Neurosurgery Guidelines Development

see Guidelines Development.

Neurosurgery guidelines are developed based on evaluating the most up-to-date evidence. However, the current approach incompletely considers or altogether avoids cost-effectiveness when formulating these guidelines [1].

Evidence-based guidelines (EBGs) are an early-phase model of a Clinical decision support system (CDSS). While they do aid the physician by presenting scientifically based evidence during the decision-making process [2] [3].

Neurosurgical Evidence-based guidelines (EBGs) have been developed to address the problem of variance in neurosurgery [4] [5] [6]

In neurosurgery, EBGs have been met with scrutiny, as [7] neurosurgery-specific EBGs are rare and often formulated without neurosurgeon input [8].

Variance between providers in the neurosurgical field leads to inefficiencies and poor patient outcomes. Evidence based guidelines (EBGs) have been developed as a means of pooling the body of evidence in the literature to provide clinicians with the most comprehensive data-driven recommendations. However, these EBGs are not being implemented well into the clinician workflow, and therefore clinicians are left to make decisions with incomplete information. Equally underutilized are electronic health records (EHRs), which house enormous health data, but which have failed to capitalize on the power of that 'big data.' Early attempts at EBGs were rigid and not adaptive, but with the current advances in data informatics and machine learning algorithms, it is now possible to integrate 'big data' and rapid data processing into clinical decision support tools. As we strive towards variance reduction in healthcare, the integration of 'big data' and EBGs for decision-making are key.

Stopa et al., proposed that EHRs are an ideal platform for integrating EBGs into the clinician workflow. With this model, it will be possible to build EBGs into the EHR software, to continuously update and optimize EBGs based on the flow of patient data into the EHR, and to present data-driven clinical decision support at the point of care. Variance reduction in neurosurgery through the integration of evidence-based decision support in electronic health records will lead to improved patient safety, reduction of medical errors, maximization of available data, and enhanced decision-making power for clinicians [9].

Use of the term rapidly expanded to include a previously described approach that emphasized the use of evidence in the design of guidelines and policies that apply to populations (“evidence-based practice policies”).

It has subsequently spread to describe an approach to decision making that is used at virtually every level of health care as well as other fields, yielding the broader term evidence-based practice.

Management of delirium, traumatic brain injury; and intracranial hemorrhage. brain stimulation for obsessive compulsive disorder; and surgery for Low-grade glioma, ischemia and hemispheric stroke, glioblastoma, and brain metastases.

In the area of indications for surgical interventions, there are EBGs for deep surgery, including the diagnosis and treatment of lumbar disc herniation, spondylolisthesis, and degenerative lumbar spondylolisthesis.

In the current boom of technology, the combination of 'big data' and artificial intelligence [10) 11) 12)] creates the opportunity to comprehensively integrate evidence based decision making into the healthcare system. These factors are converging during a time when we are seeing significant increases in Electronic Health Record (EHR) adoption following the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, from 3.2% among eligible hospitals before the Act to 14.2% after [13)].

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