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Infodemiology Can Help Provide
Real-Time Answers for Employers Workplace That Pays Dividends

Real-time data is an important decision support tool that allows employers to be agile and optimize services. During the last decade, researchers have investigated whether big data can help detect epidemics by tracking search engine queries to provide real-time, actionable information for employers.[1] This data-mining technique, described as infodemiology, uses risk-related keyword search data and has

predicted syphilis, measles, and regional COVID-19 outbreaks earlier than routine disease surveillance.[2,3,4] It may also help track and manage chronic noncommunicable diseases[5] and could be especially valuable in disadvantaged areas where conventional surveillance is difficult to conduct. This public health technique can be used by employers to help determine what information is important to

employees, especially in light of rapid changes during COVID-19. It can also help predict future demand.

Infodemiology helped us understand what type of information was needed by healthcare professionals and case managers to provide care and manage injury and illness claims during COVID-19. We analyzed search data from MDGuidelines, an online tool of medical condition information used mainly by occupational health clinicians and disability case managers.

"… the global spread of misinformation is growing exponentially in what the WHO calls an 'infodemic,' which makes it increasingly important to obtain data from reliable online sources, analyze it critically, and cite it thoughtfully to find answers."

Results reflect a predominantly U.S. sample of workers' compensation and disability markets across a variety of industries and might indicate future trends as the delta variant surge continues.

What the Data Shows

In March 2020, when the COVID-19 outbreak was first declared a pandemic by the World Health Organization (WHO), influenza, pneumonia, and upper respiratory infections were
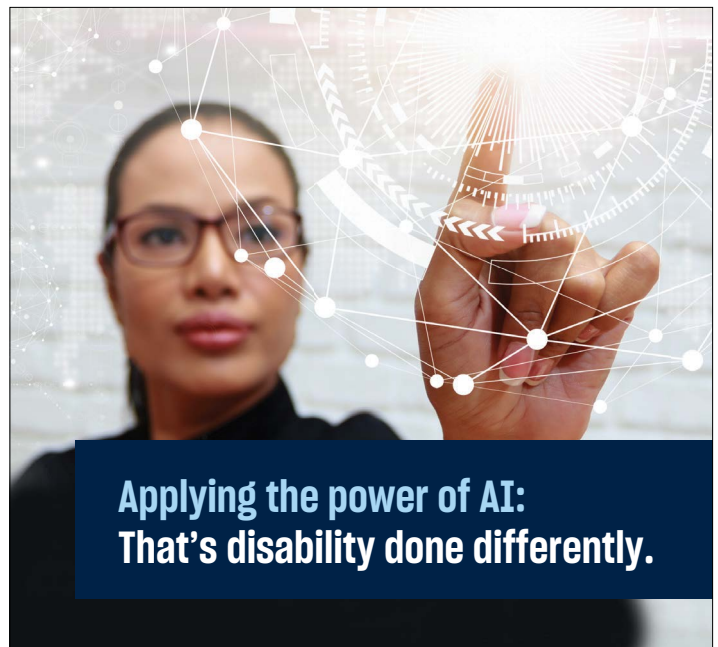
among the most searched medical topic pages, peaking at No. 4-, No. 13-, and No. 18-page ranks, respectively. That represents a sharp increase from No. 257, No. 43, and No. 189, respectively, six months earlier. In April 2020, MDGuidelines published COVID-19 content, and searches for influenza, pneumonia, and upper respiratory infections returned to pre-pandemic page views. The COVID-19 page remains one of the site's top 25 most-viewed medical topics.

Before COVID-19, the most frequently searched clinical guidelines included low back disorders, chronic pain, knee disorders, shoulder disorders, and cervical/thoracic spine disorders. Page views for these topics began to drop unusually in February 2020 and generally have not rebounded to pre-pandemic levels. Instead, we see more searches for mental health conditions, including post-traumatic stress disorder (PTSD), anxiety disorders, depressive disorders, and general mental health conditions.

Disability claims for mental health disorders have increased globally in recent years, and COVID-19 exacerbated that trend.[6] During the pandemic, four in 10 American adults reported symptoms of anxiety or depression.[7] Our data supports this. Page views on MDGuidelines for anxiety and depressive disorders content increased by 36% and 26%, respectively, from March 2020 through July 2021. More generalized Internet search trends also mirror this finding with an increase in online queries about how to alleviate sadness, worry, loneliness, and boredom during pandemic-related lockdowns.[8]

In MDGuidelines search data, anxiety disorders jumped to the No. 2 most-viewed page in April and May 2020, and still ranks No. 4 overall. The depressive disorders topic page remains the No. 1 page for seven consecutive months (as of publication). Search data for depressive disorders, PTSD, and general mental health disorders spiked in August 2020 after the second U.S. COVID-19 wave, which drove page views up 109%, 178%, and 205%, respectively, from the previous six months. Another study notes an upsurge in Internet searches for anxiety symptoms and at-home treatments, including meditation and deep breathing techniques during the initial pandemic peak in the U.S. during a similar time frame.[9]

Researchers suggest the impact of mental health disorders extends beyond acute care and may affect people's health and wellness at least one to three years later.[10] This is worrisome for the disability industry as depression and anxiety are risk factors for future work leave and, in a chicken-or-egg fashion, a work leave is also a risk factor for new-onset depression and anxiety.[11] A study from the Integrated Benefits Institute noted "pent-up demand for

postponed health services … and progression of untreated chronic health or mental health conditions" as factors for modeling future incidence rates of injury or illness in employees.[12]

In terms of treatment, popularity and access to the Internet have helped telehealth become an important strategy for managing new-onset health conditions during the pandemic, and it may provide a practical long-term solution for providing patient care when clinical examinations are unnecessary.[13] Telehealth treatment also helps expand access to health resources in rural areas and to those with limited mobility or transportation without decreasing quality of care.[14]

Information Overload?

The pandemic has highlighted ways in which scientific research evolves and how scientists collect and translate data into best practice policies. However, the global spread of misinformation is growing exponentially in what the WHO calls an "infodemic,"[15] which makes it increasingly important to obtain data from reliable online sources, analyze it critically, and cite it thoughtfully to find answers.
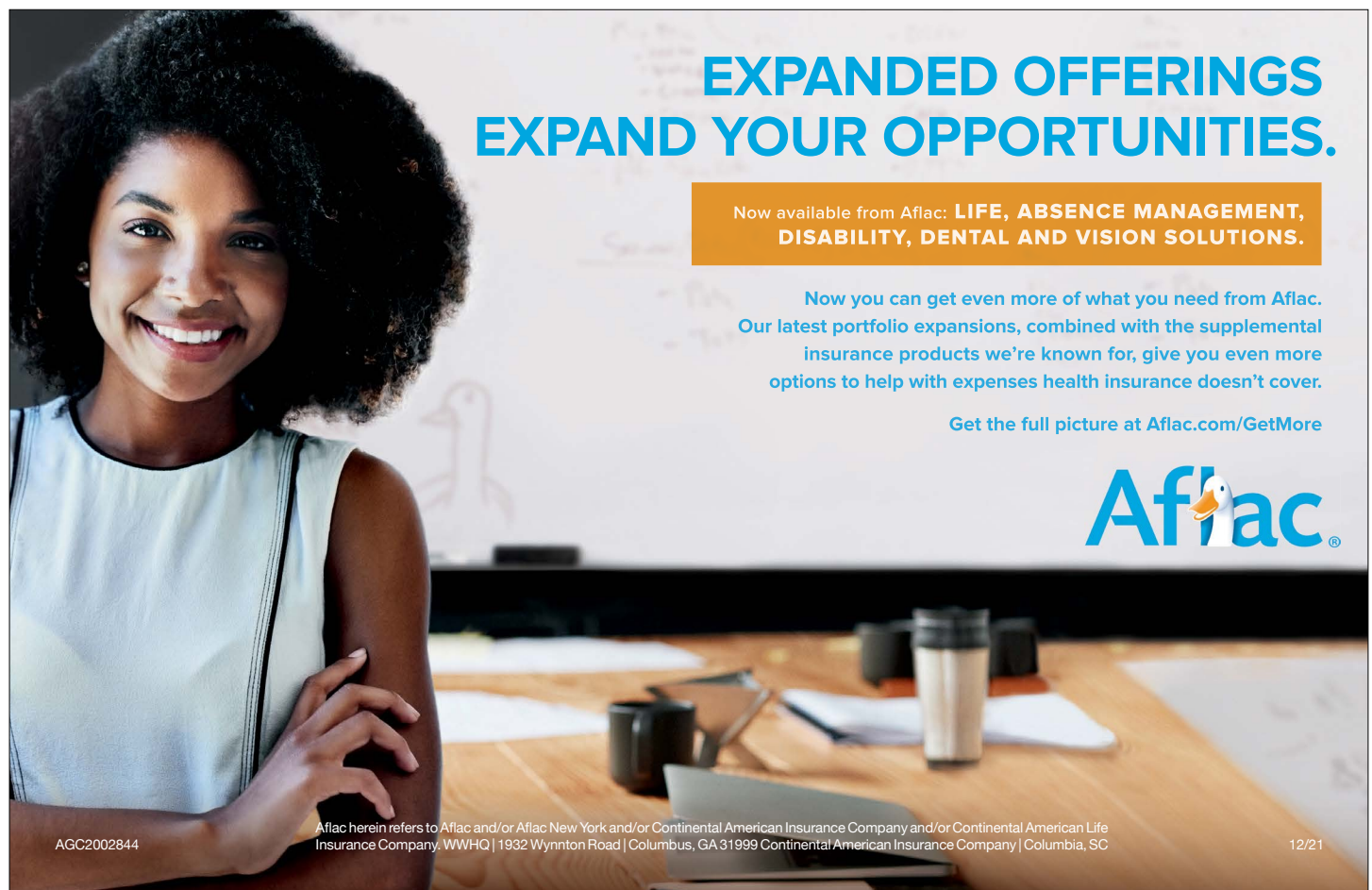
Traditional public health disease surveillance relies on collecting and analyzing clinical information, such as mortality or laboratory data, which may take days, weeks, months, or years. Infodemiology cannot replace traditional surveillance, but it is recommended as a tool to support disease investigation and health management. If current trends from our research hold true, COVID-19 has exacerbated mental health issues in the U.S., and many expect to see the effects of mental health conditions and care in future claim trends. As a result, more resources, support, access to quality care, and disability management are necessary for all types of health and wellness issues. And, if we are to stave off what is quickly becoming a mental health emergency, there needs to be more focus on mental health as it pertains to an employee's overall health and wellness.

Big data, such as search queries and website usage, can help refine information delivered to healthcare professionals and case managers so they can provide high-quality treatment and manage injury and illness claims during these challenging times.

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