

Method 2dSearch is a radical alternative to conventional line-by-line query builders. Instead of entering Boolean strings into one-dimensional search boxes, queries are formulated by manipulating objects on a two-dimensional canvas. Query suggestions are provided via an NLP services API, and support is offered for optimising and translating search strategies for different databases. Moreover, strategies can be saved, shared and reviewed as executable artefacts. This approach eliminates many sources of error, makes the query semantics more transparent, and offers an open-access platform for sharing reproducible search templates and best practices.

Results 2dSearch currently supports over 300 registered users (and many more unregistered) in providing an open-access, integrated development environment specifically optimised for search strategy development. It includes:

- A visual framework which eliminates many errors associated with traditional command-line query formulation tools;
- Search results that update in real-time, and individual blocks with hit counts that can be enabled/disabled on demand;
- Queries that are analysed and validated, with common errors (e.g. duplication, orphaned lines, redundant bracketing) detected and corrections offered;
- Platform-agnostic representation and support for multiple databases which mitigates inefficient 'translation' of search strategies across databases;
- Interactive query suggestions that avoid the problems of phrase boundary detection and 'query drift' that undermine traditional query expansion techniques;
- Outputs that may be shared as executable artefacts or exported as traditional Boolean strings.

Conclusions Complying with seven recommended strategies to enhance the reproducibility in scientific research, this platform supports pre-registration of searches, open search strategies (methods), open search results (data), collaboration in review team in search step, automation of validation and translation of search syntax, compatibility with reporting guidelines, and finally pre- and post-publication peer-review.

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THE FACT THAT 'THE SCANDAL OF POOR MEDICAL RESEARCH' BY DOUGLAS ALTMAN (1994) LARGELY HOLDS TRUE TODAY INSINUATES THE PERSISTENT CONDUCT AND DISSEMINATION OF POOR-QUALITY RESEARCH. HOWEVER, FUTURE DIRECTIONS PRESENTED IN THE EBM MANIFESTO PROVIDE SOME ASSURANCE THAT RESEARCH QUALITY IN EVIDENCE-BASED MEDICINE CAN BE SALVAGED

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The objective of this submission is to describe four additional suggestions to alleviate issues around the quality of research and publications. Currently, positive results are twice as likely to be published as negative results. Advocating the publication of negative findings too would beseech individuals to report true findings and be less tempted to fabricate data. Moreover, negative findings help expedite the process of uncovering positive results and is supported by 'Missing pieces' by PLOS ONE and the journal 'Negative results'. However, their negligible impact factor and low profile may dissuade researchers

from exhibiting their work here. It can be challenging for new journals to compete with gold standards like Nature, NEJM or the BMJ. To tackle this, introducing a subset journal under well-known 'brands' eg. 'Nature/BMJ Negatives' could help attract contributions from researchers. Additionally, the regular updating of reviews calls for more living documents. Universities could collate the appropriate manpower and educational bodies, the necessary funding, to develop field specific documents under open access peer review journals such as the 'Living Journal of Computational Molecular Science.' Living documents help prevent duplication of research, allow for consistent presentation of data and the chronological depiction of findings allows comparisons to be made and trends to be detected as the topic evolves. Many healthcare professionals (HCPs) are not formally trained to conduct research resulting in them addressing questions with low statistical significance or engaging in ghost authorship to climb the career ladder. As such, there is a need to raise the requirements for HCPs who wish to do research (by completing mandatory research training courses) or ensure they are adequately supervised (eg. through collaboration with a career researcher). The feasibility of this suggestion is reiterated by the advent of digital technology which allows HCP's education to seamlessly integrate into their hectic schedules as e-resources can be accessed remotely and at their own convenience. Finally, a reduction in research output is necessary to alleviate the '75 trials and 11 systematic reviews a day' predicament. A revamp of the 'quantity over quality' mind-set is necessary. Researchers should be encouraged to broaden their scope of work beyond publication numbers and impact factors towards conference presentations, teaching, mentoring, contributing to scientific communications etc. These various components contribute towards a rewarding career, unlike a chase for an admirable h-index. To conclude, this proposal targets issues listed in the EBM manifesto. Promoting transparency in research helps reduce questionable research practices. Initiating more living documents elevates the worth of existing evidence through systematic representation of a topic. Furthering HCP education enables them to expand their roles in research. And finally, encouraging a reduction in research output results in evidence being more 'relevant, replicable, and accessible to end users.'

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SCIENCE REBOOT. CREATION OF AN EVIDENCE-BASED LITERATURE BY INCREASING THE USE OF REGIONAL LANGUAGES IN SCIENCE

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Objectives English as an International Language is widely used in science. Unfortunately, scientific information space is oversaturated by using International Language, while Regional Languages remain informatively poor. The oversaturation leads to the information overload¹⁻⁴, reducing the quality of information and data interpretation. At the same time, non-English speaking countries publish new studies in regional journals, causing contrary effect – information deficiency in English.⁵

Similarly to RCSB PDB and NCBI, the authors suggest to create a novel scientific database in order to: - Enrich the regional languages allowing them to be competitive; - Concentrate on the evidence-based and up-to-date information in

order to «restart the science»; - Provide information(1) in suitable for understanding way (reviews) and for accurate data description(2) (handbook). - Create more effective communication between specialists;

Methods The model of database includes:

1. Reviews/handbooks with the appropriate translation to other languages;
2. Comments below the topic;
3. Discussion.

Reviews/handbooks are done by a group of scientists that works on a specific issue. The translation occurs from regional to international language and reversely. This database collects information that is written in a regional language and automatically translates it into the international language. It means that the text structure must be universal for all languages. The translation must be done by regional-international and international-regional interactions, escaping regional-regional translations. A text structure is designed for a better 'RL-IL-RL' translation. The structure reduces translation mistakes. After that a reader will contextually improve the text. Comments (a forum) are created below the text for the correction of mistakes, as well as suggestions to use additional information that is based on a novel scientific data. Discussion is a platform (similarly to ResearchGate) that is based on scientist's activity suggesting topics that must be discussed. The discussion gives better verification due to variety of specialists involved in the conversation. Specialists create a community that checks information from all perspectives. Four levels of discussion will be made:

- Red – Urgent issues (require an immediate solution);
- Yellow – Important scientific questions;
- Green – Novel ideas, hypothesis, future perspectives;
- Grey – Other.

Results Thus, we can solve issues related to: - The quality of information; - Amount of information; - The quality of the language. This system also implies the constant up-to-date verification of information.

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PROPOSING AN ALTERNATIVE TO DOGMATIC RESEARCH APPROACHES

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Proposing an Alternative to Dogmatic Research Approaches Collaboration between clinicians and methodology experts is essential to ensuring research evidence is relevant, replicable and accessible to end-users. However, failing to suitably explore the methodological assumptions or limitations inherent to any

particular study, a potential consequence of insufficient collaboration, may result in questionable research practices and biased results. One manifestation of this failure is the dogmatic use of a single analytic approach to similar study types - for example, the ubiquitous use of 'statistical significance' to interpret a study's main finding despite widespread admonishment of this practice by methodological experts. Practices that promote a transparent exploration of methodological assumptions and limitations may help to improve the quality of research for end-users. Defaulting to familiar practices is a tendency among all researchers, therefore, a strategy to encourage critical exploration of assumptions needs to be imbedded within research reporting. In the Methodology section of submitted manuscripts, the International Committee of Medical Journal Editors (ICMJE) currently recommends authors provide 'clarity about how and why a study was done in a particular way.' While this practice is designed to allow replication of research projects, it does not convey any exploration of the assumptions inherent to the selected approach. One strategy to better highlight assumptions could be the addition of an 'Alternative Analysis' section to manuscripts. Based on using the same information available for the present study, the authors would be asked to identify a suitable alternative analytic strategy to address their primary research question, such as using a different statistical paradigm (e.g. Bayesian vs. Frequentist), a different class of outcome (e.g. ordinal vs. binary), a different summary estimate (e.g. absolute vs. relative risk), or an alternative approach to generating the same estimates (e.g. adjusted vs. unadjusted). Then authors would be asked to outline how the assumptions for this alternative differs from their selected approach and explore how this may (or may not) change the interpretation of their results. With no shortage of analytic strategies available to address any study question, the Alternative Analysis section will encourage authors to explore the fundamental assumptions inherent to their approach while highlighting alternatives that could be used in future studies. Requiring an Alternative Analysis section may incentivize earlier and better collaborations of clinicians with methodological experts. Clinicians will be encouraged to conduct a more thorough exploration of study assumptions prior to publication (when the analysis may still be improved) rather than after the study has already been published. As clinicians seek guidance to complete the new section of written work, they will naturally gain further insight into the limitations of their selected approach, increasing the quality of published work. Meanwhile, insufficient collaboration may help limit the publication of questionable studies that fail to identify suitable alternatives, curbing the dogmatic use of the same approach for similar study types. The exploration of underlying assumptions should already be done during the scientific process – the Alternative Analysis section will simply make it an explicit component of the final product.

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FIXING EVIDENCE-BASED MEDICINE REQUIRES TRANSPARENCY, STRATEGIC CAMPAIGNING, AND EDUCATION

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Fixing Evidence-Based Medicine requires transparency, strategic campaigning, and education When patients ask their doctor about the benefits and harms of a treatment, the doctor can