

Man vs. Machine

Giving Automatic Scoring a Second Thought

Changes in technology have been exponential over the last two decades. The sleep medicine industry has advanced significantly by software innovation. In our enthusiasm to wholeheartedly welcome these enhancements to our processes, we sometimes forget that technology in the form of automation is meant to assist, not replace, our skilled technologists.

To automate or not to automate the scoring of sleep studies remains an ongoing debate in our industry and with software giants looking for ways to expand service offerings, the discussion is unlikely to end any time soon. While the notion of computerized analysis holds the promise of decreased staffing costs and increased efficiency, the reality of this premise is far less simplistic. One would no doubt question the rationale behind the insistence that a plane does not require a pilot in light of autopilot technology. Yet there exists a movement that would apply such logic, resulting in the ultimate redundancy of scoring technologists.

Whether as a primary or secondary resource, a registered technologist is essential for an accurate analysis of a patient study—period.

Sleep medicine is still very much a human-centered industry. With over 80 different sleep disorders currently documented, nothing comes close to replicating the nuance and contextually-reliant assessments made possible by intensive, real-life training and experience.

Any sleep facility or homecare company that uses automatic scoring as a one-for-one alternative to human analysis is neglecting the clinical aspect of patient care. What begins as a well-intentioned, cost-cutting measure emerges as a practice that risks undermining the credibility of an entire industry.

Like every industry, efforts to streamline business and make processes leaner are present in sleep medicine. What we are seeing, however, are moves to market such software as a turnkey solution—completely undermining the specialized nature of sleep scoring and the skills, knowledge and training that go into delivering this process. Laboratories that wish to remain reputable should take a critical look at automated scoring and question whether the absence of registered technologists involved in this process is putting patient care in jeopardy.

The Reality of No Regulations

None of this is to say that automated scoring is without value. On the contrary, it can prove to help the technologist become a more effective clinician—especially as automation matures and is improved.

Early detection, identification of irregularities, cost-efficiency and timely performance are just some of the benefits that automated systems bring to the table. To ignore these benefits would be denying progress for the sake of it. However, as the sleep industry is itself still coming of age, it remains vulnerable to unscrupulous business models that risk tarnishing an entire sector by making patient care an after thought.

Discount scoring services have gained significant traction with unsustainably low price points underwritten by unregistered and clinically inexperienced scoring staff. What such practices fail to respect is that scoring is far more than an objective matter of computation. There are qualitative factors that only trained, registered and clinically experienced technologists can assess.

With minimal regulation of the effects of automatic scoring currently in place, the credibility of an entire industry rests on education and best practices. While sleep medicine awaits increased governance to prevent such fly-by-nights from infiltrating a valuable healthcare service, automation could aid in the standardization of certain scoring processes. As long as laboratories incorporate the technology primarily as a labour-cutting device, it may prove to be detrimental.

Assist not Replace

Another area of concern lies in the homecare and home testing sectors. Level III sleep studies are being conducted and automatic analysis is being used for diagnosing patients going against the AASM recommendation to have a secondary review by a Registered Polysomnographic Technologist.

In such a case, automated scoring is not only the primary but the solitary mode of analysis. But scoring software can never comprehensively analyze a Level III study—results must be reviewed and assessed against clinical correlation. Software should be viewed as serving a complementary function in that it assists an RPSGT, who later verifies the automated scores manually and cross-references them with clinically-obtained observations.

Furthermore, one must consider the long-term impact of reliance on scoring software. Crucial information is gathered in the RPSGT's current role as a front-line, integrated healthcare professional. The knowledge and skills that arise from working with different patients and various symptoms and conditions could be lost should technologists be removed from the equation.

Know What You're Getting Into

Pharmacists have also found their profession impacted by automated "advances". The automated dispensing model they were recently introduced to have raised questions about accountability as dispensing errors can put patients (and businesses) at risk.

It goes without saying that human error can, has and will occur in any facet of healthcare. To be certain, accuracy is one of the dominant selling points of many automated systems used in other fields. However, the rush to market this form of technology may fail because the underlying technology is immature and needs time to evolve as it finds a permanent home within the sleep medicine industry. Even if automatic

scoring technology matures to the point that algorithms can account for most variables, it still cannot contend with even the common clinical problems and complexities that come with sleep disorders in order to perform accurate scoring.

This is not to say that automatic scoring has no place in the streamlining of sleep laboratory operations. On the contrary, as time progresses and automated software has been tried and tested perhaps this may well become a fixture in sleep facilities.

But with no current regulations governing the use of such software, it is imperative that we consider the following disclaimer: **automatic scoring exists to assist technologists, not replace them.**

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