Our systematic review assessed the reporting quality of studies developing/validating ML models for clinical diagnosis, with a specific focus on the reporting of information concerning the participants on which the diagnostic task was evaluated on.

Method We searched Core Clinical Journals for studies published between 2015 to 2018. Two reviewers independently screened the retrieved articles, applying eligibility criteria to the title, abstract and full text accordingly. A third reviewer resolving discrepancies. To extract information regarding participants on which the ML test were evaluated on, two reviewers independently extracted the data from the eligible articles. Additional reviewers checked and verified the extracted data.

The following items were extracted; data source, method for partitioning the evaluation set from the training data, evaluation set eligibility criteria, diagnostic criteria, baseline characteristics, participant flow diagram, distribution of disease severity in diagnosed patients, distribution of alternative diagnosis for non-diagnosed patients and use of reporting guideline. Additionally, we extracted information on the time difference between the conduct of the ML test and reference standard, as well as if the evaluation group corresponded to the setting in which the ML test will be applied.

Results The search results yielded 161 papers, of which 28 conformed to the eligibility criteria. Detail of data source was reported in 86% of the papers while all of the papers reported methods for partitioning the evaluation set from a larger dataset. 82% of studies reported eligibility criteria for the evaluation set. Information on the diagnostic/non-diagnostic classification was reported well (82%). The least reported items were the use of reporting guideline (0%), distribution of disease severity (29%), patient flow diagram (34%), distribution of alternative diagnosis (36%) and baseline characteristic (64%). A large proportion of studies (82%) had a delay between the conduct of the reference standard and ML tests, while 4% did not and 14% were unclear. For 54% of the studies, it was unclear whether the evaluation group corresponded to the setting in which the ML test will be applied to.

Conclusions We found that all eligible studies in this review failed to use reporting guidelines and a large portion of the studies lacked adequate detail to replicate, assess and interpret study findings.

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A TALE OF ILL-MANAGED PAIN AND THE OPIOID EPIDEMIC

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The use of opioids to treat chronic non-cancer pain has increased dramatically in the last decade. Simultaneously, this surge in prescribing practices has been correlated to an almost four-fold increase in opioid-related deaths. Despite recent efforts to control the distribution of opioids and the introduction of abuse-deterrent opioid formulations, the epidemic is still yet to be fully targeted with a multi-factorial approach. In order to better understand how this crisis exists, it is important to examine patterns beginning in the 1980s. At that time, pharmaceutical companies marketed the use of opioids to treat

pain and assured clinicians that the addiction profile was low, but these claims were not based on evidence-based medicine. Within a few years, the same companies promoted these drugs for use in long-term non-cancer pain, despite the lack of good evidence. Regardless, this ‘mentality’ was adapted by clinicians based on the pharmaceutical companies’ misrepresentation, which sparked the first of three major waves of increased opioid prescribing. The number of opioid prescriptions increased among primary care clinics and hospitals, and an increased amount of opioid diversion took place. Pharmaceutical companies responded to the public outcry by developing abuse-deterrent formulations such as an extended release oxycodone (OxyContin). These prescribing practices led to increased rates of opioid over-sedation and opioid-related deaths. The second wave began around 2010, as efforts were made to decrease opioid prescribing, leading to the increased popularity of a cheap, widely available option – heroin. Finally, the last resurgence was seen in 2013 due to newer synthetic opioids such as fentanyl. When a patient undergoes a surgical procedure, some level of pain is anticipated post-operatively, and the level of severity and duration varies patient-to-patient. Indirectly related to the illicit opioid epidemic, opioid-prescribing in the postoperative period has increased dramatically, feeding yet another epidemic. Although opioids are often prescribed to address the need for pain management, this is often done without a long-term plan to eventually wean off these medications. As a result, patients are ultimately left with inappropriately managed chronic pain and almost half of these patients continue to use opioids as more of a ‘band-aid’ solution. The issue becomes more complex as these patients seek care from their primary care physicians who may not have experience in weaning patients off opioids. Although some success has been seen with the implementation of prescribing guidelines and educational interventions, new programs need to be implemented to address this systemic issue. This led to the concept of a Transitional Pain Service with a focus on high-risk patients with complex pain management and opioid weaning. This is managed through an interdisciplinary team which is led by anesthesiologists with the goal of minimizing the risk of developing chronic pain post-operatively and long-term opioid use. Through the Transitional Pain Service, patient’s pain management needs are being addressed through a multidisciplinary model and programs are being implemented to combat the growing opioid epidemic that stemmed from a lack of evidence-based medicine.

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SYSTEMATIC REVIEW REGISTRATION IN HEADACHE DISORDERS

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Objectives The principles of the Evidence Based Medicine (EBM) manifesto focus in part on: identifying and fixing problems with research evidence, improving the quality of evidence, increasing research transparency, and reducing research waste¹. Systematic Reviews (SRs), one method of synthesizing existing evidence, can be used to inform clinical practice guidelines (CPGs) and policy decisions. With the advent of SR registries such as PROSPERO², and the ability to prospectively register SR protocols, there has been an increased awareness regarding registration and transparency in the