**EFI Bulletin** 

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## EFI Bulletin of Epidemiology Foundation of India

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# **EFI Bulletin**

## **Bulletin of Epidemiology Foundation of India**

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

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## **From the Editor**



We feel happy that the Epidemiology Foundation of India, with its clear motive to encourage promote, epidemiological thinking especially amongst the young

scientists and researchers has been consistently growing in its network nationwide. Recent invitation by the President and Secretary of the foundation to those interested in epidemiology to become active members of EFI by just login to its website www.efi.org.in and also the complimentary membership for Early Career Researchers(ECR) had an overwhelming response. I understand that the special invite is still open to and continuing.

On the other hand we feel honoured that several of our esteemed members are regularly being invited to various official and other prestigious academic forums including reputed TV channels for professional health talks and deliberations on active topics including pandemic and endemics. Unfortunately, we miss such reporting due to lack of communication in sharing of such valuable information. Therefore, we once again request members to help us manage and properly organise the 'member news' column including their professional achievements; also, sharing the national/ international news and events; one can reach even to the editorial board members for the purpose. In response to my previous request only Dr Sanjeeb K Mishra, VIMSAR, reported IAPSM President appreciation award bestowed on him. A couple of days ago we have switched over to Journal format and now onwards online submissions would be encouraged; the

information has already been shared simultaneously by the EFI President to all existing members.

Though, it is a bit late, we have the pleasure of informing that two of our esteemed EFI GC members Prof A K Bhardwaj is the Chairman, National TB Elimination Programme, Government of India and Prof Umesh Kapil, has taken over the charge of Officiating Secretary, National Academy of Medical Sciences, New Delhi.

We must be proud of the felicitation of EFI represented by the Secretary, Dr Pradeep Aggarwal, by Hon'ble Union Health Minister Dr Mansukh Laxmanbhai Mandaviya, Minister of Health & Family Welfare and Chemical and Fertilizers of India during the event organised on the occasion of 62th Foundation Day of National Academy of Medical Sciences, New Delhi.

I continuity with the previous issue of the Bulletin once again we have interesting contributions listed under the featured articles starting from President's Corner; Editorial by Prof Ashok K Bhardwaj, CME section by Dr Alok Dwivedi followed by an innovative write-up by Prof Suneela Garg. This time we initiated a separate short communication column with lead article from Prof Divva Gupta. It is for the first time that our own editorial board members. Dr Subitha L and Dr Sumanth M M have actively participated in contributing quick but qualitatively rich contents to this Bulletin. A new initiative of 'Selected Abstracts in Evidenced based Epidemiology' is based on communications selected of interest periodically sent out to the members by Prof Umesh Kapil and has to become a regular feature of the Bulletin.

Ajit Sahai

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## **President's Corner**

#### N-of-1 randomized controlled trials: a new breed of clinical trials in chronic diseases

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Using the current best evidence from randomized controlled trials (RCTs) for guiding clinical decisions constitutes one of the fundamental principles in evidence-based medicine. However, physicians may not

always be able to rely on the results from large RCTs. One instance where this may be the case is if the disease is so rare that RCTs have not been feasible. It may also be that the results from RCTs are not applicable to the individual patient. First, trial participants may be very different from the patient in question. Second, there may be only a subgroup of patients that are observed to benefit; a concern particularly relevant when there are small treatment effects of questionable importance.

In order to circumvent these concerns, and to determine the best care for their patients, physicians may conduct trials of therapy in individual patients. Moreover, these trials can contain potential safeguards to minimize bias, similar to those in large trials. These include repeatedly administering and withdrawing the target treatment, performing quantitative assessments of the target outcomes, and keeping both patients and clinicians blind to the treatment being administered.

There are several ways to conduct N-of-1 RCTs. A widely applicable method is the following (1):

- 1. The patient and physician agree to test a therapy for its ability to improve or control symptoms, signs or other manifestations of the disease, i.e., the treatment targets
- 2. The patient then undergoes pairs of treatment periods, organized so that one period of each pair applies the experimental therapy, and the other the period either an alternative therapy or placebo. The order of these two periods is randomized, so that the patient is equally likely

to receive experimental or control therapy during any given treatment period.

- 3. Whenever possible, clinician and patient are blinded to the therapy being received during the period, possibly by medication independently prepared by a pharmacist.
- 4. The physician monitors the treatment target through maintenance of a patient diary, to document the effect of the treatment being applied.
- 5. Pairs of treatment periods are repeated until a conclusion can be drawn on the effect of the experimental treatment on treatment targets. Usually, this is achieved through a minimum of three pairs of treatment periods.

There are several concerns with regard to the feasibility of n-of-1 RCTs. If the underlying condition is self-limited and treatment will be continued only during the short term, an n-of-1 RCT is unlikely to be worthwhile. N-of-1 RCTs are most useful when conditions are chronic and maintenance therapy is likely to be prolonged. Being a cooperative venture between the physician and patient, these are only indicated when the patient fully understands the nature of the experiment and are willing to participate. N-of-1 RCTs are more feasible when the treatment effect manifest themselves within a few days, rather than those with longer latency periods. Similarly, treatments with effects that cease within a few days of stopping are most amenable to being studied in n-of-1 RCTs. If the washout period lasts longer than a few days, the feasibility of the trial is compromised. Likewise, treatments that can permanently cure the disease are not suitable for nof-1 trials. Some examples of diseases where n-of-1 trials have been used are chronic airflow limitation, asthma. fibrositis.

arthritis, syncope, anxiety, insomnia, and angina pectoris (2,3,4).

Although short treatment periods increase feasibility, longer periods may be needed. For instance, in previous n-of-1 trials for theophylline (5), patients of asthma used treatment periods of at least 10 days: 3 days to allow the drug to reach steady state or washout and 7

days thereafter to monitor the patient's response to treatment. This is also true in the case of n-of-1 RCTs used to test a treatment's ability to prevent or mitigate attacks or exacerbations (such as migraines or seizures); each treatment period must be long enough to include an attack or exacerbation. A detailed discussion of analysis techniques of n-of-1 trials is beyond scope; visual inspection of plotted data and tests of statistical significance are both used for interpretation of results (6,7,8).

In summary, n-of-1 trials may have the potential to improve the quality of care in patients of chronic disease, and may represent an useful strategy for individualizing treatments. This design offers the opportunity to further refine and develop epidemiological techniques for evaluation of treatment effects.

#### References

- 1. Guyatt, Gordon; Rennie, Drummond; Meade, Maureen O.; and Cook, Deborah J. Users Guides to the Medical Literature: Essentials of Evidence-Based Clinical Practice, Third Edition. New York: McGraw-Hill Education, 2014.
- 2. Ménard J, Serrurier D, Bautier P, Plouin PF, Corvol P. Crossover design to test antihypertensive drugs

with self-recorded blood pressure. Hypertension. 1988;11(2):153-159.

- Johannessen T. Controlled trials in single subjects, 1: value in clinical medicine. BMJ. 1991;303(6795):173-174.
- 4. Larson EB, Ellsworth AJ, Oas J. Randomized clinical trials in single patients during a 2-year period. JAMA. 1993;270(22):2708-2712.
- Patel A, Jaeschke R, Guyatt GH, Keller JL, Newhouse MT. Clinical usefulness of n-of-1 randomized controlled trials in patients with nonreversible chronic airflow limitation. Am Rev Respir Dis. 1991;144(4):962-964.
- 6. Schluter PJ, Ware RS. Single patient (n-of-1) trials with binary treatment preference. Stat Med. 2005;24(17):2625-2636.
- 7. Berger JO. Statistical Decision Theory and Bayesian Analysis. 2nd ed. New York, NY: Springer; 1985.
- 8. Oleson JJ. Bayesian credible intervals for binomial proportions in a single patient trial. Stat Methods Med Res. 2010;19(6):559-574.

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## **Editorial**

#### Towards TB Elimination: Challenges and Way Forward

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India has been fighting tuberculosis for a long time (TB control activities for more than 50 years).(1) Despite this, tuberculosis remains India's most serious health problem. Every year, an estimated 480,000 Indians die from tuberculosis, with more than 1,400 dying every day.(1)

The WHO recently adopted the "End TB Strategy", which outlines the ambitious aim of "ending the global TB epidemic by 2030", with targets of reducing TB fatalities by 95% and new cases by 80%, as well as ensuring that no family is burdened with catastrophic TB costs.(2)

"I believe that when a task is being done for 10 or 20 years without the expected results, then we should think about changing our approach". In 2018, when speaking at the Delhi End TB Summit, our Hon'ble Prime Minister stated this.(3)

India has set an even higher goal of ending tuberculosis by the year 2025. The obstacles of meeting these goals are significant, especially in a high-burden TB scenario, but they have been met thanks to a high-level commitment to dedicate resources and technical skills to meet them.(2) After the PM's call to end tuberculosis by 2025, five years ahead of the Sustainable Development Goal (SDG) 3.3 deadline, and a plea to States/Union Territories (UTs), more than 10 States/UTs have pledged to end tuberculosis by or before 2025, with more to follow soon.(3)

The rigorous method of finding and treating missing cases in addition to treating the usual patient load has made a significant contribution to the efforts to end tuberculosis by 2025. Furthermore, a multitude of program activities have generated useful data that will aid in assessing the disease's total prevalence in society. The government's programmes such as daily Directly Observed Treatment Short Course (DOTS), Active Case Finding (ACF), Intensified Case Finding (ICF), Nikshay Poshan Yojna (NPY), direct benefit transfer (DBT), universal DST, Joint Efforts to Eliminate TB (JEET), and others are key factors to this success. These, as well as other notable advancements like as the provision of free investigations (CBNAAT, LPA, culture, etc.) and free access to newer medications such as Bedaquiline (BDQ) and Delamanid, have made important contributions to the fight against tuberculosis. (4)

The previous year has been a watershed moment in India's efforts to eradicate tuberculosis by 2025. During 2019, India has notified 24.4 lakh cases, with only 2.9 lakh cases missing. From 21,55,000 cases reported in 2018, the number of TB cases reported in 2019 grew by 12%. Engagement of private healthcare providers has given an impetus in India's mission to end TB as private sector notification increased by 25%, bringing the total number of TB patients notified to 6,78,000. (5) The government of India's Nikshay system for case-based tuberculosis notification, which is linked to programme management, is transforming person-centered tuberculosis care efforts in the country through innovation and disruption using technology.(6) Since April 2018, over Rs. 1224.76 crores have been distributed to more than 46.4 lakhs people through the NIKSHAY Poshan Yojana (NPY) which has been giving cash assistance for nutrition support at a rate of Rs. 500 per month as malnutrition is one of the main causes of the disease.(5) Newer screening tests, such as GeneXpert MTB/ RIF (Cepheid, Sunnyvale, CA) for universal DST and other quick molecular assays, such as first- and second-line Line Probe Assays, have been deployed and scaled, as well as culture/DST laboratories and specimen transit systems. New medications, regimens, and approaches for curing drug-sensitive TB and DR-TB have been adopted and are being expanded.(2) Approximately 23,889 drug-resistant tuberculosis patients were started on Bedaquiline in all States/UTs across the country until December, 2021. In 2018, the Shorter MDR Regimen (9-12 months of treatment) was introduced, benefiting 71,434 MDR patients, while the All Oral Longer Regimen for MDR-TB (18-20 months of treatment without injections) was spread across the country in 729 districts in all states. Isoniazid was given to 4,17,643 children under the age of six in 2019 as part of preventive chemoprophylaxis.(5) India has built a unique system in the form of a well-funded India TB Research Consortium to promote TB research. The novel recombinant BCG vaccination is currently being tested in a phase III study by the Consortium.(3)

#### Way Forward

To achieve the goal of ending tuberculosis, efforts must focus on all types of tuberculosis, including extrapulmonary tuberculosis, leaving no one behind.(7) To minimize patient loss to follow-up, treatment failure, and relapse, expert clinical counselling should be accompanied with good healthcare management for clinical outcomes and adverse drug reactions (ADRS) utilizing systematic pharmacovigilance.(2) Patient support services, as well as the deployment of patient-centered treatment and a humane attitude to persons living with TB, are required to ensure that patients and their families incur no catastrophic expenses.(2)

Anyone can be harmed by a communicable disease tuberculosis. Even immunizations like are ineffective in reducing its effects. We can aspire for a disease-free future if we reduce poverty and malnutrition, educate the public, and remove the stigma associated with tuberculosis.(7) As a result, the country will require regular surveillance and vigilance for any early signs of illness reappearance proper responses.(3) The Sub-national and Certification procedure initiated by NTEP to encourage States, UTs, and districts to work diligently to reduce the TB burden needs to be pushed further. Greater involvement of stakeholders at national and state levels is needed to establish a community-led response to tuberculosis thereby boosting demand for TB services, deepen understanding of the community's needs, and gain the viewpoints and support of TB survivors who are leading from the front through strengthening community involvement (TB Vijeta).(8) Thus, to achieve the "End TB goals", we need commitment, ingenuity, and dedication at every level of the health-care system.

Public Healthy Responsibility in TB is a critical component of the overall TB elimination effort. It reflects both the traditional public health methods of Recording and reporting on people with TB and audits of treatment outcomes, and some of the newer strategies being employed to address end TB strategy in today's multifaceted environment. It shows that ending TB will require an intensification of collaborative efforts between public, private and community providers. In particular, the role of public health and health care workers in community/ institutional settings is emphasized as it relates to shared community efforts.

In light of the recent pandemic of COVID-19 and the associated dramatic increasing TB morbidity and mortality, the need for this partnership/ collaboration is urgent. Given the mandate for ending TB in the country, the healthcare system will continue to play a major role in the elimination of this disease. Each one of us can help to prevent, treat, and cure this disease.(2)

#### References

- 1. NSP Draft 20.02.2017 1.pdf [Internet]. [cited 2022 Jun 4]. Available from: https://tbcindia.gov.in/WriteReadData/NSP%20Dr aft%2020.02.2017%201.pdf
- Sachdeva KS, Mase SR. The end TB strategy for India. Indian Journal of Tuberculosis. 2019 Jan 1;66(1):165-6.
- 3. Sachdeva KS. Accelerating progress towards ending tuberculosis in India. The Indian Journal of Medical Research. 2020 Apr;151(4):266.
- 4. Yadav S, Rawal G. The current updates in the TB control program of India. IP Indian Journal of Immunology and Respiratory Medicine. 2019;4:75-6.
- Annual Report 2020-21 English.pdf [Internet]. [cited 2022 Jun 4]. Availablefrom: https://main.mohfw.gov.in/sites/default/files/Ann ual%20Report%202020-21%20English.pdf
- 6. Nadda JP. India's leadership to end tuberculosis. The Lancet. 2019 Mar 30;393(10178):1270-2.
- Thakur G, Thakur S, Thakur H. Status and challenges for tuberculosis control in India–Stakeholders' perspective. Indian Journal of Tuberculosis. 2021 Jul 1;68(3):334-9.
- 8. TBAnnaulReport2022.pdf [Internet]. [cited 2022 Jun 4]. Available from: https://tbcindia.gov.in/WriteReadData/IndiaTBRep ort2022/TBAnnaulReport2022.pdf

## CME

#### A Commentary on Writing Statistical Analysis Section in Scientific Manuscripts and Grant Proposals for Clinical and Translational Research

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Biostatistics sets the principles of the overall approach for generating quality data and translating quality data to meaningful interpretation and health decision-making (1). The quality assessment score of the approach in a National Institute of Health (NIH) grant proposal has been found to be the main predictor of the overall assessment score for an R01 (major) grant to be funded(2) and determines the quality of a manuscript(3). This implies that biostatistics is critical for successful grant funding and quality publications. Execution and reporting of statistical analysis in grants and manuscripts is one of the major parts of the overall approach in a study. In fact, proper development, execution, and reporting of statistical analysis are required for producing robust, reliable and valid findings in all phases of clinical and translational research (T1-T4)(4). However, the reporting of statistical analysis in medical research studies is often found to be inadequate or inappropriate. Inappropriate conduct and reporting of statistical analysis may have tremendous repercussions on health decisions and conduct of future studies(5,6). Multiple the guidelines have also been developed for transparent reporting and quality assessment for different types of research studies (https://www.equatornetwork.org/). In addition, multiple guidelines advocating for statistical analysis reporting have also been developed(5-7). Recently, the NEJM and American Heart Associations issued new guidelines and recommendations for statistical reporting in their journals(8,9). Due to these efforts from the methodologists, statistical reporting has been improving in medical research publications. The availability of multiple statistical approaches with varying performances at multiple stage of statistical analysis leads to heterogeneous practices of data analysis with conflicting findings. To minimize variable biostatistical practices and increase the use of robust approaches in statistical analysis, Dwivedi and Shukla(5) recently developed statistical analysis and methods in biomedical research (SAMBR) checklists using a concept of evidence-based biostatistics (EBB) theory and practices. According EBB practice, the robust methodologies to appropriate to study design and study features produced as evidence in scientific literature should be used at each step of statistical analysis. However, the EBB practices need to be continuously updated as the new methodologies and concepts evolving. Due to the lack of standardized reporting procedures for the statistical analysis section in grants and manuscripts, it is often difficult to assess the overall approach of statistical analysis. Recently, I (1) reported 10 critical steps for developing a statistical analysis section in medical research using the EBB concept in an article. My document is conceptually different from other checklists and guidelines and provides global steps that need to be documented in the statistical analysis section for their assessment and evaluation. In this current report, I highlight the gist of the following 10 critical components as suggested in my publication(1):

- 1. Reporting of study objective types
- 2. Reporting of effect size measure as per the study design
- 3. Specification of study hypothesis, the appropriate level of significance after accounting for multiple comparisons and multiplicity and interval estimates
- 4. Reporting of appropriate analysis accounting for study design features/data generation types
- 5. Selection of up-to-date and robust statistical methods as per the EBB practice
- 6. Reporting of a multivariable model as per the study outcome and variable selection procedure as appropriate with the study objective type
- 7. Exploration and reporting of effect modifiers and interaction effects as per study objectives
- 8. Assessment and reporting of statistical tests assumptions and multivariable model diagnostics
- 9. Conduct and clear specification of the type of sensitivity analysis
- 10. Reporting of results in tables, graphs, and interpreting data according to study design

In my article of step 1, I suggest reporting the study objective type as the essential step in the statistical analysis section since the entire approach of statistical analysis depends on the study objective classified three type. Ι broad types (exploratory/descriptive, association/explanatory and prediction/prognostic) of study objectives into six types(10). The descriptive study type was classified into exploratory and association whereas the explanatory study type was classified into causal and intervention study types. The prognostic study type was classified into prediction and data-driven study types. Conceptually, the statistical analysis and their reporting are completely different for these six study types. For example, if we have a binary outcome and if we choose to use a logistic regression analysis then the approach to developing a logistic regression model may be completely different across these study types. Accordingly, backward logistic regression in the exploratory objective study, fully-adjusted logistic regression in an association study, best fitting logistic model on the conceptual framework in the causal study, propensity scores-adjusted logistic model in a nonrandomized interventional study, optimal logistic model producing high prediction accuracy in predictive study, and other machine learning approaches such as classification and regression tree may be used in data-driven study objective type.

In step 2, I emphasized the appropriate use of the effect size measure as per the study design and study objective type. Specifically, I attempted to differentiate the value of using the odds ratio (OR) model versus the relative risk (RR) model according to the study design(11). I suggested the reporting of appropriate effect size is essential for all study types that can be utilized for assessing the practical value of findings as well as may be used for the computation of sample size in future studies. In addition, the document also suggests proper labeling of study design for evaluation of the level of evidence. In step 3, I highlighted the differences in clinical hypothesis versus statistical hypothesis, adjustment of the level of significance due to multiple comparisons or multiplicity, and reporting of interval estimates at least for the primary outcome analysis. The statistical analysis section must specify at least a clinical hypothesis, the level of significance for considering statistically significant results, and reporting of 95% confidence intervals or other intervals of the effect size as appropriate with the study type for proper interpretation and decision making.

As we know, the accuracy of findings determined via statistical analysis depends on the study design features such as paired or unpaired design, clustered

or complex sampling design, distribution of the outcome, and types of variables and their measurements. Therefore, I suggested reporting all the specific characteristics of the study that may influence the choice of statistical analysis in the statistical analysis section clearly under step 4. I provides some useful examples and highly recommended accounting for the data generation process (DGP) in the statistical analysis for producing reliable and valid results. In multiple scenarios, several statistical methods are available to analyze a specific type of data. For example, one may use logistic regression or probit regression or discriminant regression, a variety of relative risk regressions, binary quantile regression or a nonparametric regression for analyzing binary outcome data. The use of a different statistical method in a specific situation may yield inefficient estimates. Moreover, the efficiency and robustness of each method may further vary after including characteristics(5). For example, other DGP accumulative empirical evidence suggests the performance of the Welch t-test is either similar to the unpaired student t-test in the case of equal variances between groups or superior to the unpaired student t-test in the case of unequal sample sizes or variances between groups(12). According to the EBB practice, the Welch t-test should be preferred over the simple t-test in most statistical analysis. Therefore, in step 5, I emphasized selecting statistical methods at each stage of analysis using an EBB practice. I appealed to methodologists including data scientists. epidemiologists and biostatisticians to develop EBB methods/ procedures for specific types of research data and update them periodically for users and analysts. I also suggested providing checklists and guidance documents for properly using up-to-date methods with statistical software and their reporting in the statistical analysis section.

In step 6, I highlighted the need for multivariable analysis for obtaining unbiased findings in all types of studies including clinical trials. However, I emphasized variable selection that in а multivariable regression model is a critical phase of multivariable analysis that can be guided by the study objective type. In step 6, I highly recommend the use of a multivariable analysis and the reporting of the variable screening and other adjustment methods according to the study objective type in the statistical analysis section of medical research. One of the major aspects of developing a multivariable model is to explore effect modifiers and interaction effects, although a low percentage of studies only explore effect modifiers or interaction effects in statistical analysis. In step 7, I provided references for understanding the differences in the concept of effect modifiers and the interaction effects and their reporting according to the study objective type. In fact, exploring interaction and heterogeneity assessments become essential, particularly in dealing with big data paradoxes or analysis of combined databases when the data are coming from multiple sources with different underlying characteristics(13). I suggested specifying the detailed method of exploring effect modifiers or interaction effects depending on the study objective type in the statistical analysis section for assessing the applicability of the findings.

The reliability of findings obtained from statistical models depends on the assumptions involved in the statistical procedure. In addition to model-specific assumptions, we suggested exploring at least five things including the distribution of outcomes for parametric analysis, linearity for parametric or semiparametric regression analyses, and multicollinearity, sparsity and overfitting in multivariable analysis. In step 8, I also provided some potential references for assessing these assumptions in statistical analysis and their clear reporting in the statistical analysis section. Reproducibility of findings and conclusions from a study is always a threat in medical research. Therefore, it becomes essential to internally or externally validate the findings obtained in any study by performing various sensitivity analyses. Under step 9, I clarified the role, value, and reporting of sensitivity analysis methods and differentiated it from the other types of primary or secondary or interim analyses. Finally, in step 10, I provided some thematic frameworks for reporting and interpreting data as per the study design and study objective type. Based on EBB practice, I suggested presenting data column-wise or row-wise as per the study design and interest, reporting maximum data summary using graphs as per the study objective and interest after accounting for DGP, and model performance as per the study objective type. In addition, the document also clearly specifies reporting of all inputs including standardization or transformation of variables for proper interpretation of results.

The author strongly urges researchers to provide any additional information in the supplementary statistical analysis section including statistical codes for reproducing findings or attesting to the validity or robustness of the findings or reanalyzing data if possible. I also supplemented multiple examples with implications of non-adherence to any step in statistical analysis and provided a sample framework for writing statistical analysis section. The reporting of the proposed 10 steps in any order in the statistical analysis section may have tremendous implications for standardizing biostatistical practices and improving the quality of statistical reporting in medical research.

#### References

- 1. Dwivedi AK. How to write statistical analysis section in medical research. J Investig Med. 2022.
- Eblen MK, Wagner RM, RoyChowdhury D, Patel KC, Pearson K. How Criterion Scores Predict the Overall Impact Score and Funding Outcomes for National Institutes of Health Peer-Reviewed Applications. PLoS One. 2016;11(6):e0155060.
- 3. Held U, Steigmiller K, Hediger M, Cammann VL, Garaiman A, Halvachizadeh S, et al. The incremental value of the contribution of a biostatistician to the reporting quality in health research-A retrospective, single center, observational cohort study. PLoS One. 2022;17(3):e0264819.
- 4. Wichman C, Smith LM, Yu F. A framework for clinical and translational research in the era of rigor and reproducibility. J Clin Transl Sci. 2020;5(1):e31.
- 5. Dwivedi AK, Shukla R. Evidence-based statistical analysis and methods in biomedical research (SAMBR) checklists according to design features. Cancer Rep (Hoboken). 2020;3(4):e1211.
- 6. Sauerbrei W, Abrahamowicz M, Altman DG, le Cessie S, Carpenter J, initiative S. STRengthening analytical thinking for observational studies: the STRATOS initiative. Stat Med. 2014;33(30):5413-32.
- 7. Harhay MO, Donaldson GC. Guidance on Statistical Reporting to Help Improve Your Chances of a Favorable Statistical Review. Am J Respir Crit Care Med. 2020;201(9):1035-8.
- Harrington D, D'Agostino RB, Sr., Gatsonis C, Hogan JW, Hunter DJ, Normand ST, et al. New Guidelines for Statistical Reporting in the Journal. N Engl J Med. 2019;381(3):285-6.
- Althouse AD, Below JE, Claggett BL, Cox NJ, de Lemos JA, Deo RC, et al. Recommendations for Statistical Reporting in Cardiovascular Medicine: A Special Report From the American Heart Association. Circulation. 2021;144(4):e70-e91.
- 10. Kent P, Cancelliere C, Boyle E, Cassidy JD, Kongsted A. A conceptual framework for prognostic research. BMC Med Res Methodol. 2020;20(1):172.
- 11. Dwivedi AK, Mallawaarachchi I, Lee S, Tarwater P. Methods for estimating relative risk in studies of common binary outcomes. Journal of Applied Statistics. 2014;41(3):484-500.
- 12. Dwivedi AK, Mallawaarachchi I, Alvarado LA. Analysis of small sample size studies using nonparametric bootstrap test with pooled resampling method. Stat Med. 2017;36(14):2187-205.
- 13. Msaouel P. The Big Data Paradox in Clinical Practice. Cancer Invest. 2022:1-10.

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## **Health and Nutrition**

#### Is our response to health emergencies, role of organized medicine?

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When health emergencies occur it is the doctors and other healthcare providers who are on the frontlines in responding to the humanitarian and public health crises. These frontline responders often know best what the problem is and what effective and pragmatic solutions could help improve responses. Are these healthcare providers engaged to play a key role in shaping effective solutions that work in local contexts? Are different medical specialities who have a crucial role during emergencies and humanitarian coordinating crises. amongst themselves and with government and other agencies who are decision makers for the response?

Undoubtedly, along with most affected people, it is the frontline healthcare providers and other responders who should be shaping responses to the pandemics and health emergencies. Failure to do this will exacerbate the crisis by sub-optimal responses.

#### **Organized Medicine in India**

Recognizing the dire need for associations of different medical specialities to join forces and give input to the government to help improve responses to health emergencies, the Organized Medicine Academic Guild (OMAG) of India1 came into being. OMAG is the academic guild of professional medical organizations in India, founded at the Annual Conference of Indian Academy of Paediatrics (PEDICON), on 7 January 2018 at Nagpur, India. OMAG is constituted by the leading professional medical organizations and mandated to support the Sustainability Health Agenda of the Government of India. Currently OMAG is a network of over 15 professional medical associations in the country including Association of Surgeons of India, AIDS Society of India, Indian Academy of Paediatricians, Indian Association of Preventive and Social Medicine, Emergency Medicine, Indian Associations Opthalmologists, Orthopaedicians, of Anaesthesiologists, INDUSEM, National Centres for Disease control, among others.

It is the collective vision that will help accelerate progress towards achieving health of our societies. Global health security is one of the biggest challenges for a highly diverse and populous nation like India.

Even in so-called 'normal' or non-pandemic times, there are health challenges that warrant multisectoral response and collaboration between different medical specialities and other associations and networks. For example, antimicrobial resistance, or trauma.

That is why OMAG is already unifying different medical experts' associations to improve responses to antimicrobial resistance, TB, trauma, noncommunicable diseases (NCDs), infectious diseases, health emergencies and pandemics. These health emergencies and pandemics need clinical and public health solutions.

The commitment for global health security2 was also reiterated six years ago (2016) when Indian Prime Minister and then USA President had jointly endorsed the global health security agenda. Need of the hour is to bring people's health centre-stage with measurable impacts at national level.

#### One world one health

Ensuring quality healthcare services for everyone worldwide is so vital. The commitment for expanding the universal healthcare coverage to one billion, protecting another one billion people from health emergencies, and ensuring one billion are enjoying better health and wellbeing worldwide are key cog-in-the-wheel for global health security. These are also interim goals towards health for all worldwide. One World One health agenda must be the unifying force. These 'Triple Billion' goals are also enshrined in the Global Programme of the World Health Organization (WHO)3.

That is why OMAG dedicatedly is trying to advance collective progress on antimicrobial resistance and multidrug resistant organisms4. Lack of public health convergence in terms of education, research and care is a challenge. Deeply entrenched disparities and inequalities are another major challenge when it comes to ensuring health for all. Emergency medicine, family medicine, infectious diseases, toxicology, or other such disciplines are in infancy currently. If we do not develop them quickly enough then it will severely limit our response.

Coordinated response is key. Connecting care, competencies and culture is a challenge.

#### **OMAG and COVID-19 response in India**

OMAG had also responded during COVID5 and continues to do so for ensuring the response to the pandemic is backed by science and evidence, and takes into account important recommendations emerging from OMAG member associations of different medical specialities6.

The Government of India's NTAGI (National Technical Advisory Group on Immunization) had accepted several of the science-backed and evidence-based suggestions made by OMAG, and the Ministry of Health and Family Welfare is implementing them7. Reducing gap between first and second primary doses of Covishield, addressing supply chain issues, vaccine hesitancy, sciencebacked rollout of more vaccines such as ZyCov-D, SMS-V campaign, are some of the suggestions that were put forth by OMAG to the authorities.

## SMSV (Social distancing, Masks, Sanitization, and Vaccination) approach8

SMSV (Social distancing, Masks, Sanitization, and Vaccination) approach is a central cog in the wheel as we open up social mixing and economic activities and relax COVID-19 protocols. OMAG leaders had suggested SMS campaign (and then revised it to SMSV when vaccines became available for public rollout) to authorities since the beginning of the pandemic. Public education campaigns also using social media in local vernacular languages like Marathi was used9.

Less the virus circulates in human population, less is the chance of new variants. Breaking the chain of infection transmission remains centre-stage as pandemic response. SMSV is more important than ever before as we open up social mixing and economic activities, say experts.

#### Keeping science centre-stage

OMAG experts have been playing a key role in helping keep the response grounded in science and evidence. There is no doubt that even in times of crisis, we need to stick to reason, science and evidence. For instance, instead of comparing number of cases or deaths in a country, we should stick to number of cases or deaths per million population for comparative analysis and emerging disease trends. India stands at 2nd position worldwide in number of cases, or no.3 in total COVID-19 deaths globally. But if we look at number of cases per million, then India stands at 149th position worldwide and number 135th position if we look at deaths per million population.

During the recent and ongoing wave of COVID-19, nine out of every ten people who were hospitalised due to the corona virus, were unvaccinated. It is clear that vaccinations against COVID-19 helps reduce the risk of being hospitalised or dying if one gets infected with corona virus. With 97% of eligible population having received the first dose of COVID-19 vaccine and 85% of these fully vaccinated, and almost similar part of the population having been exposed to the virus, immunity against COVID-19 is reasonably high in India, thereby risk of another catastrophic wave is perhaps minimal – though we need to be vigilant against emerging variants.

We should expect infectious disease like COVID-19 to be with us for few years, but hopefully as an endemic and we better learn to live with it. Disaster management and preparedness plans and those addressing global health security must also include organised medicine.

OMAG calls on all countries to remain vigilant, continue to vaccinate, test, sequence, provide early care for patients, and apply common-sense public health measures to protect health workers and the public.

The government must optimally and fully engage professional medical associations like OMAG and OMAG partners and members, nursing homes and clinics and other healthcare facilities which can play a catalytic role in accelerating vaccination programmes, especially for children and population sub-groups who are at higher risk of COVID-19, such as those living with HIV.

While India is rolling out the booster dose

(precaution dose) and primary doses to those who are not fully vaccinated, it is prudent to invest in bridge studies to have more evidence of public health impact of further booster doses, or the need to lower dose of vaccine or combining different vaccine doses.

#### References

- 1. Organized Medicine Academic Guild (OMAG) of India: http://organizedmedicine.in
- 2. Joint Statement: The United States and India: Enduring Global Partners in the 21st Century https://obamawhitehouse.archives.gov/the-pressoffice/2016/06/07/joint-statement-united-statesand-india-enduring-global-partners-21st
- 3. Triple Billion dashboard of World Health Organization (WHO) https://www.who.int/data/triple-billion-dashboard
- 4. Fighting Anti-microbial Resistance (AMR): Status Paper with Action Points by Organized Medicine Academic Guild https://www.researchgate.net/publication/333404 928\_Fighting\_Anti-

microbial\_Resistance\_AMR\_Status\_Paper\_with\_Actio n\_Points\_by\_Organized\_Medicine\_Academic\_Guild

- India's need for long-term solutions to COVID-19-like pandemics: a policy paper by organized medicine academic guild https://pesquisa.bvsalud.org/globalliterature-on-novel-coronavirus-2019ncov/resource/pt/covidwho-1235586
- 6. OMAG calls for optimal engagement of medical experts in response to Covid-19 pandemic www.pharmabiz.com/NewsDetails.aspx?aid=14762 0&sid=1
- 7. Doctors' body OMAG wants ban on international flights in wake of OMICRON variant https://www.deccanherald.com/national/west/doc tors-body-omag-wants-ban-on-international-flights-in-wake-of-omicron-variant-1055455.html
- 8. SMS campaign and OMAG https://mumbaimirror.indiatimes.com/opinion/col umnists/by-invitation/india-is-in-for-a-very-difficult-period-ahead/articleshow/77340882.cms
- 9. Dr Ishwar Gilada in Marathi on Lockdown versus SMS-Sanitizer,Mask,Social Distance to contain COVID19

https://www.youtube.com/watch?v=3F07Kb7B3X8 &t=21s.

## Undernutrition or Obesity. Where should the focus be?

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#### The Problem

A few years ago, overweight and obesity were only seen as a concern in developed western countries whereas undernutrition and hunger were more of a problem for a developing nation like India. In recent years, less developed countries are also observing dramatic growth in the percentage of obese people over the years.

India, a few decades ago focussed and prioritized actions to alleviate malnutrition. Over the past few years, several schemes and interventions with the potential to improve the nutritional status of the country were launched - the Integrated Child Development Service, mid-day meal scheme, and the recent POSHAN Abhiyaan.1 The effect of these programs was reflected in the National Family Health Survey (NFHS)-5 findings - stunting among under-five children reduced from 38.4% to 35.5%, wasting reduced from 21.0% to 19.3% and underweight prevalence has reduced from 35.8% to 32.1% in last five years. Similarly, undernutrition (BMI <18.5kg/m2) among adult men and women dropped by 4% (20.2% to 16.2% among men and from 22.9% to 18.7% among women). But with the country's industrialization, urbanization, and economic growth, India has reached a state of nutrition imbalance. We as a country are facing the problem of the double burden of malnutrition, where a significant proportion of the population is still suffering from hunger, whereas many are consuming calories beyond the requirement.2

Obesity rates nearly tripled globally between 1975 and 2016, according to World Health Organization. In 2016, 39% of people aged 18 and up were overweight (39% of men and 40% of women), while 13% of the global adult population (11% of men as well as 15% of women) were obese.3 As per the World Obesity Federation, one billion people globally, including 1 in 5 women and 1 in 7 men, will be living with obesity by 2030.4 The greatest number of people living with obesity is in low- and middle-income countries (LMICs), with numbers more than doubling across all LMICs, and tripling in low-income countries.4 India needs to address the challenges of malnutrition, particularly in rural and urban slum households, and take steps to maintain current trends in under-nutrition reduction without worsening the hastily increasing troubles of overweight and obesity.5

#### The Burden

In developing economies such as India, the growing prevalence of overweight and obesity has correlated with demographic and epidemiological shifts in which mortality and fertility have declined and lifestyle-associated diseases became more common. NFHS-5 data in most states and union territories shows that the prevalence of overweight and obesity  $(BMI \ge 25.0 \text{ kg/m2})$  has increased by 4% among men and 3.4% among women in comparison to NFHS-4. Prevalence increased from 20.6% to 24% among women and 18.9% to 22.9% among men across the country6. According to NFHS-5, none of the states reported a decline in the prevalence of overweight/obesity among both genders, while states like Haryana, Karnataka, Manipur, and Odisha reported an increasing burden (7-12% increase among women and 5-11% among men). Gujarat and Maharashtra showed no major changes in the prevalence.7 Additionally, NFHS-5 also reported Waist to Hip Ratio (WHR), which served as a proxy indicator for excessive abdominal fat. More women have higher WHR (57%) as compared to men (48%).6

India, after China, has the highest number of diabetics in the world. Rapid economic development has resulted in a shift of dietary patterns toward energy-dense foods, which, along with rapid urbanization and an associated sedentary lifestyle, contributed has to an increase in overweight/obesity.8 Given India's resource constraints and the strains on its health system, rising overweight/obesity with a significant relation to Non-communicable diseases (NCD) constitutes a significant public health challenge.9

As an individual, being overweight and obese can have detrimental health, societal and economic impacts. It results in poor health, increases the risk of other NCDs, and can lead to premature death. There is evidence showing children and adults with obesity face stigma and bullying with reduced opportunities in the schools and workplace. It has a negative impact on their mental health and wellbeing.10,11 Addressing obesity globally is critical and challenging. At a population level, as more and more people require support to manage and treat obesity and related co-morbidities, health systems are facing high financial implications.12 This is of particular concern in LMICs, where the greatest number of people with obesity now live, and where health systems and healthcare professionals are severely underprepared to effectively manage and treat obesity and its consequences. Furthermore, many LMICs face the consequences of the double burden of malnutrition.13

#### **The Solution**

World Health Organization developed a global monitoring framework for the control of rising burden of NCDs and set nine targets to be achieved by 2025. It aims to reduce physical inactivity by 10%, cut down the consumption of salt by 30%, and halt the rise of diabetes/obesity by 2025.14 Sustainable Development Goals by the United Nations also address issues related to good health and well-being of an individual. It aims to reduce one-third of premature mortality from NCDs by 2030.15

Developed countries have policies and programs in place to target the burden of obesity both in children and adults eg. United States Healthy People by 2030 focuses on reducing overweight and obesity by helping people eat healthy and get physical activity. In India, the population based screening includes behavioural risk factors of NCDs like amount of physical activity and measurement of waist circumference among other factors. Community mobilization, health promotion and referral and follow up of high risk individuals at Primary Health Centre (PHC) serve as important opportunities to address obesity prevention measures. At the population level, Eat Right movement and Fit India movement are initiatives in the right direction and they need to be incorporated into the Health and Wellness agenda across the health system. Capacity building of the health workforce to screen and counsel people with overweight and obesity in a non-stigmatizing way is crucial. There is a need for a sustained, multisectoral response involving the public, private and non-governmental sectors and across various ministries to promote a healthy lifestyle and provide an enabling environment, starting from early stages in life. Additionally, life skill education at a young stage will help to address and avoid habits such as the use of tobacco, alcohol, drug, unhealthy eating patterns, sedentary lifestyle,

etc. which have been linked to NCDs development in later stages of life.16

#### Way forward

Culturally appropriate programs and policies and public health interventions targeting healthy eating and physical activity can help maintain a healthy weight and prevent the rising trend. Integrating prevention policies for obesity, enabling equitable access to nutritionally adequate food, supporting physical activity, and promoting good mental health are additional measures to be taken by the government to fight the double whammy of malnutrition in India.

#### References

- Government of India. The government's efforts to fight malnutrition. Ministry of Women and Child Development. 2012. p. 1–16.
- 2. Dutta M, Selvamani Y, Singh P, Prashad L. The double burden of malnutrition among adults in India: evidence from the National Family Health Survey-4 (2015-16). Epidemiol Health. 2019;41:1–23.
- 3. World Health Organization. Obesity and overweight [Internet]. 2021 [cited 2022 Jun 22]. Available from: https://www.who.int/news-room/factsheets/detail/obesity-and-overweight
- 4. World Obesity Federation. World Obesity Atlas. 2022. p. 1–250.
- 5. Kapur K, Suri S. Towards a Malnutrition-Free India: Best Practices and Innovations from POSHAN Abhiyaan. ORF Special Report. 2020. p. 1–15.
- International Institute for Population Sciences. National Family Health Survey-5 (2019-21)- India Fact Sheet. Ministry of Health and Family Welfare. 2022. p. 1–7.
- International Institute for Population Sciences. National Family Health Survey-5 (2019-21)- Phase 1 States Fact Sheet. Ministry of Health & Family Welfare. 2022. p. 1–145.
- 8. Khandelwal S, Reddy KS. Eliciting a policy response for the rising epidemic of overweight-obesity in India. Obes Rev. 2013;14(2):114–25.
- 9. Siddiqui MZ, Donato R. Overweight and obesity in India: policy issues from an exploratory multi-level analysis. Health Policy Plan. 2016;31(5):582–91.
- 10. Pomeranz JL, Puhl RM. New developments in the law for obesity discrimination protection. Obesity. 2013;21(3):469–71.
- 11. Okunogbe A, Nugent R, Spencer G, Ralston J, Wilding J. Economic impacts of overweight and obesity: current and future estimates for eight countries. BMJ Glob Heal. 2021;6(10):1–23.
- 12. Musich S, MacLeod S, Bhattarai GR, Wang SS, Hawkins K, Frank G. Bottone J, et al. The Impact of Obesity on Health Care Utilization and Expenditures in a Medicare Supplement Population. Gerontol Geriatr Med. 2016 Jan 1;2:1–26.

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- 13. Pradeilles R, Baye K, Holdsworth M. Addressing malnutrition in low- and middle-income countries with double-duty actions. Proceedings of the Nutrition Society. Cambridge University Press; 2018.
- 14. World Health Organization. Non communicable disease global monitoring framework- Targets and Indicators. World Health Organization. 2013. p. 1–2.
- 15. United Nations. Sustainable Development Goals. Department of Economic and Social Welfares. 2015. p. 1–56.
- 16. World Health Organization. Life skills education school handbook: prevention of noncommunicable diseases: approaches for schools. 2020. p. 1–45

## **Short Communication**

#### National Emergency Life Support— A Multitiered 'Make In India' Initiative

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The emergency care system (ECS) encompasses everything from on-scene care to transport and emergency unit care, as well as the delivery of timely health care services for acute illness and injury throughout one's life. Pre-hospital care is the initial step in the chain of treatment and the community's first access point to skilled medical professionals. Effective use of the "platinum minutes" and "golden hour" in trauma and emergencies can be largely attributed to pre-hospital systems that are efficient. The main advantages of the same become apparent when prompt medical attention can prevent or delay the chain of events that would otherwise leave patients dead or permanently disabled.

To provide quality emergency medical care, capacity building of health human resources, particularly those employed in pre-hospital services and emergency rooms, is critical at all levels of the health system. In keeping with the Prime Minister's 'Make in India' policy, the Ministry of Health and Family Welfare released India's first indigenously developed National Emergency Life Support Course for doctors, nurses, and paramedics through its Central Sector Scheme "Human Resource Development for Emergency Medical Services." This scheme aims to strengthen human resource capacities by providing a standardized, uniform, need-based, and skill-based training program, recognizing wide variations in knowledge and skill among healthcare personnel delivering emergency medical services. The toolkit is made to enhance comprehensive skill-based emergency life support training for major emergencies. The initiative also aims to establish Skill Centres across India to deliver the basic infrastructure needed to train healthcare staff at all levels of care.

Basic Life Support (BLS) is the foundation for saving lives after cardiac arrest. These courses provides

the hands-on-skills of high-quality cardiopulmonary resuscitation (CPR) for victims of all ages including pregnant individuals. Recognition of indications of sudden cardiac arrest, heart attack, stroke, and foreign body airway blockage, as well as CPR and defibrillation with an automated external defibrillator, are all part of basic life support (BLS).

This is the type of assistance that first responders, healthcare providers, and laypeople can provide. It requires basic knowledge and skills in performing cardiopulmonary resuscitation in all age groups, the use of automated external defibrillators (AED), certain special situations in BLS, and early transfer to the nearest hospital. The "chain of survival," which comprises early notice and activation of the emergency response system, early commencement of CPR by skilled rescuers, early use of a defibrillator, and early transfer, is by far the most critical process of BLS. If these four interconnected processes are completed quickly and in the correct order, the victims' survival is assured.[1]

Toolkit for the health team, is necessary to maintain current knowledge, consolidate technical abilities, and establish enough self-esteem related to the application in order to properly perform cardiopulmonary resuscitation.[2] Every member of the medical team who treats patients is expected to be knowledgeable about the fundamentals of resuscitation. A study among doctors, interns, medical/dental students, and paramedics in the nation have low BLS awareness. [3]

The inclusion of a BLS course in the undergraduate curriculum will raise awareness and knowledge of this crucial set of life-saving abilities, coupled with regular reassessment.[4]

Studies have shown that the knowledge and confidence in performing BLS among trainees improve steeply after attending a structured course on BLS. The trainees gain the self-assurance to assist a choking sufferer and to recognise a cardiac arrest and carry out the necessary lifesaving measures. The study also emphasizes the need for periodic knowledge reinforcement in order to stop the loss of skills and information. [2]

Studies have also emphasized the significance of practice to develop adequate CPR abilities and sustain ongoing proficiency in the method. Additionally, it's important to frequently upgrade your knowledge.[5]

Similarly, a study by Pande et al. states that the first year of medical school is the ideal time to introduce BLS training and that it should be reinforced annually after that. There is very little time for learners to practice the technique after graduation and therefore, the skill should essentially be developed during graduation.[6] The introduction of a BLS course, according to Zaheer et al., will raise awareness and application of this crucial life-saving technique.[7]

Therefore, all medical and paramedical staff members should be required to complete BLS and advanced cardiovascular life support training programs. If medical students share the newly acquired knowledge with their relatives and friends, teaching BLS to medical undergraduates may prove to be a great way to impact the community as a whole. Thus, it should be mandatory to incorporate these abilities into medical school curricula and in order to aid students in maintaining their knowledge and skill sets, there should be regular update sessions and mock exams.[3]

Since life-threatening events can happen to anyone, anywhere, at any time, it is ideal for everyone to be familiar with BLS and CPR. Therefore, the possibility that children can learn BLS may have an impact on laws requiring CPR education to start in elementary schools. There is evidence that BLS instruction in primary schools enhances children's ability and knowledge. A BLS course including lecture and practice sections can help school children learn more about CPR while also improving their abilities and attitudes. Despite having less strength than adults, children can do BLS with practice because they have the necessary psychomotor skills.[8]

As more people enroll in training programs, the survival rates of patients who require BLS will rise in terms of BLS applications. In, order to produce a large number of people who are capable of conducting BLS, it is necessary to run BLS programs in practically all spheres and areas of our society. Thus, more easily repeatable, efficient, and accessible training methods are required.[1]

#### References

- 1. Provider Course Manual for Paramedics.pdf [Internet]. 2022 [cited 28 June 2022]. Available from: https://main.mohfw.gov.in/sites/default/files/Prov ider%20Course%20Manual%20for%20Paramedics. pdf
- Kose S, Akin S, Mendi O, Goktas S. The effectiveness of basic life support training on nursing students' knowledge and basic life support practices: a nonrandomized quasi-experimental study. African Health Sciences. 2019 Aug 21;19(2):2252-62
- Chandran KV, Abraham SV. Basic life support: Need of the hour—a study on the knowledge of basic life support among young doctors in India. Indian Journal of Critical Care Medicine: Peer-reviewed, Official Publication of Indian Society of Critical Care Medicine. 2020 May;24(5):332
- 4. Almesned A, Almeman A, Alakhtar AM, AlAboudi AA, Alotaibi AZ, Al-Ghasham YA, Aldamegh MS. Basic life support knowledge of healthcare students and professionals in the Qassim University. International journal of health sciences. 2014 Apr;8(2):141.
- Roshana S, Batajoo KH, Piryani RM, Sharma MW. Basic life support: knowledge and attitude of medical/paramedical professionals. World J Emerg Med. 2012;3(2):141-144. doi: 10.5847/wjem.j.issn.1920-8642.2012.02.011.
- Pande S, Pande S, Parate V, Pande S, Sukhsohale N. Evaluation of retention of knowledge and skills imparted to first-year medical students through basic life support training. Adv Physiol Educ. 2014;38(1):42-45. doi: 10.1152/advan.00102.2013.
- Zaheer H, Haque Z. Awareness about BLS (CPR) among medical students: status and requirements. J Pak Med Assoc. 2009;5(1):57-59.
- Suwanpairoj C, Wongsombut T, Maisawat K, Torod N, Jaengkrajan A, Sritharo N, Atthapreyangkul N, Wittayachamnankul B. Outcome of basic life support training among primary school students in Southeast Asia. Clinical and experimental emergency medicine. 2020 Dec;7(4):245.

#### Self-harm/Suicide prevention from registry to intervention as part of Mental health Gap Action Program (mh GAP)

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Suicide and self-harm are among the important health related event we need to bother as it would indicate the mental health status, also the psychosocial environment of the humans is a given geographical area.(1)Self-harm suicidal attempts constitute one of the top 10 causes of mortality along with the injuries.(2) Further, DALY also constitute underline importance of the self-harm and suicide.

Not only to individuals, but also to the whole micro environment of the family and relatives, which will have long lasting impact, whether person survives or not. Survived person is more likely to commit attempt and hence first attempt is an important risk factor for subsequent attempt. This underscores the importance of identification of such events for follow up and action.(3)

Also, there are studies showing underestimation of suicides by NCRB, (National Crime Records Bureau), that for every one reported suicide there are several unreported (1:15) cases. Also, every one successful suicide, there are at least 20 attempts; this shows at least 1500 attempts for every 1 lakh population, per year. There would be several self harm (non fatal), for each of such attempts. Further, for the follow up and effective counselling of these cases, there is need to record/register all such cases, hence WHO suggested and Murali et al(4)(5)(6), have done feasibility of such registry at tertiary care centre. However, such tertiary care registry though needed, not sufficient to complete the task. Hence it is imperative to have such registry at primary and secondary care level also.

Now , question is are we equipped to do so? What are the logistics do we need? First, we need pilot studies at primary and secondary care, looking various models of registry. One such thing is all the cases identified at PHC/HWC, need to be followed up by health worker male/female at basic registry to be filled and these things can be filled in IDSP during weekly reports. Linking this with IDSP s forms would probably make it easier to disseminate and make appropriate mechanism.

Secondly, these people have to be followed up and counselled for prevention of such act. Do we have adequate trained man power for this either in public or private sector?

To begin with we can start register, track and counsel with available resources like Mid level health providers (MLHP at HWC), then may be due course of time, we can equip with man power.

They are not just need for self harm/suicide whole mental health spectrum and  $\sim 15\%$  of population have some type of mental illness as per lancet survey in India.(7)

Our country needs 20,250 psychologists, however, 900 clinical psychologists are currently practising mental healthcare services, according to the Ministry of Health and Family Welfare.(8)WHO data reveals 0.065 per lakh psychologists in India working in the field of mental health. this shows acute shortage of the trained manpower. The shortage seems to be in multi-fold (95% shortage). In addition, there existing number are skewed between urban and rural setting. We need to fill this huge mental health care gap adequately to give appropriate and adequate care. In US itself the availability is 29/1,00,000 populations and there 20% unmet need.(9)

Considering the burnout in this profession, we need more people getting trained , at least 1 institute for every 50,00,000 population training roughly 50 per institution, would give roughly 1000 every year would be added at least after 3 yrs. Also, psychiatric social worker would be great help in the community. Much of awareness is needed to students in relation to prospects of the course and advocacy to government to start the courses.

To summarise, we need to start national self-harm registry for surveillance and follow up, and sufficient man power of clinical psychologist, psychiatric social worker, which are severely deficient in the system to ensure bridging gap in mental health and hence can be part of mhGAP.

#### References

- 1. Mclean J, Maxwell M, Platt S, Harris F, Jepson R. Risk and protective factors for suicide and suicidal behaviours: A literature review. Scott Gov. 2008 Dec 1;
- Arendt F, Scherr S, Romer D. Effects of exposure to self-harm on social media: Evidence from a two-wave panel study among young adults. New Media Soc. 2019 Nov 1;21(11–12):2422–42.
- Van Orden KA, Witte TK, Cukrowicz KC, Braithwaite S, Selby EA, Joiner TE. The Interpersonal Theory of Suicide. Psychol Rev. 2010 Apr;117(2):575–600.

- Krishna M, Majgi SM, Kumar SP, Rajendra R, Heggere N, Poole R, et al. A hospital-based self-harm register in Mysore, South India: Is follow-up of survivors feasible in low and middle-income countries? Int J Community Med Public Health. 2021 Oct 27;8(11):5258–62.
- 5. World Health Organization. Practice manual for establishing and maintaining surveillance systems for suicide attempts and self-harm [Internet]. World Health Organization; 2016 [cited 2022 Jun 21]. 79 p. Available from: https://apps.who.int/iris/handle/10665/208895
- Rajendra R, Nagaraj MKT, Majgi S, Heggere N, Robinson C, Poole R. A feasibility study to establish a Deliberate Self-harm Register in a state hospital in

southern India. Br J Med Pract [Internet]. 2015 Mar [cited 2022 Jun 21];8(1).

- Sagar R, Dandona R, Gururaj G, Dhaliwal RS, Singh A, Ferrari A, et al. The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990–2017. Lancet Psychiatry. 2020 Feb 1;7(2):148– 61.
- 8. Press Information Bureau [Internet]. [cited 2022 Jun 21]. Available from: https://www.pib.gov.in/indexd.aspx.relid=192514
- https://www.apa.org/workforce/publications/supp ly-demand/technical-report.pdf) - Google Search [Internet]. [cited 2022 Jun 15].

## Selected Abstracts in Evidenced based Epidemiology

#### Digital interventions to improve adherence to maintenance medication in asthma. Cochrane Database of Systematic Reviews

**Citation**: Chan A, De Simoni A, Wileman V, Holliday L, Newby CJ, Chisari C, Ali S, Zhu N, Padakanti P, Pinprachanan V, Ting V, Griffiths CJ. Digital interventions to improve adherence to maintenance medication in asthma. Cochrane Database of Systematic Reviews 2022, Issue 6. Art. No.: CD013030. DOI: 10.1002/14651858.CD013030.pub2. Accessed 27 June 2022.

**Background:** Asthma is the most common chronic lung condition worldwide, affecting 334 million adults and children globally. Despite the availability of effective treatment, such as inhaled corticosteroids (ICS), adherence to maintenance medication remains suboptimal. Poor ICS adherence leads to increased asthma symptoms, exacerbations, healthcare hospitalisations, and utilisation. Importantly, suboptimal use of asthma medication is a key contributor to asthma deaths. The impact of digital interventions on adherence and asthma outcomes is unknown.

**Objectives:** To determine the effectiveness of digital interventions for improving adherence to maintenance treatments in asthma.

**Search methods:** We identified trials from the Cochrane Airways Trials Register, which contains studies identified through multiple electronic searches and hand searches of other sources. We also searched trial registries and reference lists of primary studies. We conducted the most recent searches on 1 June 2020, with no restrictions on language of publication. A further search was run in October 2021, but studies were not fully incorporated.

**Selection criteria:** We included randomised controlled trials (RCTs) including cluster- and quasi-randomised trials of any duration in any setting, comparing a digital adherence intervention with a non-digital adherence intervention or usual care. We included adults and children with a clinical diagnosis of asthma, receiving maintenance treatment.

**Data collection and analysis:** We used standard methodological procedures for data collection. We used GRADE to assess quantitative outcomes where data were available.

**Main results:** We included 40 parallel randomised controlled trials (RCTs) involving adults and children with asthma (n = 15,207), of which eight are ongoing studies. Of the included studies, 30 contributed data to at least one meta-analysis. The total number of participants ranged from 18 to 8517 (median 339). Intervention length ranged from two

to 104 weeks. Most studies (n = 29) reported adherence to maintenance medication as their primary outcome; other outcomes such as asthma control and quality of life were also commonly reported. Studies had low or unclear risk of selection bias but high risk of performance and detection biases due to inability to blind the participants, personnel, or outcome assessors. A quarter of the studies had high risk of attrition bias and selective outcome reporting. We examined the effect of digital interventions using meta-analysis for the following outcomes: adherence (16 studies); asthma control (16 studies); asthma exacerbations (six studies); unscheduled healthcare utilisation (four studies); lung function (seven studies); and quality of life (10 studies).

Pooled results showed that patients receiving digital interventions may have increased adherence (mean difference of 14.66 percentage points, 95% confidence interval (CI) 7.74 to 21.57; low-certainty evidence); this is likely to be clinically significant in those with poor baseline medication adherence. Subgroup analysis by type of intervention was significant (P = 0.001), with better adherence shown with electronic monitoring devices (EMDs) (23 percentage points over control, 95% CI 10.84 to 34.16; seven studies), and with short message services (SMS) (12 percentage points over control, 95% CI 6.22 to 18.03; four studies). No significant subgroup differences were seen for interventions having an in-person component versus fully digital interventions, adherence feedback, one or multiple digital components to the intervention, or participant age. Digital interventions were likely to improve asthma control (standardised mean difference (SMD) 0.31 higher, 95% CI 0.17 to 0.44; moderate-certainty evidence) - a small but likely clinically significant effect. They may reduce asthma exacerbations (risk ratio 0.53, 95% CI 0.32 to 0.91; low-certainty evidence).

Digital interventions may result in a slight change in unscheduled healthcare utilisation, although some studies reported no or a worsened effect. School or work absence data could not be included for metaanalysis due to the heterogeneity in reporting and the low number of studies. They may result in little or no difference in lung function (forced expiratory volume in one second (FEV<sub>1</sub>)): there was an improvement of 3.58% predicted FEV<sub>1</sub>, 95% CI 1.00% to 6.17%; moderate-certainty evidence); however, this is unlikely to be clinically significant as the FEV<sub>1</sub> change is below 12%. Digital interventions likely increase quality of life (SMD 0.26 higher, 95% Our confidence in the evidence was reduced by risk of bias and inconsistency.

Authors' conclusions: Overall, digital interventions may result in a large increase in adherence (lowcertainty evidence). There is moderate-certainty evidence that digital adherence interventions likely improve asthma control to a degree that is clinically significant, and likely increase quality of life, but there is little or no improvement in lung function. The review found low-certainty evidence that digital interventions may reduce asthma exacerbations. Subgroup analyses show that EMDs may improve adherence by 23% and SMS interventions by 12%, and interventions with an in-person element and adherence feedback may have greater benefits for asthma control and adherence, respectively. Future studies should include percentage adherence as a routine outcome measure to enable comparison between studies and meta-analysis, and use validated questionnaires to assess adherence and outcomes.

#### Pharmacotherapy for adults with overweight and obesity: a systematic review and network meta-analysis of randomised controlled trials.

**Citation:** Shi Q, Wang Y, Hao Q, et al. Pharmacotherapy for adults with overweight and obesity: a systematic review and network meta-analysis of randomised controlled trials. Lancet. 2022;399(10321):259-269. doi:10.1016/S0140-6736(21)01640-8

**Background:** Pharmacotherapy provides an option for adults with overweight and obesity to reduce their bodyweight if lifestyle modifications fail. We summarised the latest evidence for the benefits and harms of weight-lowering drugs.

**Methods:** This systematic review and network meta-analysis included searches of PubMed, Embase, and Cochrane Library (CENTRAL) from inception to March 23, 2021, for randomised controlled trials of weight-lowering drugs in adults with overweight and obesity. We performed frequentist random-effect network meta-analyses to summarise the evidence and applied the Grading of Recommendations Assessment, Development, and Evaluation frameworks to rate the certainty of evidence, calculate the absolute effects, categorise interventions, and present the findings. The study was registered with PROSPERO, CRD 42021245678. Findings: 14605 citations were identified by our search, of which 143 eligible trials enrolled 49810 participants. Except for levocarnitine, all drugs lowered bodyweight compared with lifestyle modification alone; all subsequent numbers refer to comparisons with lifestyle modification. High to moderate certainty evidence established phentermine-topiramate as the most effective in lowering weight (odds ratio [OR] of  $\geq$ 5% weight reduction 8.02, 95% CI 5.24 to 12.27; mean difference [MD] of percentage bodyweight change -7.97, 95% CI -9.28 to -6.66) followed by GLP-1 receptor agonists (OR 6.33, 95% CI 5.00 to 8.00; MD -5.76, 95% CI -6.30 to -5.21). Naltrexonebupropion (OR 2.69, 95% CI 2.11 to 3.43), phentermine-topiramate (2.40, 1.69 to 3.42), GLP-1 receptor agonists (2.17, 1.71 to 2.77), and orlistat (1.72, 1.44 to 2.05) were associated with increased adverse events leading to drug discontinuation. In a post-hoc analysis, semaglutide, a GLP-1 receptor agonist, showed substantially larger benefits than other drugs with a similar risk of adverse events as other drugs for both likelihood of weight loss of 5% or more (OR 9.82, 95% CI 7.09 to 13.61) and percentage bodyweight change (MD -11·41, 95% CI -12.54 to -10.27).

**Interpretation:** In adults with overweight and obesity, phentermine–topiramate and GLP-1 receptor agonists proved the best drugs in reducing weight; of the GLP-1 agonists, semaglutide might be the most effective.

**Funding:** 1.3.5 Project for Disciplines of Excellence, West China Hospital, Sichuan University.

#### A high periconceptional maternal ultraprocessed food consumption impairs embryonic growth: The Rotterdam periconceptional cohort, Clinical Nutrition

Citation: A.J.P. Smit, B. Hojeij, M. Rousian et al., A high periconceptional maternal ultra-processed food consumption impairs embryonic growth: The Rotterdam periconceptional cohort, Clinical Nutrition, https://doi.org/10.1016/j.clnu.2022.06.006

**Background & aims:** Periconceptional maternal dietary patterns contribute to embryonic growth and development. No knowledge is available about the impact of periconceptional maternal ultra-processed food consumption on embryonic growth. Therefore, the aim of the present study is to investigate the impact of periconceptional maternal ultra-processed food consumption on embryonic growth using repeated crown-rump length (CRL) and embryonic volume (EV) measurements.

Methods:This study is embedded in the ongoingprospectiveobservationalRotterdam

periconceptional cohort (Predict Study). A total of 701 pregnancies, of which 446 were conceived after natural conception and 255 after IVF or ICSI treatment were included. Women were at least 18 years of age and were recruited at the outpatient clinic before 13<sup>+0</sup> weeks of gestation. CRL and EV were measured using three-dimensional ultrasound datasets and virtual reality techniques at the 7th, 9th and 11th week of gestation. The food frequency questionnaire of each participant was used to calculate the percentage of maternal energy consumed from ultra-processed foods (PEI-UPF) for each participant. The association between PEI-UPF and the first trimester CRL and EV measurements was studied with linear mixed models and adjusted for potential confounders including maternal factors, gestational age, foetal sex, and total energy intake.

**Results:** PEI-UPF ranged from 16% to 88%. In fully adjusted linear mixed models, a 10% increase in maternal PEI-UPF was significantly associated with smaller growth trajectories of CRL and EV (b -0.041  $\sqrt{mm}$  (95% confidence interval (CI) -0.074 to -0.008), P = 0.02 and b  $-0.016 \sqrt[3]{cm}$  (95% CI -0.030 to -0.001), P = 0.04, respectively). When additionally adjusted for micronutrient content of diet (vitamins B1, B2, B6, B11 and B12, and zinc), the associations for the CRL and EV measurements lost significance.

**Conclusion:** Periconceptional maternal consumption of ultra-processed foods is associated with smaller embryonic growth. Interventions promoting healthy food practices during pregnancy could be beneficial for embryonic growth.

#### A review of front-of-pack nutrition labelling in Southeast Asia: Industry interference, lessons learned, and future directions.

Simone Pettigrew, Daisy Coyle, Briar McKenzie, Duong Vu, Shiang Cheng Lim, Kyra Berasi, Amphika Poowanasatien, Inthira Suya, Paul Kowal. A review of front-of-pack nutrition labelling in Southeast Asia: Industry interference, lessons learned, and future directions. The Lancet Regional Health - Southeast Asia. 2022: 100017. https://doi.org/10.1016/j.lansea.2022.05.006

**Summary:** Front-of-pack nutrition labelling is an evidence-based nutrition intervention that is recommended by the World Health Organization and other health agencies as an effective non-communicable disease prevention strategy. To date, the types of front-of-pack labels that have been identified as being most effective have yet to be implemented in Southeast Asia. This has been partly attributed to extensive industry interference in nutrition policy development and implementation. This paper outlines the current state of food labelling policy in the region, describes observed

industry interference tactics. and provides governments recommendations for how in Southeast Asia can address this interference to deliver best-practice nutrition labelling to improve diets at the population level. The experiences of four focal countries – Malaysia, Thailand, the Philippines, and Viet Nam – are highlighted to provide insights into the range of industry tactics that are serving to prevent optimal food labelling policies from being developed and implemented.

**Funding:** This research was supported by the United Kingdom Global Better Health Programme, which is managed by the United Kingdom Foreign, Commonwealth and Development Office and supported by PricewaterhouseCoopers in Southeast Asia.

**Keywords:** Nutrition Labelling, Food industry, Conflicts of interest

#### Physical Distancing, Face Masks, and Eye Protection to Prevent Person-to-Person Transmission of SARS-CoV-2 and COVID-19: A Systematic Review and Meta-Analysis

Chu, D. K., Duda, S., Solo, K., Yaacoub, S., & Schunemann, H. (2020). Physical Distancing, Face Masks, and Eye Protection to Prevent Person-to-Person Transmission of SARS-CoV-2 and COVID-19: A Systematic Review and Meta-Analysis. Journal of Vascular Surgery, 72(4), 1500. https://doi.org/10.1016/j.jvs.2020.07.040. https://www.thelancet.com/article/S0140-6736(20)31142-9/fulltext

**Background:** Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID-19 and is spread person-to-person through close contact. We aimed to investigate the effects of physical distance, face masks, and eye protection on virus transmission in health-care and non-health-care (eg, community) settings.

Methods: We did a systematic review and metaanalysis to investigate the optimum distance for avoiding person-to-person virus transmission and to assess the use of face masks and eve protection to prevent transmission of viruses. We obtained data for SARS-CoV-2 and the betacoronaviruses that cause severe acute respiratory syndrome, and Middle East respiratory syndrome from 21 standard WHO-specific and COVID-19-specific sources. We searched these data sources from database inception to May 3, 2020, with no restriction by language, for comparative studies and for contextual factors of acceptability, feasibility, resource use, and equity. We screened records, extracted data, and assessed risk of bias in duplicate. We did frequentist and Bayesian meta-analyses and random-effects meta-regressions. We rated the certainty of evidence according to Cochrane methods and the GRADE approach. This study is registered with PROSPERO, CRD42020177047.

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Findings: Our search identified 172 observational studies across 16 countries and six continents, with no randomised controlled trials and 44 relevant comparative studies in health-care and non-healthcare settings (n=25 697 patients). Transmission of viruses was lower with physical distancing of 1 m or more, compared with a distance of less than 1 m (n=10 736, pooled adjusted odds ratio [aOR] 0.18, 95% CI 0.09 to 0.38; risk difference [RD] -10.2%, 95% CI -11.5 to -7.5; moderate certainty); protection was increased as distance was lengthened (change in relative risk [RR] 2.02 per m; pinteraction=0.041; moderate certainty). Face mask use could result in a large reduction in risk of infection (n=2647; aOR 0.15, 95% CI 0.07 to 0.34, RD -14.3%, -15.9 to -10.7; low certainty), with stronger associations with N95 or similar respirators compared with disposable surgical masks or similar (eg, reusable 12–16-layer cotton masks; pinteraction=0.090; posterior probability >95%, low certainty). Eye protection also was associated with less infection (n=3713; aOR 0.22, 95% CI 0.12 to 0.39, RD -10.6%, 95% CI -12.5 to -7.7; low certainty). Unadjusted studies and subgroup and sensitivity analyses showed similar findings.

**Interpretation:** The findings of this systematic review and meta-analysis support physical distancing of 1 m or more and provide quantitative estimates for models and contact tracing to inform policy. Optimum use of face masks, respirators, and eye protection in public and health-care settings should be informed by these findings and contextual factors. Robust randomised trials are needed to better inform the evidence for these interventions, but this systematic appraisal of currently best available evidence might inform interim guidance. **Funding:** World Health Organization.



Statistics has immense application in almost all areas of knowledge and research and statistical thinking is the need of the hour in every sphere of life. During the covid-19 pandemic even the general masses were looking forward to the predictions about the pattern of cases, deaths, peak, risk factors around the globe to understand the impact of Covid-19 according to various socio-economicdemographic- geographic variations. Epidemiology and Statistics have been instrumental in helping the government and other organisations to quickly formulate the guidelines and policies within very short period to combat the pandemic and minimize the loss of lives and at the same time save the economy from the major setbacks. Making the basic statistical knowledge accessible during this crucial time in simplest possible language is great initiative. I am extremely delighted to know that

Dr. Vidya Bhushan, former Professor of Biostatistics Department of Community Medicine & Public Health ,K. G. Medical University, Lucknow rose up to the occasion by authoring the book, "A B C OF STATISTICS edited By Dr. Sanjeev Pandey, CEO, Global Touch International and published by Anshumali Bhushan & Sons, New Delhi . The book EFI Bulletin / VOL 03 / ISSUE NO 02 / APR- JUN 2022

elucidates fundamental statistical concepts and principles with the help of simple examples and diagrams. Besides it covers important topics on Psychological Statistics, Probability theory. Correlation Coefficient, Reliability and Validity, Normal Distribution, Tests of Significance, Parametric and Non-Parametric Tests, Design of Experiments, Vital Statistics, Sample Size Estimation and shall be very useful to anyone who aspires to understand the basics of statistics particularly undergraduate and post graduate students of humanities, medical and biological sciences. The sequence of the chapters and presentations is good and shall make the reading enjoyable to the beginners. Making the book available on digital platforms is welcome and will make it more accessible.

This book, in my opinion, will undoubtedly contribute to the understanding of Statistics by anyone and everyone without any previous background of Statistics.

I appreciate the author and editor of this book for their efforts to advance statistical thinking and the publishers for its publication.

I extend my best wishes and heartiest congratulations to all of the

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## **EFI News**

62" NAMS



Prof A K Bhardwaj has joined as Chairman, National Task Force National TB Elimination Programme, Central TB Divison, MoHFW, Gov of India.

NAMS Foundation Day



Prof Umesh Kapil has been appointed as Officiating Secretary of National Academy of Medical Sciences, New Delhi



Felicitation of EFI Secretary by Hon'ble Union Health Minister Dr Mansukh Laxmanbhai Mandaviya, Minister of Health & Family Welfare and Chemical and Fertilizers of India on 62 Foundation Day of National Academy of Medical Sciences, New Delhi dated 21-04-2022



Felicitation of Ms Mahima (the only daughter of Late Prof V K Srivatava) by EFI Council members during her recent visit to INDIA to specifically support the EFI Oration in her Father's name'



Virtual EFI Governing Council meeting held on 26th June 2022

