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EFI Bulletin

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Dear Colleagues,

It is a matter of immense pleasure and pride that the EFI Bulletin is entering in the 1st year of its publication. The Bulletin will be a quarterly publication of the Epidemiology Foundation of India and addresses important issues pertaining to Epidemiology and Evidence Based Medicine.

The Bulletin will reach out to a large number of scientists, administrators, policy makers, nutritionists, dieticians, doctors and people's representatives who are interested in the application of science of Epidemiology and it's application. The contributors will include distinguished scientists from fields of Epidemiology with the vast knowledge and experience.

EFI was founded in the year 2019.The EFI is a non-profitable, non-commercial, non-governmental voluntary organization dedicated to improving the practice of Epidemiology that will dedicate its resources in a focused manner by undertaking scientific programs which will have a high impact in advancing practice of Epidemiology.

Opinions expressed from readers will be published in every issue of the Bulletin. Kindly feel free to express your opinion. It will help us in shaping our future issues and address your concerns in a objective way.

AIMS OF EFI

To identify and promote areas of cooperation and understanding among researchers and like-minded organizations, individuals, scientific networks and other Governmental and Non-Governmental, National & International agencies which are contributing towards realizing the objectives of the Foundation.

BENEFIT OF BECOMING A MEMBER OF EFI

- Networking with renowned Epidemiology experts worldwide and partnership with Professional organizations in field of Epidemiology.
- Receiving announcements of EFI activities.
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TYPES OF MEMBERS

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COLOMBO DECLARATION ON EPIDEMIOLOGY IN SOUTH EAST ASIA

Over the years, epidemiology has made huge contribution to the understanding of the disease and improvement of human health. This has been possible only because of the use of powerful and sophisticated epidemiological tools. Epidemiologic researches have generated a wide variety of data that have led to the practice of evidence-based medicine. The countries of South East Asia Region lag behind markedly when it comes to epidemiologic research and publications, primarily due to the resource crunch – be it funding, be it infra-structure or trained manpower. The key to improve the health status of the countries of the region and attainment of the Sustainable Development Goals lies in the development and improved practices of epidemiology.

The Colombo Declaration on Epidemiology in South East Asia is based on the deliberations by the delegates of the Conference and representatives of the Regional Public Health/ Epidemiology Associations held during the South East Asia Regional Group Meeting of International Epidemiological Association/ College of Community Physicians of Sri Lanka at Colombo, Sri Lanka on 19 -21 September, 2019. Having noted the current status of epidemiological training and researches in the countries of South East Asia Region, and their impact on human health, we, the participants of the Meet, endorse the following strategy for capacity building in epidemiology, boosting epidemiological research and fruitful utilization of its outcome towards attainment of Sustainable Development Goals in the years to come:

a) ***Institutionalize epidemiology as key to enhancement of human health****. Principles of epidemiology including operational research should be utilized for finding solutions to complex health issues and improving outcomes of health programmes.*

b) ***Promote collaborative research to achieve solid conclusions****. Focus of research be shifted to a combination of clinical and population approaches. Collaborative research between the clinical collaborators and the epidemiologist can expand the funding base and provide richer evidence for decision making.*

c) ***Strengthen and reform epidemiological training for improving human resources*** *and maintain a database of trained man-power. Institutions of excellence should adopt the leadership role and support other institutions in capacity building through joint training and faculty exchange programmes.*

d) ***Implement policies for career progression of personnel trained in epidemiology*** *at district, state and national level. Provide them environment and resources for carrying out research so as to improve their expertise and make policies for making them responsible for finding solutions to health-related problems.*

e) ***Identify the urgent need to accelerate epidemiological researches*** *to overcome the challenges posed to human health due to changing environment; changing lifestyle; and emerging and re-emerging infectious diseases.*

We urge all member countries of South East Asia Region, various Public Health /Epidemiological Associations and networks, NGOs, Public and Private sectors, media and other organs of the civil society to advocate, collaborate and promote all aspects of Colombo declaration on epidemiology in South East Asia.

Released on the occasion of South East Asia Regional Group Meeting of International Epidemiological Association/ College of Community Physicians of Sri Lanka at Colombo, Sri Lanka held on 19-21 September, 2019.

SELECTED ABSTRACTS IN EVIDENCED BASED EPIDEMIOLOGY

ABSTRACT 1

Title: Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies

***Reference**: Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004 Jan 10;363(9403):157-63.*

A WHO expert consultation addressed the debate about interpretation of recommended body-mass index (BMI) cut-off points for determining overweight and obesity in Asian populations, and considered whether population-specific cut-off points for BMI are necessary. They reviewed scientific evidence that suggests that Asian populations have different associations between BMI, percentage of body fat, and health risks than do European populations. The consultation concluded that the proportion of Asian people with a high risk of type 2 diabetes and cardiovascular disease is substantial at BMIs lower than the existing WHO cut-off point for overweight (⩾25 kg/m 2). However, available data do not necessarily indicate a clear BMI cut-off point for all Asians for overweight or obesity. The cut-off point for observed risk varies from 22kg/m 2 to 25kg/m 2 in different Asian populations; for high risk it varies from 26kg/m 2 to 31kg/m 2. No attempt was made, therefore, to redefine cut-off points for each population separately. The consultation also agreed that the WHO BMI cut-off points should be retained as international classifications.

The consultation identified further potential public health action points (23·0, 27·5, 32·5, and 37·5 kg/m 2) along the continuum of BMI, and proposed methods by which countries could make decisions about the definitions of increased risk for their population.

ABSTRACT 2

Title: A systematic analysis of global anemia burden from 1990 to 2010

***Reference**: Kassebaum NJ, Jasrasaria R, Naghavi M, Wulf SK, Johns N, Lozano R, Regan M, Weatherall D, Chou DP, Eisele TP, Flaxman SR, Pullan RL, Brooker SJ, Murray CJ. A systematic analysis of global anemia burden from 1990 to 2010. Blood. 2014 Jan 30;123(5):615-24.*

Previous studies of anemia epidemiology have been geographically limited with little detail about severity or etiology. Using publicly available data, we estimated mild, moderate, and severe anemia from 1990 to 2010 for 187 countries, both sexes, and 20 age groups. We then performed cause-specific attribution to 17 conditions using data from the Global Burden of Diseases, Injuries and Risk Factors (GBD) 2010 Study. Global anemia prevalence in 2010 was 32.9%, causing 68.36 (95% uncertainty interval [UI], 40.98 to 107.54) million years lived with disability (8.8% of total for all conditions [95% UI, 6.3% to 11.7%]). Prevalence dropped for both sexes from 1990 to 2010, although more for males.

Prevalence in females was higher in most regions and age groups. South Asia and Central, West, and East sub-Saharan Africa had the highest burden, while East, Southeast, and South Asia saw the greatest reductions. Iron-deficiency anemia was the top cause globally, although 10 different conditions were among the top 3 in regional rankings. Malaria, schistosomiasis, and chronic kidney disease–related anemia were the only conditions to increase in prevalence. Hemoglobinopathies made significant contributions in most populations. Burden was highest in children under age 5, the only age groups with negative trends from 1990 to 2010. (Blood. 2014;123(5):615-624)

ABSTRACT 3

Title: The Proportion of Anemia Associated with Iron Deficiency in Low, Medium, and High Human Development Index Countries: A Systematic Analysis of National Surveys

***Reference**: Petry N, Olofin I, Hurrell RF, Boy E, Wirth JP, Moursi M, Donahue Angel M, Rohner F.*

The Proportion of Anemia Associated with Iron Deficiency in Low, Medium, and High Human Development Index Countries: A Systematic Analysis of National Surveys. Nutrients. 2016 Nov 2;8(11).

Iron deficiency is commonly assumed to cause half of all cases of anemias, with hereditary blood disorders and infections such as hookworm and malaria being the other major causes. In countries ranked as low, medium, and high by the Human Development Index, we conducted a systematic review of nationally representative surveys that reported the prevalence of iron deficiency, iron deficiency anemia, and anemia among pre-school children and non-pregnant women of reproductive age.

Using random effects meta-analyses techniques, data from 23 countries for pre-school children and non-pregnant women of reproductive age was pooled, and the proportion of anemia attributable to iron deficiency was estimated by region, inflammation exposure, anemia prevalence, and urban/rural setting.

For pre-school children and non-pregnant women of reproductive age, the proportion of anemia associated with iron deficiency was 25.0% (95% CI: 18.0, 32.0) and 37.0% (95% CI: 28.0, 46.0), respectively. The proportion of anemia associated with iron deficiency was lower in countries where anemia prevalence was >40%, especially in rural populations (14% for pre-school children; 16% for non-pregnant women of reproductive age), and in countries with very high inflammation exposure (20% for pre-school children; 25% for non-pregnant women of reproductive age). Despite large heterogeneity, our analyses suggest that the proportion of anemia associated with iron deficiency is lower than the previously assumed 50% in countries with low, medium, or high Human Development Index ranking. Anemia-reduction strategies and programs should be based on an analysis of country-specific data, as iron deficiency may not always be the key determinant of anemia.

ABSTRACT 4

Title: Evidence-based medicine

***Reference**: Shah D, Sachdev H. Evidence-based medicine. Indian J Orthop. 2007 Jan;41(1):4-10.*

Evidence based medicine is the practice of solving the clinical problems in one's practice by judicious and systematic use of the medical literature. This includes framing questions rightly and searching the right kind of literature. Thereafter, the available evidence needs to be evaluated for the validity, strength and effect size. Finally, the results are examined for applicability to the current problem which requires a detailed knowledge of the clinical setting, patient profile and the issues related to cost and harm. The present communication deals with these issues in a step-wise manner in order to stimulate readers to practice this important art.

ABSTRACT 5

Title: Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, and Energy Drinks.

***Reference**: Gupta P, Shah D, Kumar P, Bedi N, Mittal HG, Mishra K, Khalil S, Elizabeth KE, Dalal R, Harish R, Kinjawadekar U, Indumathi K, Gandhi SS, Dadhich JP, Mohanty N, Gaur A, Rawat AK, Basu S, Singh R, Kumar RR, Parekh BJ, Soans ST, Shastri D, Sachdev HPS. Indian Pediatr. 2019 Aug 10*

Justification: In view of easy availability and increasing trend of consumption of fast foods and sugar sweetened beverages (fruit juices and drinks, carbonated drinks, energy drinks) in Indian children, and their association with increasing obesity and related non-communicable diseases, there is a need to develop guidelines related to consumption of foods and drinks that have the potential to increase this problem in children and adolescents.

Objectives: To review the evidence and formulate consensus statements related to terminology, magnitude of problem and

possible ill effects of junk foods, fast foods, sugar-sweetened beverages and carbonated drinks; and to formulate recommendations for limiting consumption of these foods and beverages in Indian children and adolescents.

Process: A National Consultative group constituted by the Nutrition Chapter of the Indian Academy of Pediatrics (IAP), consisting of various stakeholders in private and public sector, reviewed the literature and existing guidelines and policy regulations. Detailed review of literature was circulated to the members, and the Group met on 11th March 2019 at New Delhi for a day-long deliberation on framing the guidelines. The consensus statements and recommendations formulated by the Group were circulated to the participants and a consensus document was finalized.

Conclusions: the group suggests a new acronym 'junk' foods, to cover a wide variety of concepts related to unhealthy foods (junk foods, ultra-processed foods, nutritionally inappropriate foods, caffeinated/colored/carbonated foods / beverages, and sugar-sweetened beverages). the group concludes that consumption of these foods and beverages is associated with higher free sugar and energy intake; and is associated with higher body mass index (and possibly with adverse cardiometabolic consequences) in children and adolescents. intake of caffeinated drinks may be associated with cardiac and sleep disturbances. The group recommends avoiding consumption of the juices by all children and adolescents as far as possible and limit their consumption to not more than one serving per week. The group recommends intake of regional and seasonal whole fruits over fruit juices in children and adolescents, and advises no fruit juices/drinks to infants and young children (age <2y), whereas for children aged 2-5 y and >5-18 y, their intake should be limited to 125 ml/day and 250ml/day, respectively. The group recommends that caffeinated energy drinks should not be consumed by children and adolescents. the group supports recommendations of ban on sale of junk foods in school canteens and in near vicinity, and suggests efforts to ensure availability and affordability of healthy snacks and foods. The group supports traffic light coding of food available in school canteens and recommends legal ban of screen/print/digital advertisements of all the junk foods for channels/magazines/websites/social media catering to children and adolescents. the group further suggests communication, marketing and policy/taxation strategies to promote consumption of healthy foods, and limit availability and consumption of the junks foods.

ABSTRACT 6

Title: Does India Need a Universal High-Dose Vitamin A Supplementation Program?

***Reference**: Greiner T, Mason J, Benn CS, Sachdev HPS. Does India Need a Universal High-Dose Vitamin A Supplementation Program?. Indian J Pediatr. 2019 Jun;86(6):538-541.*

High dose vitamin A (HDVA) concentrate began to be distributed in India in 1970 as a short-term, stop-gap approach to reduce clinical signs of vitamin A deficiency. As this problem declined globally, the purpose of distributing them changed to the reduction of young child mortality. However, their impact on this has also declined, if not disappeared, as suggested in India by the enormous DEVTA study. This may be because of improved protection against and treatment of the main morbidity involved, measles and diarrhea. At the same time, semi-annual provision of mega-doses of vitamin A is not without risks, in particular linked to children's vaccination status. While a single dose is inexpensive, large-scale implementation of HDVA programs is expensive, particularly the opportunity cost involved in reducing the time health workers involved have to deal with their other commitments. Balancing potential benefits, risks and costs leads us to recommend an immediate cessation of the distribution of HDVA in India.

ABSTRACT 7

Title: Effect of iron supplementation on mental and motor development in children:

systematic review of randomised controlled trials

***Reference**: Sachdev H, Gera T, Nestel P. Effect of iron supplementation on mental and motor development in children: systematic review of randomised controlled trials. Public Health Nutr. 2005 Apr;8(2):117-32. Review. PubMed PMID: 15877905.*

Objective: To evaluate the effect of iron supplementation on mental and motor development in children through a systematic review of randomised controlled trials (RCTs). Data Sources: Electronic databases, personal files, hand search of reviews, bibliographies of books, abstracts and proceedings of international conferences.

Review Methods: RCTs with interventions that included oral or parenteral iron supplementation, fortified formula milk or cereals were evaluated. The outcomes studied were mental and motor development scores and various individual development tests employed, including Bayley mental and psychomotor development indices and intelligence quotient.

Results: The pooled estimate (random effects model) of mental development score standardised mean difference (SMD) was 0.30 (95% confidence interval (CI) 0.15 to 0.46, P<0.001; P<0.001 for heterogeneity). Initial anaemia and iron-deficiency anaemia were significant explanatory variables for heterogeneity. The pooled estimate of Bayley Mental Development Index (weighted mean difference) in younger children (<27 months old) was 0.95 (95% CI -0.56 to 2.46, P=0.22; P=0.016 for heterogeneity). For intelligence quotient scores (> or =8 years age), the pooled SMD was 0.41 (95% CI 0.20 to 0.62, P<0.001; P=0.07 for heterogeneity). There was no effect of iron supplementation on motor development score (SMD 0.09, 95% CI -0.08 to 0.26, P=0.28; P=0.028 for heterogeneity).

Conclusions: Iron supplementation improves mental development score modestly. This effect is particularly apparent for intelligence tests above 7 years of age and in initially anaemic or iron-deficient anaemic subjects. There is no convincing evidence that iron treatment has an effect on mental development in children below 27 months of age or on motor development.

ABSTRACT 8

Title: Prevalence of diabetes and prediabetes in 15 states of India: results from the ICMR-INDIAB population-based cross-sectional study

***Reference**: Anjana RM, Deepa M, Pradeepa R, Mahanta J, Narain K, Das HK, Adhikari P, Rao PV, Saboo B, Kumar A, Bhansali A, John M, Luaia R, Reang T, Ningombam S, Jampa L, Budnah RO, Elangovan N, Subashini R, Venkatesan U, Unnikrishnan R, Das AK, Madhu SV, Ali MK, Pandey A, Dhaliwal RS, Kaur T, Swaminathan S, Mohan V. Prevalence of diabetes and prediabetes in 15 states of India: results from the ICMR-INDIAB population-based cross-sectional study. Lancet Diabetes Endocrinol. 2017 Aug;5(8):585-596.*

Background: Previous studies have not adequately captured the heterogeneous nature of the diabetes epidemic in India. The aim of the ongoing national Indian Council of Medical Research-INdiaDIABetes study is to estimate the national prevalence of diabetes and prediabetes in India by estimating the prevalence by state.

Methods: We used a stratified multistage design to obtain a community-based sample of 57 117 individuals aged 20 years or older. The sample population represented 14 of India's 28 states (eight from the mainland and six from the northeast of the country) and one union territory. States were sampled in a phased manner: phase I included Tamil Nadu, Chandigarh, Jharkhand, and Maharashtra, sampled between Nov 17, 2008, and April 16, 2010; phase II included Andhra Pradesh, Bihar, Gujarat, Karnataka, and Punjab, sampled between Sept 24, 2012, and July 26, 2013; and the northeastern phase included Assam, Mizoram, Arunachal Pradesh, Tripura, Manipur, and Meghalaya, with sampling done between Jan 5, 2012, and July 3, 2015. Capillary oral glucose tolerance tests were used to diagnose diabetes and prediabetes in

accordance with WHO criteria. Our methods did not allow us to differentiate between type 1 and type 2 diabetes. The prevalence of diabetes in different states was assessed in relation to socioeconomic status (SES) of individuals and the per-capita gross domestic product (GDP) of each state. We used multiple logistic regression analysis to examine the association of various factors with the prevalence of diabetes and pre-diabetes.

Findings: The overall prevalence of diabetes in all 15 states of India was 7·3% (95% CI 7·0-7·5). The prevalence of diabetes varied from 4·3% in Bihar (95% CI 3·7-5·0) to 10·0% (8·7-11·2) in Punjab and was higher in urban areas (11·2%, 10·6-11·8) than in rural areas (5·2%, 4·9-5·4; p<0·0001) and higher in mainland states (8·3%, 7·9-8·7) than in the northeast (5·9%, 5·5-6·2; p<0·0001).

Overall, 1862 (47·3%) of 3938 individuals identified as having diabetes had not been diagnosed previously. States with higher per-capita GDP seemed to have a higher prevalence of diabetes (eg, Chandigarh, which had the highest GDP of US$ 3433, had the highest prevalence of 13·6%, 12.8-15·2). In rural areas of all states, diabetes was more prevalent in individuals of higher SES. However, in urban areas of some of the more affluent states (Chandigarh, Maharashtra, and Tamil Nadu), diabetes prevalence was higher in people with lower SES.

The overall prevalence of prediabetes in all 15 states was 10·3% (10·0-10·6). The prevalence of prediabetes varied from 6·0% (5·1-6·8) in Mizoram to 14·7% (13·6-15·9) in Tripura, and the prevalence of impaired fasting glucose was generally higher than the prevalence of impaired glucose tolerance. Age, male sex, obesity, hypertension, and family history of diabetes were independent risk factors for diabetes in both urban and rural areas.

Interpretation: There are large differences in diabetes prevalence between states in India. Our results show evidence of an epidemiological transition, with a higher prevalence of diabetes in low SES groups in the urban areas of the more economically developed states. The spread of diabetes to economically disadvantaged sections of society is a matter of great concern, warranting urgent preventive measures.

ABSTRACT 9

Title: Regimens of vitamin D supplementation for women during pregnancy

***Reference**: Palacios C, Trak-Fellermeier MA, Martinez RX, Lopez-Perez L, Lips P, Salisi JA, John JC, Peña-Rosas JP. Regimens of vitamin D supplementation for women during pregnancy. Cochrane Database Syst Rev. 2019 Oct 3;10:CD013446.*

Background: Vitamin D deficiency during pregnancy increases the risk of pre-eclampsia, gestational diabetes, preterm birth, and low birthweight. In a previous Cochrane Review we found that supplementing pregnant women with vitamin D alone compared to no vitamin D supplementation may reduce the risk of pre-eclampsia, gestational diabetes, and low birthweight and may increase the risk of preterm births if it is combined with calcium. However, the effects of different vitamin D regimens are not yet clear.

Objectives: To assess the effects and safety of different regimens of vitamin D supplementation alone or in combination with calcium or other vitamins, minerals or nutrients during pregnancy, specifically doses of 601 international units per day (IU/d) or more versus 600 IU/d or less; and 4000 IU/d or more versus 3999 IU/d or less.

Search methods: We searched the Cochrane Pregnancy and Childbirth's Trials Register, ClinicalTrials.gov, the WHO International Clinical Trials Registry Platform (ICTRP) (12 July 2018), and the reference lists of retrieved studies.

Selection criteria: Randomized trials evaluating the effect of different vitamin D regimens (dose, frequency, duration, and time of commencement of supplementation during pregnancy), alone or in combination with other nutrients on pregnancy and neonatal health outcomes. We only included trials that compared 601 IU/d or more versus 600 IU/d or

less and 4000 IU/d or more versus 3999 IU/d or less. We did not include in the analysis groups that received no vitamin D, as that comparison is assessed in another Cochrane Review.

Data collection and analysis: Two review authors independently: i) assessed the eligibility of studies against the inclusion criteria; ii) extracted data from included studies, and iii) assessed the risk of bias of the included studies. Our primary maternal outcomes were: pre-eclampsia, gestational diabetes, and any adverse effects; our primary infant outcomes were preterm birth and low birthweight. Data were checked for accuracy. The certainty of the evidence was assessed using the GRADE approach.

Main results: In this review, we included data from 30 trials involving 7289 women. We excluded 11 trials, identified 16 ongoing/unpublished trials and two trials are awaiting classification. Overall risk of bias for the trials was mixed.

Comparison 1. 601 IU/d or more versus 600 IU/d or less of vitamin D alone or with any other nutrient (19 trials; 5214 participants) Supplementation with 601 IU/d or more of vitamin D during pregnancy may make little or no difference to the risk of pre-eclampsia (risk ratio (RR) 0.96, 95% confidence interval (CI) 0.65 to 1.42); 5 trials; 1553 participants, low-certainty evidence), may reduce the risk of gestational diabetes (RR 0.54, 95% CI 0.34 to 0.86; 5 trials; 1846 participants; moderate-certainty evidence), may make little or no difference to the risk of preterm birth (RR 1.25, 95% CI 0.92 to 1.69; 4 trials; 2294 participants; low-certainty evidence); and may make little or no difference to the risk of low birthweight (RR 0.90, 95% CI 0.66 to 1.24; 4 trials; 1550 participants; very low-certainty evidence) compared to women receiving 600 IU/d or less.

Comparison 2. 4000 IU or more versus 3999 IU or less of vitamin D alone (15 trials; 4763 participants)
Supplementation with 4000 IU/d or more of vitamin D during pregnancy may make little or no difference to the risk of: pre-eclampsia (RR 0.87, 95% CI 0.62 to 1.22; 4 trials, 1903 participants, low-certainty evidence); gestational diabetes (RR 0.89, 95% CI 0.56 to 1.42; 5 trials, 2276 participants; low-certainty evidence); preterm birth (RR 0.85, 95% CI 0.64 to 1.12; 6 trials, 2948 participants, low-certainty evidence); and low birthweight (RR 0.92, 95% CI 0.49 to 1.70; 2 trials; 1099 participants; low-certainty evidence) compared to women receiving 3999 IU/d or less.
Adverse events (such as hypercalcaemia, hypocalcaemia, hypercalciuria, and hypovitaminosis D) were reported differently in most trials; however, in general, there was little to no side effects reported or similar cases between groups.

Authors' conclusions: Supplementing pregnant women with more than the current vitamin D recommendation may reduce the risk of gestational diabetes; however, it may make little or no difference to the risk of pre-eclampsia, preterm birth and low birthweight. Supplementing pregnant women with more than the current upper limit for vitamin D seems not to increase the risk of the outcomes evaluated. In general, the GRADE was considered low certainty for most of the primary outcomes due to serious risk of bias and imprecision of results. With respect to safety, it appears that vitamin D supplementation is a safe intervention during pregnancy, although the parameters used to determine this were either not reported or not consistent between trials. Future trials should be consistent in their reports of adverse events. There are 16 ongoing trials that when published, will increase the body of knowledge.

ABSTRACT 10

Title: Screening for lung cancer

Reference: *Manser R, Lethaby A, Irving LB, Stone C, Byrnes G, Abramson MJ, Campbell D. Screening for lung cancer. Cochrane Database Syst Rev. 2013 Jun 21;(6):CD001991.*

Background: This is an updated version of the original review published in The Cochrane Library in 1999 and updated in 2004 and 2010.

Population-based screening for lung cancer has not been adopted in the majority of countries. However, it is not clear whether sputum examinations, chest radiography or newer methods such as computed tomography (CT) are effective in reducing mortality from lung cancer.

Objectives: To determine whether screening for lung cancer, using regular sputum examinations, chest radiography or CT scanning of the chest, reduces lung cancer mortality.

Search methods: We searched electronic databases: the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library 2012, Issue 5), MEDLINE (1966 to 2012), PREMEDLINE and EMBASE (to 2012) and bibliographies. We hand searched the journal Lung Cancer (to 2000) and contacted experts in the field to identify published and unpublished trials.

Selection criteria: Controlled trials of screening for lung cancer using sputum examinations, chest radiography or chest CT.

Data collection and analysis: We performed an intention-to-screen analysis. Where there was significant statistical heterogeneity, we reported risk ratios (RRs) using the random-effects model. For other outcomes we used the fixed-effect model.

Main results: We included nine trials in the review (eight randomized controlled studies and one controlled trial) with a total of 453,965 subjects. In one large study that included both smokers and non-smokers comparing annual chest x-ray screening with usual care there was no reduction in lung cancer mortality (RR 0.99, 95% CI 0.91 to 1.07). In a meta-analysis of studies comparing different frequencies of chest x-ray screening, frequent screening with chest x-rays was associated with an 11% relative increase in mortality from lung cancer compared with less frequent screening (RR 1.11, 95% CI 1.00 to 1.23); however several of the trials included in this meta-analysis had potential methodological weaknesses.
We observed a non-statistically significant trend to reduced mortality from lung cancer when screening with chest x-ray and sputum cytology was compared with chest x-ray alone (RR 0.88, 95% CI 0.74 to 1.03). There was one large methodologically rigorous trial in high-risk smokers and ex-smokers (those aged 55 to 74 years with ≥ 30 pack-years of smoking and who quit ≤ 15 years prior to entry if ex-smokers) comparing annual low-dose CT screening with annual chest x-ray screening; in this study the relative risk of death from lung cancer was significantly reduced in the low-dose CT group (RR 0.80, 95% CI 0.70 to 0.92).

Authors' conclusions: The current evidence does not support screening for lung cancer with chest radiography or sputum cytology. Annual low-dose CT screening is associated with a reduction in lung cancer mortality in high-risk smokers but further data are required on the cost effectiveness of screening and the relative harms and benefits of screening across a range of different risk groups and settings.

ABSTRACT 11

Title: Strategies designed to help healthcare professionals to recruit participants to research studies

Reference: *Preston NJ, Farquhar MC, Walshe CE, Stevinson C, Ewing G, Calman LA, Burden S, Brown Wilson C, Hopkinson JB, Todd C. Strategies designed to help healthcare professionals to recruit participants to research studies. Cochrane Database of Systematic Reviews 2016, Issue 2. Art. No.: MR000036.*

Background: Identifying and approaching eligible participants for recruitment to research studies usually relies on healthcare professionals. This process is sometimes hampered by deliberate or inadvertent gatekeeping that can introduce bias into patient selection.

Objectives: Our primary objective was to identify and assess the effect of strategies designed to help healthcare professionals to recruit participants to research studies.

Search methods: We performed searches on 5 January 2015 in the following electronic databases: Cochrane Methodology Register, CENTRAL, MEDLINE, EMBASE, CINAHL, British Nursing Index, PsycINFO, ASSIA and Web of Science (SSCI, SCI-EXPANDED) from 1985 onwards. We checked the reference lists of all included studies and relevant review articles and did citation tracking through Web of Science for all included studies.

Selection criteria: We selected all studies that evaluated a strategy to identify and recruit participants for research via healthcare professionals and provided pre-post comparison data on recruitment rates.
Data collection and analysis: Two review authors independently screened search results for potential eligibility, read full papers, applied the selection criteria and extracted data. We calculated risk ratios for each study to indicate the effect of each strategy.

Main results: Eleven studies met our eligibility criteria and all were at medium or high risk of bias. Only five studies gave the total number of participants (totalling 7372 participants). Three studies used a randomised design, with the others using pre-post comparisons. Several different strategies were investigated. Four studies examined the impact of additional visits or information for the study site, with no increases in recruitment demonstrated. Increased recruitment rates were reported in two studies that used a dedicated clinical recruiter, and five studies that introduced an automated alert system for identifying eligible participants. The studies were embedded into trials evaluating care in oncology mainly but also in emergency departments, diabetes and lower back pain.

Authors' conclusions: There is no strong evidence for any single strategy to help healthcare professionals to recruit participants in research studies. Additional visits or information did not appear to increase recruitment by healthcare professionals. The most promising strategies appear to be those with a dedicated resource (e.g. a clinical recruiter or automated alert system) for identifying suitable participants that reduced the demand on healthcare professionals, but these were assessed in studies at high risk of bias.

UPCOMING EVENTS

ISMSCON 2019

37th Annual Conference of Indian Society for Medical Statistics is being organized by AIIMS Patna form December 05th to December 07th. (**ISMSCON 2019)** The Theme of the Conference is "APPLICATIONS OF BIOSTATISTICS IN PUBLIC HEALTH."

IAPSMCON 2020

The 47th National Conference of Indian Association of Preventive & Social Medicine from 28th– 30thJanuary 2020 organized by Institute of Community Medicine, Madras Medical College, Chennai at Ideal Beach Resorts, Mahabalipuram, India. **IAPSMCON2020** is a four-day Scientific extravaganza themed “Universal Health Coverage – Evidence Driven Solutions”.

IPHACON 2020

The 64th Annual National Conference of Indian Public Health Association (**IPHACON 2020**) is being organized by the Centre for Community Medicine, AIIMS, New Delhi and IPHA Delhi State Branch from 29 February to 2 March 2020. The venue of the IPHACON 2020 is the sprawling campus of the AIIMS, New Delhi. The theme of is 'Promoting Public Health Leadership for Universal Health Coverage in India'.

WCE 2020

The World Congress of Epidemiology (WCE) is held every 3 years by the International Association of Epidemiology (IEA) and attracts 800 -1200 delegates involved in research and teaching of epidemiology. **Dates:** 13 -16 September 2020. **Abstract submission** for **WCE 2020** has now opened. Please visit web site for details: http://wce2020.org/