides initial support for the validity and reliability of FKUHJ instrument. For children health promotion in community, an appropriated measurement could improve the assessment and assistance for care providers, health personnel, their understanding on parents' ability of caring children while unintentional injury happened at home. The study provides a reference for promoting good children care.

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71. HEALTH TECHNOLOGY ASSESSMENT: SOCIAL VALUES AND ETHICAL ASPECTS

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BACKGROUND Health Technology Assessment (HTA) is a process that uses principles from across various disciplines, including medicine, sociology, economics, and ethics, to evaluate health technologies.The use of health technology assessment research in emerging economies is becoming an increasingly important tool to determine the uses of health spending. As low- and middle-income countries' gross domestic product grows, the funding available for health has increased in tandem. There is growing evidence that comparative effectiveness research and cost-effectiveness can be used to improve health outcomes within a predefined financial space. The use of these evaluation tools, combined with a systematized process of priority setting, can help inform national health payers.

AIMS To describe the role of social values and ethical aspects related to health technology assessment processes and decision-making in Kazakhstan.

METHODS The study is a discussion/review based largely on the experiences of the authors, but supported by available literature.

RESULTS Although there is growing consensus among healthcare experts that the social and ethical ramifications of a health technology should be examined before its adoption, the demand for this kind of analysis among policy-makers around the world, including in Kazakhstan, has so far been lacking. Currently decision-makers mainly base technology adoption decisions using evidence on clinical effectiveness, value for money, and budget impact, while social and ethical aspects have been neglected. Despite the recognized importance of considering equity, justice, and social issues when making decisions regarding health resource allocation, the absence of accepted principles and methodologies, among other factors, hinders research in these areas. There is a tension between universal, unbiased assessment of the instrumental value of a technology and the local, values-laden judgment of whether it performs the right job, fulfills community needs, and poses fair costs. Traditional HTA methods have addressed the former task and are only just beginning to address the latter. As the landscape of health technology assessment and health technology policy in Kazakhstan evolves, their political and ethical backdrops loom large. It is clear that evaluative evidence alone cannot determine which technologies a publicly funded health plan can justify morally, afford economically, and use to good purpose. Technology decisions resist a purely formal approach. There is now much interest in how governments actually make coverage decisions – through which mechanisms, with whose input – and with what outcomes. Public interest in both the processes and outcomes of these decisions is clear, and a role for 'the public' is widely promoted. In particular, governments face pressure to demonstrate the public accountability of these decisions by providing assurances that public resources are being allocated in ways that serve the public interest. In Kazakhstan, both HTA and HT decisions traditionally have been invisible and inaccessible to the public, especially during their formulation. Kazakhs normally first learn of specific assessments and decisions as fait accompli.

LIMITS No limitations

CONCLUSIONS Hence, as long as it is not based on the subjective value judgments of the HTA-agency (or its representative), such an appraising conclusion would not seem to conflict with the rationale for the separation of these tasks. Moreover, it should be noted that if HTA agencies abstain from including full ethical analyses because of the risk of issuing an appraisal, they may fail to provide the best possible basis for decision-makers. Hence, we argue that as long as the ethical analysis and its conclusions are presented transparently, disclosing how well-founded the conclusions are and/or whether there are alternative conclusions, the HTA-agencies should not avoid taking the ethical analysis as close as possible to a definite conclusion.

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72. BODY MASS INDEX AND KNEE FUNCTION OUTCOME FOLLOWING REHABILITATION IN PATIENTS WITH OSTEOARTHRITIS AFTER TOTAL KNEE REPLACEMENT

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BACKGROUND Obesity is associated with an increased risk of osteoarthritis (OA), and the percentage of patients with a total knee replacement (TKR) classified as obese has increased. A high body mass index (BMI) may influence functional outcome after a TKR.

AIMS The purpose of this study was to evaluate the effects of BMI on progression of inpatient rehabilitation using continuous passive motion (CPM) application and treatment outcomes after TKR.

METHODS A total of 354 patients were divided into normal-weight (n = 59), overweight (n = 95), class-I obese (n = 90), class-II obese (n = 82) and class-III obese (n = 28) patient groups, and retrospectively followed for 6 months after undergoing TKR. Outcome measures were recorded at preoperative, daily during inpatient stay, discharged and at 1-, 3- and 6-month follow-up assessments, which included the knee flexion range, pain and Western Ontario and McMaster Universities Osteoarthritis Index physical function (WOMAC-PF).

RESULTS Obesity negatively influenced progress of CPM application by a lower level of protocol initiation and minor daily increment of CPM motion arc ($P < 0.001$). A 5 × 4 (group × time) repeated measures analysis of variance demonstrated that significant improvements occurred in all of the outcome measures for all of the BMI groups at all follow-up assessments ($P < 0.05$ for all). Over all time intervals, patient's performance of knee flexion and perceived physical function declined with increased level of BMI. The most obese patients exhibited significantly worse knee flexion and WOMAC-PF at 6-month postoperatively ($P < 0.001$), despite greater flexion gain was noted ($P < 0.05$).

LIMITS The limitations of present study included that (1) There was relatively small sample size in the most obesity group (class III, BMI =35 kg/m2); (2) Additionally, there lacked of the control group without CPM application to ascertain whether the intervention effects were simply a result of a natural recovery of muscle and physical function. (3) Furthermore, results of the present study may not generalize to every setting. For instance, we included only persons with knee osteoarthritis who underwent surgery for total knee replacement. It is not clear whether the same results could be obtained in subjects with other preoperative diagnoses such as rheumatoid arthritis. (4) Finally, we used the 6-month follow-up assessment as the end point after TKR rather than a long-term 1-year follow-up period. Most studies regarding longitudinal investigations of postoperative functional recovery have followed patient outcomes for up to 1 year and identified that functional recovery reaches a plateau 6 months after total knee replacement. However, although peak functional recovery occurs 6 months after surgery, the fact that overweight or obesity may influence the functional recovery rate at the plateau period based on findings of previous literatures. Future studies must include a long-term follow-up period of 1 year to clearly identify whether the functional recovery differ in obese patients from their normal weight peers.

CONCLUSIONS The obese patients benefited from early post-TKR CPM usage with a lower progress of application, responding as well as normal weight patients.

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73. EFFECT OF ADDITIONAL BALANCE TRAINING ON BLOOD BIOMACHENICAL VALUE AND FUNCTIONAL FITNESS AFTER TOTAL KNEE REPLACEMENT IN OVERWEIGHT AND OBESE PATIENTS WITH KNEE OSTEOARTHRITIS

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BACKGROUND Sarcopenic obesity, a term of body composition category with concurrent obesity and low muscle mass, is developed based on an additive effect of sarcopenia and obesity. This phenotype may be associated with poorer functional and physical limits than each of these conditions alone. Resistance exercise exerts benefits for either frail or obese elderly people. However, few studies regarding muscle strengthening exercises focused on the elder adults with sarcopenic obesity. Whether the resistance exercise is suitable for the training mode of such elderly or not still need further research.

AIMS This study aimed to identify the feasibility of an elastic resistance exercise regime and its effect on body composition and physical function for obese elder females with sarcopenic obesity.

METHODS This protocol study was designed as a parallel randomized controlled clinical trial. Eligible participants are obese older women (= 65 years) with a body mass index =27 kg/m 2. A total sample of 60 participants were randomly assigned to either experimental group or control group. The experimental group received elastic-band resistance training 3 times a week for a total of 12 weeks, while the control group received functional exercise. Outcome measures includes analysis of body composition, distance of functional forward reach, duration of single leg stance; timed sit-to-stand test; timed 10-m walk; timed up-and-go test; and the Medical Outcomes Study Short Form Questionnaire (SF-36).

RESULTS After exercise training, the experimental patients demonstrated significantly improved balance and mobility, compared with the control patients (all $P < 0.001$).

LIMITS Our study design lacked a nonintervention control group to ascertain if the intervention effects resulted from the natural recovery of muscle and physical function.

CONCLUSIONS In the future, we hope the results of our study would be important references of strength sports training of our female elderly citizens. Trial Registration: Chinese Clinical Trial Registry: ChiCTR-IPR-15006069

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74. HOW COMMON TAXONOMIES CONTRIBUTE TO THE REDUCTION OF EVALUATION BIAS IN THE ANALYSIS OF VARIABILITY AND WASTE?

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BACKGROUND Effectiveness analysis in systematic reviews and evidence synthesis of case management and care coordination is impeded by a lack of a common language to describe services and interventions. Research on health and community care has also reported on poorly integrated services, the duplication and waste. Some organizational health interventions potentially increase value and reduce waste, including those that target the integration of health care and community supports. In post-acute community-based settings case management and care coordination services are particularly important and make a unique contribution towards the improved management and integration of care with complicated health conditions such as mental health, dementia, stroke and brain injury. There are complexities and variability associated with factors of the organizations, interpretations of roles and responsibilities as well as patient circumstances and context. These systemic factors and the variability in care coordination interventions must be observed and appraised to minimise the potential for evaluation bias in quality analysis research. Common taxonomies provide an agreed language and can contribute to better understanding and observation of intervention variability to support quality analysis , health care policy, planning and service utilization.

AIMS To analyse and map two very different cases of care coordination using a brain injury community-based case management taxonomy (BICM-T) and report on how variability may contribute to evaluation bias.

METHODS A case study on two care coordination services; an early high intensity community-based case management service and a longer term low intensity service for a brain injury population funded by one organization and performed by providers from other organizations. The services were mapped to the intervention and service trees of the taxonomy. Further analysis demonstrated how these differences potentially influence observation of outcomes and observation of effectiveness in the integration of care.

RESULTS The mapping of the two case management services to the BICM-T highlighted the heterogeneity in case management and care coordination across the two axis of interventions and service. Some of the potential impacts on evaluation and service planning, utilisation and funding are described.

LIMITS The documentation and descriptions available on the case management interventions and services. The documentation was supported by the researcher's contextual knowledge which enhanced mapping and analysis.

CONCLUSIONS Brain injury impacts on multiple domains of health and participation, the person's cognitive, physical, psychological, behavioural functioning and participation in life roles. Case management for person's with brain injury demands a complex response by services, programs and interventions necessarily leading to variability in service and interventions. The case study in mapping case management for brain injury to the taxonomy identified differences between the two services. If not observed the variability could potentially result in evaluation bias. The case study exemplifies how mapping methods to a taxonomy of interventions and services can enable observation of differences, analysis of variability and contribute to reducing evaluation bias to increase value, reduce duplication and waste.

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75. NEW EBM SOLUTIONS FOR E-HEALTH SYSTEMS TO REDUCE DRUGS RISK

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Medilogy

BACKGROUND According to several studies, the number of elderly people taking 5 or more different active ingredients is more than 50%. More than 10% of these take 10 or more active ingredients. This, in combination also with self medication, implies a high risk of interactions and adverse effects. The increasing adoption of e-prescription, in hospitals and in territory care settings, allows pharmaceutical risk analysis based on Evidence Based Medicine and new ways to reduce the risk at prescription and administration time, involving physicians, pharmacists and patients.

AIMS To measure in both quantitative and qualitative way the interactions and adverse effects in hospitals patients and patients managed by primary care. To provide dedicated tools to risk manager, physicians and pharmacists to allow a drugs risk analysis and a quality improvement process.

METHODS We developed two solutions: a Medications Decision Support System, to support physician at prescription time; a Risk Analysis System to support risk manager, physicians and pharmacists in risk assessment and evaluation. Both systems work on Medbase EBM knowledge base, a set of database for interactions checking and adverse effects evaluation, managed by Karolinska Institutet, Stockholm County Council and Medbase. We run our solutions in some hospitals to collect data and evaluate the results.

RESULTS The analysis of different kind of hospital prescriptions shows an heterogeneous mix of different levels of risks according to case mix, drugs policies and care protocols. These data, coming from historical prescriptions, represent the start line to evaluate the risk before the introduction of Medication Decision Support System in the clinical practice.

LIMITS Different depth of details in e-prescriptions data source may affect the analysis capabilities of the software and reduce the comparison among the hospitals. The classification and organization lifetime of EBM contents may be longer than needed. Real cares require, in some case, a “tuning” of alerts and reminders in order to avoid false or useless warnings for physicians pharmacists.

CONCLUSIONS The existence of complete EBM knowledge base allows the design and development of a new generation of Decision Support and Risk Analysis tools. Particular care has to be provided to user interface and functions, so to assure the best user experience with different levels of details in a top down chain of information, up to ordinal articles and studies.

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76. THE SIGNET PROGRAMME: A MODEL CAPACITY AND CAPABILITY BUILDING INITIATIVE FOR EVIDENCE-INFORMED HEALTHCARE DECISION-MAKING

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BACKGROUND There is great need to practice contextually relevant, evidence-based health-care in developing countries. In many of these countries, researchers have gradually developed skills in producing high quality systematic reviews. However this capacity has not concomitantly translated to practice because of inability of end-users (as opposed to producers) to appraise and apply the results of systematic reviews. The SIGNET Programme was initiated in India addresses this gap, by training users of evidence (policy-makers, clinicians, nursing personnel, and hospital administrators) to understand and apply the products of research evidence.

AIMS To describe the SIGNET capacity building programmes in India, and discuss its strengths/limitations as a model for other resource-constrained settings.

METHODS The SIGNET Programme is a training-of-trainers initiative to build individual capacity and institutional capability in evidence-based health-care management. This is done through a cascading flow of knowledge and skills transfer, delivered through training workshops; followed by practical application of knowledge gained to derive evidence-based solutions for local problems. The training components included: (1) Accessing evidence through focused literature search, (2) Appraising evidence using standard critical appraisal tools for various study designs, (3) Basics of Research methodology and biostatistics, (4) Interpretation of evidence, and (5) Practical application of evidence in real-life scenarios. The key Programme elements were (i) Learning-by-doing approach, (ii) Focus on local context, (iii) Efficient utilization of time and resources, and (iv) Partnership relationship between participating stakeholders. Objective measures to evaluate the programme included: Number of personnel empowered (target 675), post-test scores (target: >80% participants to score >75% marks), application of concepts (target: >75% participants should be able to apply concepts learnt), capability to train others (>80% should be able to train others), development of master-trainers (target: 75), and demonstration of institutional capability through implementation of evidence-based projects (target 8 projects).

RESULTS Twenty-seven training workshops were conducted during 2010-14. All targets set a priori were exceeded. The number of personnel empowered was 762 (12.9% above target), post-test scores >75% were achieved by 86% participants (14.6% above target), 83% participants could apply concepts learnt (10.6% over target), 83% participants developed capability to train others (3.8% over target), 78 master-trainers were certified (4% over target), and 12 practical projects were implemented and completed (50% over target). These projects resulted in reduction in rates of health-care associated infection in 3 hospitals (by 12%, 18% and 9%), enhanced patient satisfaction scores in 2 hospitals (by 12% and 17%), reduced waiting time in Out-patient Departments in 3 hospitals (by mean of 33 minutes, 41 minutes, and 19 minutes), setting up Units to implement evidence-based strategies in 2 institutions, revamped technology procurement process in 1 hospital, and efficient utilization of mechanical ventilators in 1 hospital. Structured and unstructured feedback received from trained personnel and institutional Leaders suggested that the strengths of the SIGNET Programme included: focus on local issues, development of practical skills (in addition to theory-based learning), group-based learning, learning-by-doing approach, mentoring during the implementation of short-term institutional projects, and time-management. Negative feedback received included: coverage of several topics over a few days, absence of online support, tough post-test question papers, and absence of support beyond the duration of the Programme. The Programme was funded through a limited financial grant of less than 500,000 USD; and non-financial support received from participating institutions and Programme leaders, thus making it cost-efficient.

LIMITS -

CONCLUSIONS The SIGNET Programme is a successful model to enhance evidence-based decision-making in the Indian health-care context and can be readily implemented in other resource-limited settings as well.

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77. DEVELOPMENT OF ADMINISTRATIVE AND BUREAUCRATIC PATHWAY TO ENSURE A TRANSPARENT PROCUREMENT SYSTEM IN THE PUBLIC SYSTEM AT THE SUB-REGIONAL LEVEL

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BACKGROUND The new national anti-corruption policy implementation is forcing the regional and sub-regional health systems to implement new transparent procedures within the health services.

AIMS The aim of our study was to use Lean Management methodologies and tools to improve transparency in the procurement at sub-regional level.

METHODS A Multidisciplinary task force, including the Heath Technology Assessment Team, was created to solve the problem. An administrative and bureaucratic pathway was created. It has been shared and reviewed with the company CEO first and then implemented as sub-regional policy document. A specific procurement request form was created as well. The procurement pathway included the involvement of the pharmaceutical department, engineering department, HTA team and the medical direction and the procurement depatment. The pathway has been at the end summarized in a flowchart for an easier diffusion and implementation of the new processes through the departments. Finally several pathway indicators were identified to evaluate the adherence and assess its final implementation. The entire process pathways and related forms and documents have been published and diffuse on the intranet.

RESULTS The implementation of a shared pathway to make lean, transparent, accountable and standardized the processes of new technologies procurement, eliminated abnormal request pathways and shortcuts. The specific form implemented forced a complete and exhaustive retrieval of needed information, data and documents to permit a faster analysis of the technology requested. The systematization and the use of replicable and shared procedures in a structured pathway, guaranteed an effective implementation. The exchange of know-how between the member of the task force improved the cultural background of the involved staff. The successful implementation of the procedure resulted in a significant reduction of response time to requests for new health technologies, a higher percentage of requests properly structured. This consequently ended in a reduction of rejected requests for incomplete data. The final result was a leaner process with a improved transparency and accountability that helped the strategic director to make strategic decisions faster with higher degree of transparency and accountability. Finally the publication of the documentation helped in a great manner the implementation of the pathway.

LIMITS The initial resistance of the stakeholder to change their practice required in the beginning proper soft-skills such a leadership, team and meeting management to overcome the initial inertia of every changing process.

CONCLUSIONS We believe that sharing governing processes and the identification of replicable models allow a cultural exchange within the system. Furthermore we believe that shared process review and digital diffusion of the documentation is essential to obtain optimal implementation of new or revised pathways.

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78. THE SHARING OF EBM AS A TOOL FOR STRATEGIC DECISION SUPPORT ON DRUG DISINVESTMENT: THE USE OF BIOSIMILAR DRUGS IN LOCAL HEALTH AUTHORITY ROMA C

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BACKGROUND The review of the scientific evidence, in multidisciplinary teams, enables healthcare companies to make appropriate choices and it is often combined with good health outcomes and efficient economic allocation. The use of biosimilars is still not fully implemented in the Italian context for the lack of a regulatory framework which supports their widespread use.

AIMS The aim of our study is to evaluate the current situation in our sub-regional area and try to adapt our use of biosimilar drugs to the international guidelines.

METHODS We first have researched and analyzed the international literature on biosimilar drug's efficacy and safety with a special focus on red and white blood cells growth factor. We extracted our historic consumption data on related biosimilar drugs. We then created a DELPHI group to discuss our findings and evaluate with the prescribing physicians a new strategy to increase the biosimilar drug usage in our system. Finally we monitor the consumption trends before and after our study through an interrupted time series analysis with a Joinpoint methodology.

RESULTS The evidence based literature showed a non significant difference in the use and efficacy of the biosimilar versus firm based such red and white blood cells growth factors. The international evidences reviewed showed also a Lenograstim and Filgrastim equivalence in their therapeutic indications. The Italian drug use policy in agreement with international guidelines support the switch to the biosimilar use. Our internal data showed a discordant use of these kind of drugs: The Erythropoietin originator usage is 85% of the Total Defined Daily Dose at the hospital level and 89% at the district level. The Lenograstim was prescribed in the 94% of the cases at the hospital level and 40% at the district level. The Filgrastim was prescribed in the 5,7% of the cases at the hospital level and 40% at the district level While the Nivestim (biosimilar drug of the Filgrastim) was only 0,3% at the hospital level and 20% at the district level . The DELPHI group decided to promote the switch to the biosimilar and this was supported by a formal policy document and strict monitoring of the system. This document set a minimum year consumption = 80% of biosimilar drugs versus the firm drug. It was also forced the use of a special internal request form to prescribe a non biosimilar drug Several months later it was possible to see a significant trend modification with a rapid increase in the biosimilar use. This permitted an aliment with the international guidelines and at the same time an economic saving.

LIMITS The initial resistance of the physicians to change their clinical practice required in the beginning proper soft skills such a leadership team and meeting management to overcome the initial inertia of every changing process.

CONCLUSIONS The sharing of the EBM literature was a very useful and safe technique to guide our drug disinvestment activity. Involvement of all the health figures, from the medical direction to the prescribers, in the assessment activity it was a very useful methodology not only to interpret the guidelines but also to facilitate the implementation. The Join point analysis was a very useful tool to verify in a statistical way the efficacy of our activity. We can conclude that after our study the system is not only more aligned with the international guidelines with an increase of appropriateness but also obtained a quite big economical saving without negatively influencing the health of our patients.

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79. POOR KNOWLEDGE FOR BLOOD BORNE PATHOGENS AT FIRST CARE LEVEL FACILITIES IN PAKISTAN

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BACKGROUND We conducted an assessment of knowledge about blood borne pathogens (BBP) and use Health care workers are at a high risk of needle stick injury (NSI) and blood borne pathogens (BBP)[1]. According to a World Health Organization estimate, in year 2002, sharp injuries resulted in 16,000 hepatitis C virus (HCV), 66,000 hepatitis B virus (HBV) and 1000 human immunodeficiency virus (HIV) infections in health-care workers worldwide[2]. Recapping, disassembly, and inappropriate disposal increase risk of NSI [3-5]. In developing countries, the frequency of these factors gets accentuated with high injection use at health care facilities, most of which are provided with previously used syringes [2,6]. Injection use is very common in Pakistan where 13.6 injections per person are administered each year [7]. More than 50% of these injections are provided with previously used syringes [7]. Reuse of the syringe involves manipulation, including recapping and disassembly, that puts providers at the risk of NSI [6]. Prevalence of HBV and HCV in Pakistan is more than 10% (unpublished data) and unsafe injections transmit most of these infections [6,7]. Hence, risk of NSI and associated infections is higher in Pakistan as compared to those countries that have a low prevalence of HBV and HCV. In Pakistan, more than 80% of the health care is provided at general practitioners' clinics. Most of these clinics consist of a small, single room structure where consultation, injection administration and drug dispensing is performed [7,8]. On average, a practitioner sees 10–100 patients per day and charges may vary from Rs.10 (15 cents) to Rs. 50 (80 cents) [7,8]. Most of the injection prescriptions and reuse of syringes occur at the clinics of general practitioners (GP)[7,8]. Hence, health care workers at these clinics are at a greater risk of NSI than those working at the secondary or tertiary care hospitals. Sharp waste handling within the clinic and the out-of-clinic disposal of this waste is also unsafe, putting the injection providers, as well as the community, at risk of needle sticks[9]. Most of the time, injection providers (nurses or dispensers) working at clinics are not formally qualified, and they learn injection administration while working with someone who already knows it. During their apprenticeship or job the clinic, they never receive training in infection control and universal precautions. Universal precaution training and practices have been shown to reduce blood and body fluid exposure substantially[10]. Not recapping the needles and disposing them safely into puncture resistance containers alone has shown to reduce NSI by almost 70%[11]. Owing to the unique nature of these clinics, interventions needed for these facilities might be different from those that can work for large secondary or tertiary care hospitals, or state owned enterprises, where funds can be made available for NSI prevention programs. These clinics are small, workforce (practitioner assistants), often does not have formal training and also by law, they are not bound to make arrangements for occupational safety. Universal precautions trainings and practices are low cost solution to reducing risk of sharp injuries and have a high likelihood of being adopted. We conducted an assessment of knowledge about BBPs, risk perception and practice of universal precautions at first level care facilities in two districts of Sindh province, Pakistan. This assessment will provide essential baseline data for developing and testing low cost training interventions in universal precautions.

AIMS To examine the knowledge for blood borne pathogens at first care level facilities in Pakistan.

METHODS We conducted a cross-sectional survey and selected three different types of FLCFs ; public, general practitioners and unqualified practitioners through stratified random sampling technique. At each facility, we interviewed a prescriber, a dispenser, and a housekeeper for knowledge of BBPs transmission and preventive practices, risk perception, and use of universal precautions. We performed multiple linear regression to assess the effect of knowledge score (11 items) on the practice of universal precautions score (4 items- use of gloves, gown, needle recapping, and HBV vaccination).

RESULTS We interviewed 239 subjects. Most of the participants 128 (53%) were recruited from general practitioners clinics and 166 (69.5%) of them were dispensers. Mean (SD) knowledge score was 3.8 (2.3) with median of 4. MBBS prescribers had the highest knowledge score while the housekeepers had the lowest. Mean universal precautions use score was 2.7 ± 2.1. Knowledge about mode of transmission and the work experience alone, significantly predicted universal precaution use in multiple linear regression model (adR2 = 0.093).

LIMITS WE included every age group of the population.

CONCLUSIONS Knowledge about mode of transmission of blood borne pathogens is very low. Use of universal precautions can improve with increase in knowledge.

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80. CLINICAL GOVERNANCE OF HOSPITAL DRUGS USE LEADING TO REDUCTION OF COSTS AND DRUGS USAGE

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BACKGROUND Appropriate use of drugs is health-care settings is becoming increasingly important even in Italy due to the well known shortages of resources assigned to Health Agencies and Hospitals. Aside from economical issues, appropriate drugs use increases patients safety while reducing side effects.Aosta regional Hospital has some 480 beds, with about 16400 patients discharged in 2014. Regional financing to the only regional Health agency were cut by 10% for year 2014; for that reason, a strong mandate was given by Health Agency administrators to cut costs wherever possible

AIMS Our aim has been to create a multispecialist working group, lead by Hospital Pharmacy, with the following objectives: 1- to analyze trends of in Hospital drugs use, by classes 2- to set interventions, tailored for drug classes of interest 3- to give feedback to health care workers (HCW).

METHODS The working group was created in january 2014 and included specialists from all clinical areas of the Hospital: medical , surgical, critical, mental health, and obsgyn/pediatrics. Trends in drugs consumption over 2013 - 2014 period and costs were analyzed; single drug classes were choose depending on consumption trends and/or costs, for each of them a specific approach was decided with the pivotal role of the area specialist, consisting of procedures, guidelines, rewards, depending on cases. Great attention was given to prompt and capillary communication of recommendations and to feedback to HCW, scheduled every six months.

RESULTS Interventions started in spring 2014, so results refer to a period of 9 to 6 months, depending on drugs. Drugs classes subjected to interventions were the following: 1- antineoplastic, -10,6% costs after intervention, 2- last generation antibacterials (- 6%), 3- low-molecolar-weight heparines (-1.1%), 4- drugs for Alzheimer disease (-39.9%), 5- other antibacterials (-27%) 6- Oxygen therapy (- 15.2%), 7- inhalatory drugs for asthma (-7.9%) , 8- substitution drugs for addicted patients (-12.5%) . Finally,9- a program for switch therapy from intravenous to oral route was started and initially targeted for protein pump inhibitors and paracetamole (-32.2%). As a whole, in year 2014 535,454 euros were saved from the intervention drug classes (-12.8%), and 888,000 euros were saved considering the whole Hospital drug expenditure in the same year. Moreover, Hospital activities in 2014 increased, with 16353 patients discharged, compared to 15992 of 2013. Finally, intervention drug costs were similar between 2013 and 2014, thus consumption trends overlapped costs.

LIMITS This is a descriptive study, methods were home made, follow period is short and varied among intervention drugs.

CONCLUSIONS Our results are preliminary and need to be confirmed during follow-up; we observed different rates of efficacy among intervention drugs, suggesting different degrees of difficulty, related to drug class, involved specialist and target HCW's; this underlines the need of tailored interventions for each drug class. The proposed approach has to be proceeded over time, to retain its efficacy; for that reason , the working group will continue activities in 2015, adding in particular: a- governance of selected medical devices b- guidelines for appropriate use of protein pump inhibtors and c- guidelines of antibiotic therapy in the territory, thus passing the Hospital borders. In conclusion, we describe an experience of non-linear costs-cuts based on clinicians driven governance; increased appropriateness is expected to lower drugs-related toxicity and improve hospital activity indicators (for example: the lenght of stay). Finally, the suggested approach is low tech, cost free and could be repeated anywhere.

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81. ASSESSMENT OF CLINICAL PRACTICE GUIDELINES METHODOLOGICAL QUALITY IN TAJIKISTAN

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BACKGROUND Improving the quality of health care is one of the main priorities of the health system in many countries, including Tajikistan. Evidence-based CPGs is one of the principal tools of continuous quality improvement process. However, there is currently no complete information about the quantity and quality of all available CPGs in Tajikistan.

AIMS Assessment of methodological quality of CPGs developed in the country.

METHODS A systematic search founded 27 CPGs appropriate inclusion / exclusion criteria. These documents were used to create the national database and assessment of methodological quality. The AGREE II Instrument (2009) was used for evaluation. The obtained data were entered in the form to calculate the overall average score for each of the six domains of the AGREE II Instrument.

RESULTS The highest score was obtained in such domains of the CPGs as "Scope and purpose" (70%) and "Clarity of Presentation" (74%). The methodological quality of the others sections of the CPGs was significantly lower. Average score in the section “Stakeholder Involvement” was 37%, “Rigour of Development” ¬– 21%, “Applicability” – 13% and “Editorial Independence” – 26%.

LIMITS Since the central directory of national CPGs was absent, and the process of their development and approval was conducted with the participation of various organizations, we cannot be completely sure that all CPGs have been collected.

CONCLUSIONS Currently, the methodological qualities of most of the existing CPGs are not high enough. It’s necessary to develop mechanisms to optimize the development and adaptation of CPGs in Tajikistan.

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82. NUTRITIONAL INDICES AND LENGTH OF STAY - STUDY ON 4000 PATIENTS ADMITTED IN A HOSPITAL OF MILAN IN 2012

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BACKGROUND The infrequent recording of nutritional indices in hospitals confirms that the concern about malnutrition is still the exception, not the rule. The alteration of blood profile causes organic debility and promotes the self-perpetuating cycle malnutrition-infections. This leads to malnutrition, important comorbidity with a negative influence on prognosis, physical healing and length of stay. Actually, albumin and lymphocyte are parameters successfully used in common clinical practice; their importance in human biology and the multiplicity of functions in which they take part, makes them irrefutable indices of organic damage and general malfunction. Because of the lack of a screening method universally accepted and considering that the future of the healthcare system aims to shorter and shorter hospitalizations, high turnover, low costs, reduced morbidity and mortality, our study is placed in this direction. Identify a specific spectrum of markers on which focus onto at admission is essential to improve hospitals' internal services organization and reduce social costs

AIMS 1) Verify the correlation between length of stay and low levels of albumin and lymphocytes to validate their utility as prognostic indices and provide a standardized screening method for the early assessment of malnutrition in hospitalized patients. 2) Identify the spectrum of comorbidities most likely to be associated with a prolonged hospitalization, for which close therapeutic monitoring is necessary during the recovery period.

METHODS The longitudinal study included all admissions onto the wards of Surgery, Gynecology, Infectious Diseases, Medicine, Orthopedics, Obstetrics and Urology during the observational period ranged from July 1st 2012 to December 31st 2012. Using electronic health records we collected anamnestic data (gender, age, date of admission and discharge, diagnosis, number of comorbidities) and biochemical data (complete blood count, lymphocytes, albumin and total protein). Statistical analysis appeals to the Correlation method, Multivariate Analysis and Regression (Generalized Linear Models). The results were stratified by type of admission (elective or urgent), by specialty and class of diagnosis

RESULTS The correlation between low albumin levels and prolonged hospitalization is extendible to the entire sample, to almost all hospital wards (except for Gynecology and Obstetrics) and also to most diseases (Benign tumor and inflammatory diseases excluded). Lymphocytopenia is associated with length of stay only in Orthopedics and limited to certain clinical conditions (Infectious diseases, Fractures and Pregnancy/childbirth). Platelets (p

LIMITS There are three critical points in clinical approach: limited evaluation of albumin at admission, inability to trace patients' anthropometric data and misuse of paper-based records. Clinicians' lack of sensitivity about malnutrition has led to a general disinterest for important parameters (weight, height, BMI, albumin and lymphocytes), fundamental for the assessment of nutritional status, but not recorded in medical records, except in case of surgical operations, administration of anesthetics, antibiotics or chemotherapeutic drugs. Also paper-based medical records are obsolete devices still widely used in hospitals, source of important impediment either for research practice and clinical audit

CONCLUSIONS Albumin and lymphocytes are nutritional indices with effective prognostic value. Routine evaluation of blood markers, clinical history and anthropometric measurements at admission provide information on nutritional risk and allow for improved patient outcome, fewer days of hospitalization and reduced social costs. Considering the results obtained, how much the extra days of hospitalization have economically weighed without a nutritional screening method? The future is bound to a bet: to convince clinicians of the importance of Dieticians within the multidisciplinary equip. Exploiting new clinical knowledge and investing time to ensure maximum therapeutic benefit to each patient means to act in the interest of the overall community. This important concept is the rationale that guided us to undertake this study, but it should also be the reason that accompanies any decision of each health care professional, everyone in the exercise of his own profession

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83. EVIDENCE-BASED PRACTICE BELIEFS AND IMPLEMENTATION AFTER A POSTGRADUATE EDUCATIONAL PROGRAM: A BEFORE AND ONE YEAR AFTER

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BACKGROUND Healthcare professionals are increasingly expected to use research evidence to improve healthcare outcomes. To promote the use of evidence in clinical practice and in teaching Bergen University College established a postgraduate educational program in EBP.

AIMS The purpose of this study was to examine changes in EBP beliefs and EBP implementation one year after participation in a postgraduate educational program in EBP. A secondary question explored scores at one year with participation in EBP network groups.

METHODS A before-after study was conducted among 158 healthcare professionals in a postgraduate program in EBP. The core content of the program was based on the steps of EBP, and the teaching used principles from adult learning theory and the Critical Appraisal Skills Program. A combination of various pedagogical strategies was used, and clinical issues and research articles relevant to the students' practices were incorporated throughout the course. At the end of the course period, participants were required to write an individual examination paper related to a clinical issue from their own practice and to present their paper to their colleagues in practice. Students were encouraged to participate in evidence-based network groups to sustain knowledge and skills obtained at the postgraduate program. The Norwegian version of EBP Beliefs Scale and EBP Implementation Scale was completed at baseline and one year after the educational program. Paired sample t-tests were used in the analysis. Independent t-tests compared scores at one year by participation in EBP network groups.

RESULTS The participation rate was 76%. Scores increased from pretest to one year follow up on the EBP Beliefs Scale (mean difference= 6.0, CI95%= 4.9-7.2) and the EBP Implementation Scale (mean difference= 2.8, CI95%= 0.5-5.0). Participants in evidence-based network groups reported higher scores (mean difference= 8.0, CI95%= 4.1-11.9) on the EBP Implementation Scale than those who did not participate in these groups.

LIMITS Befor and one year after without control group.

CONCLUSIONS Healthcare professionals had a positive change in EBP Beliefs and EBP Implementation Scale scores. The change was strongest in EBP beliefs. In addition, participants in evidence-based network groups had higher total mean score for the EBP Implementation Scale than participants who did not engage in these groups. Further research is needed to examine the relationship of the changes in scale scores as they relate to behavior change, as well as other factors that may facilitate implementation of EBP among healthcare professionals attending postgraduate programs in EBP.

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84. THE BENEFIT OF AIMING HIGH: SUPPORTING OUR STUDENTS TO BECOME CRITICAL PRACTITIONERS RATHER THAN GRADUATES WITH EVIDENCE-BASED THINKING SKILLS.

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BACKGROUND Critical thinking skills are an indisputable element of the capabilities expected of higher education graduates. For those teaching future health care workers, the importance is felt keenly, especially in this age of evidence-based practice. In defining the capabilities or competencies expected of our graduates as they begin work, we are likely to identify many that revolve around an ability to think and act critically: critical appraisal, evaluation and use of evidence in practice; decision-making and problem-solving; the ability to make judgements fairly and quickly; and finally self-regulation and a high-level of reflective ability.

AIMS In this paper I will argue that to ensure our health graduates work professionally and actively practice evidence-based healthcare, we should teach students more than just the various skills of evidence-based practice. This is essential if our objective is also to maximise the proper and judicial use of healthcare resources, minimise the waste of resources and improve patient safety.

METHODS I will explore how we should support our students to become holistic critical beings, capable of transferring their critical thinking skills across disciplines and practices (Perkins and Salamon, 2001; Barnett, 1997). Furthermore, using sociological theories from my qualitative doctorate research, I will demonstrate how we can teach the practice of critical thinking at university level for a lifetime practice as a health professional graduate, and aim beyond this to assist students to develop into critical practitioners, active within and across professions and disciplines, contributing to the world as reflective, analytic citizens (Barnett, 1997). In particular, I will examine the transition point of graduation from university to professional practice, as key to this understanding. Moreover, I will discuss practicalities by providing a description of our curricular developments for teaching 'Quality of Medical Practice' to UNSW Medicine undergraduate students.

RESULTS During the past ten years, we have taken a blended learning approach to support our curriculum of evidence-based medicine, medical statistics, and quality and safety. We are now looking towards a more holistic approach of nurturing critical thinking alongside skills of transferability and reflective practice, for the transformation of students into competent professionals, effective beyond the healthcare context.

LIMITS -

CONCLUSIONS Healthcare graduates can and should become globally active critical beings, flexible, sceptical, and prepared for the 'supercomplexity' of the professional world (Barnett, 2000).

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85. GUIDELINES AND EXAMPLES FOR TEACHING EBP TO OPTOMETRY STUDENTS

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BACKGROUND In the profession of optometry, responsibilities for eye and general health care make Evidence-Based Practice (EBP) essential. This research was a critical part of a two-year project spanning Optometry Schools across Australasia, which aimed to influence optometry curricula so that graduates have better skills, knowledge and attitudes needed for EBP. The project team interviewed teachers at two institutions to identify where various components of EBP were taught. The results highlight ideal strategies to assist in the learning and teaching of EBP skills.

AIMS To conduct interviews of course convenors to survey strategies used to teach EBP and tasks for measuring EBP skills at each stage of the degree programme. The goal was to produce exemplar strategies, tasks and guidelines for best practice.

METHODS The interview method tapped directly into the EBP principles outlined in the Sicily statement (Dawes et al., 2005), by asking convenors to broadly identify where and how in their optometry course structure they teach any of Sicily statement's five aspects to EBP teaching and assessment, summarised as: Ask, Acquire, Appraise, Apply and Audit.

RESULTS A total of 27 staff were interviewed regarding 45 courses across two universities. The evidence-based optometry team identified good exemplar tasks to share openly via the evidenced-based optometry website http://www.eboptometry.com/. In addition, we produced some guidelines for creating good quality tasks. Key aspects of the ideal EBP task are that: (i) it is transparent and clear about the EBP step it teaches, (ii) it is relevant to level of learning, (iii) marking guides value the process of the learning, not just the output, and (iv) the essential steps of reflection and useful feedback are included. In essence, the ideal EBP task is similar to how academics research and how professionals practice EBP.

LIMITS Only partial implementation and evaluation has been conducted so far, as we take care to embed these tasks within the curricula. We aim to roll out these tasks and measure student and teacher feedback fully over the next two years.

CONCLUSIONS The participating optometry schools have gained greatly by this process: in both the compiling of resources but also by conducting this survey methodology. The face-to-face interviews were themselves instrumental in educating the teachers on the detailed process of evidence-based practice. We recommend this process as a dissemination or training exercise.

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86. INCREASING THE UPTAKE OF SYSTEMATIC REVIEWS: A MIXED-METHODS SYSTEMATIC REVIEW OF BARRIERS, FACILITATORS, AND INTERVENTIONS

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BACKGROUND Using systematic review methodology, we set out to compare the effect of antidepressant medication versus cognitive-behavior therapy in adult, depressed patients and found that antidepressants should not be considered to be superior to the psychotherapy. However, little is known about the barriers, facilitators and interventions that impact on the uptake of a systematic review such as ours .

AIMS Using systematic review methodology, we set out to identify how the uptake of systematic reviews and meta-analyses can be improved.

METHODS Studies were included if they addressed barriers, facilitators and interventions enhancing the uptake of systematic reviews and meta-analyses. Reports in any language were included. All decision makers were eligible. The mixed-methods systematic review encompassed both quantitative and qualitative research and drew on a variety of designs: intervention-outcome studies, surveys, focus groups, and interviews. We searched 19 databases including PubMed, EMBASE and The Cochrane Library, covering the full range of publication years from inception to December 2010, with a briefer updated search in 2014. Two reviewers independently extracted data and assessed study.

RESULTS Twenty-seven barrier studies, 15 facilitator investigations and 10 intervention studies met our strict inclusion criteria. Three studies, of low-to moderate risk of bias, identified interventions that showed a statistically significant improvement in review uptake. Juxtaposing the identified barriers and facilitators alongside the interventions, it was clear that the three effective interventions addressed a wide range of barriers and facilitators.

LIMITS A limited number of studies were found for inclusion. However, the extensive literature search is one of the strengths of this review.

CONCLUSIONS Three interventions are recommended to enhance systematic review uptake. Identified promising approaches will need to be developed further. New strategies are required to target neglected barriers and facilitators. This mixed-methods systematic review addressed not just effectiveness but, by encompassing effect modifiers, also highlighted the appropriateness of strategies aimed at improving the uptake of systematic reviews.

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87. TRANSLATING NUTRITIONAL EVIDENCE BASED GUIDELINES INTO PRACTICE THROUGH TOOLKITS

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BACKGROUND The Academy of Nutrition and Dietetics (Academy) launched an online Evidence Analysis Library in 2005 with the objective of providing a library of nutrition-related systematic reviews, evidence-based nutrition practice guidelines and toolkits to more than 75,000 academy members consisting of dietetics professionals. The online library has evolved electronically with the addition of features to improve navigation, promote dissemination and implementation of guidelines. The EAL has been accessed from 217 countries/geographical areas, with over 20 million hits as of March 2015.

AIMS The aims are to 1) understand the process and features of the Academy Evidence Based Nutrition Practice Guideline (EBNPG) toolkits that serve as a resource to assist registered dietitians (RDNs) in implementing nutrition guidelines derived from systematic reviews and 2) report the results of a toolkit usability survey on information about the usefulness of the toolkit elements as well as to help identify the barriers to using the library, finding information, and implementing guidelines.

METHODS The Academy developed an EBNPG toolkit to serve as a set of companion documents for application of the nutrition practice guideline. The toolkits feature a Medical Nutrition Therapy (MNT) protocol for treatment of disease/condition, case studies, documentation forms, outcomes monitoring sheets, client education resources, the incorporation of the nutrition care process, and electronic downloadable purchase items. To evaluate the usability of the toolkits a customer survey questionnaire was developed where toolkit users were recruited. Sixty individuals were recruited to evaluate the six updated toolkits (Vegetarian Nutrition, Spinal Cord Injury, Gestational Diabetes, Unintended Weight Loss, and Chronic Kidney Disease), using Survey Monkey.

RESULTS The top tier Ranked documents for usability in practice were overview document (95%), Outcomes management: Nutrition monitoring and evaluation (92 %), instruction for MNT sample referral forms (90%), Summary of client education material and professional resources (90%), case study (88%), MNT Encounter process (88%), and MNT flowchart of encounters (86%). The lowest tier ranked documents for usability in practice were instructions for using documentation forms (85%, outcomes management: forms in excel (85%), recommendations with associated standardized language terms (76%), MNT sample referral form (71%), MNT follow up progress note (57%) and MNT initial progress note (55%). The overall toolkit image findings reported that 96% agreed the toolkit contained adequate forms to collect data, 92% agreed toolkit well organized, 88% agreed toolkit improved or would improve orientation with new staff or students and 73% reported toolkit in general was useful.

LIMITS The recruitment of participants that were toolkit users was small. Therefore, the sample size did not have the statistical power to obtain the strength for statistical confidence.

CONCLUSIONS Overall, a lot of time and effort goes in to the development of the Evidence Based Nutrition Practice Guideline Toolkits. Toolkits should be available on an online portal form through the Academy's website or the EAL website. Along with web based forms the toolkits should continue to produce the documents that their users have found most useful which would include: the case studies, client educational material, and MNT flowchart and encounter process. Focusing on the toolkit strengths and comments from users will help to decrease the time spent on developing the toolkits, increase usability, and tailor the content to what the user wants. Minimizing the content of the toolkits will lessen the workload for the toolkit authors and provide the toolkit to be released to the consumers quicker after guideline development. These changes to the toolkit development process should help increase usability and ultimately help RDNs implement the EBNPG more effectively.

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88. DRIVING EVIDENCE BASED PRACTICE THROUGH THE ACADEMY OF NUTRITION AND DIETETICS EVIDENCE ANALYSIS LIBRARY

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Academy of Nutrition and Dietetics

BACKGROUND The Academy of Nutrition and Dietetics (Academy) is one of the world's largest groups of health professionals. The Academy evidence-based dietetics practice is the incorporation of systematically reviewed scientific evidence in making food and nutrition practice decisions by integrating best available evidence with professional expertise and client values to improve outcomes. The online, user-friendly Evidence Analysis Library (EAL) was established to promote use of evidence-based practice among registered dietitian nutritionists (RDNs) and similar professionals. The evidence based libary encompasses food and nutrition topics from A-Z.

AIMS The aims are to describe the Evidence Analysis Library (EAL) process and how it's used to develop and educate students and other professionals on systematic reviews, guidelines and toolkits that impact the nutrition field.

METHODS Systematic reviews are developed by the Academy of Nutrition and Dietetics EAL on member driven topics that impact the health profession. The reviews are conducted by appointed Academy-member Expert Working Groups. There are 5 key steps in the process; developing the scope of the project and formulating the questions, gathering and classifying the research, critically appraising each article, summarizing the evidence in an overview table along with evidence summaries and developing a conclusion statement grading the strength of evidence. Finally, the systematic review is published on the EAL. This process is used to educate students and other stakeholders on how to develop a systematic review on a topic and also learn to extract data from research articles. Webinars, outreach programs, development of an internship program on-site as well as training materials were developed on-line where continuing education credits could be earned to learn the process. Guidelines and toolkits were developed for some Evidence Analysis projects.

RESULTS The EAL has developed 42 EA projects, generating 1,351 conclusion statements and 414 recommendations in a 10-year period (2005-2015). Guidelines were additionally developed for 18 projects which serve as courses of action based on the evidence. Fourteen toolkits were developed to serve as companion documents for application of the relevant practice guideline. The EAL has been accessed from 217 countries/geographical areas, with over 20 million hits as of March 2015.

LIMITS The Evidence analysis process is a rigorous and time consuming process. Therefore, the number of topics is limited in order to keep abreast of the science. The opportunity to develop outreach programs globally is time consuming.

CONCLUSIONS The EAL's systematic process can help educate students and be used as a guide for RDNs and other healthcare leaders on evidence based practice. The wide variation of topics can provide a greater comprehension of food and nutrition topics; awareness of current standards of practice; and tools for training students, interns and staff. Future studies are needed to evaluate the impact of how the EAL can improve nutrition practice and patient/client outcomes through different methods of education/ training.

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