



College of Intensive Care Medicine
of Australia and New Zealand
ABN: 16 134 292 103



INFORMATION OVERLOAD DURING THE TIME OF COVID-19

“The 2019-nCoV outbreak and response has been accompanied by a massive ‘infodemic’ – an over-abundance of information – some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it.”

World Health Organisation, 2019 nCoV Situation Report 13, February 2020.

The purpose of information is to provide us with the knowledge and ability to reason and understand, and the power to make decisions based on an expectation of the outcome of that decision. However, problems can arise when we have too little or too much information.

In clinical practice we turn information into patient management. With knowledge and experience we build an understanding of the expected outcome of an illness and refine that understanding as new information becomes available. The power given to us by information allows us to steer a course for each individual patient through the landscape of their critical illness, sometimes to recovery and sometimes to the end of their life. Regardless of the outcome, throughout the journey, there is a feeling of comfort and satisfaction that comes from the understanding brought by the knowledge of being well informed.

When we have too little information expected outcomes become, at best, an educated guess and, at worst, unknown. Not knowing drives us to seek information through curiosity. Our minds are wired to reward us for finding new information and the opportunity to learn about a new condition is appealing to us but can also generate anxiety and uncertainty when there is no information to be found.

Fear is also a potent motivator for seeking information. Whether through fear for our own wellbeing, the wellbeing of our loved ones, or the wellbeing of our colleagues and patients, the emergence of the COVID-19 pandemic has driven us to obtain knowledge that we can then use to keep ourselves and others safe, or to help treat them during illness.

The initial period of the COVID-19 pandemic was marked by fear and anxiety from lack of information. Scientific information on the viral pathogen was limited but within a few short weeks there was a rapid spread of information through scientific, conventional, and social media platforms informing of the mortal danger of the virus and the threats to society and health systems. Over the ensuing months there has been a switch from too little information to a situation where, thanks to the connectivity of digital technology, we are now faced with information overload.

A Pubmed® search 9 months into the COVID-19 pandemic using the search-term ‘COVID-19’ now returns over 55,000 publications, only a handful of which have actually meaningfully shaped the clinical management of patients. Add to this a continuous flow of COVID-19-related information from government, professional organisations, conventional media, and social media sources, and it is easy to see how the signal of clinically useful information is diluted by the noise of an exponentially larger volume of irrelevant, non-contributory, and factitious information. The mental effort to properly process and analyse this mountain of COVID-19-related information places a high cognitive load on already stretched ICU clinicians.

The term cognitive load describes the burden of mental effort experienced by an individual through the use of working memory. It is the sum of sensory inputs and task-specific demands, along with the psychological and emotional factors, that must be mentally processed. Working in ICU already carries a significant cognitive load. We only have a small, fixed capacity for working memory that cannot be improved with training. This places us at risk of cognitive overload which can occur when the working memory capacity is exceeded as we attempt to process a larger than possible number of elements or tasks.

Attempting to simultaneously undertake multiple cognitive tasks is called 'multitasking'. In reality our brains do not multitask and can only perform one higher level cognitive function at a time, such that what appears to be multitasking is in fact the rapid switching of cognition between tasks. This comes at a significant mental cost including: increased cognitive processing times; reduced accuracy and increased errors; confusion and indecisiveness, increased stress and anxiety, and increased mental fatigue. This psychological burden has been suggested as possibly contributing to burnout.

Managing information and cognitive overload requires us to think about the way we think. It is important that we recognise the limitations of our cognitive capacity and develop strategies for managing information flow. In general, this can be achieved by: 1) reducing the amount of information coming in, and 2) increasing our efficiency at processing information. Both of these actions require discipline and the following suggestions may form part of a strategy to achieve this.

1. Create some cognitive space

Make mental space by taking time to sort your thoughts. Create physical lists of all tasks and ideas that you need to sort through assign them to 4 categories: 1) Do; 2) Delegate; 3) Defer; 4) Drop. Anything to drop is discarded and anything to defer gets filed away. Assign a specific time in the future to review the deferred thoughts so that you can reassign them into one of the other three categories. Delegate tasks where possible but set aside time to review the results. Once you have a list of things to do, prioritise that list and assign each task a specific amount of time to complete.

2. Prioritise information providers as 'sources of truth'

Make a list of the sources of information that you value and trust. Prioritise important professional organisation websites; evidence-based guidelines; government and healthcare network websites; and high-impact journals, most of whom will provide editorial overviews and webinars to critique major articles. Make these sites your 'sources of truth' as major advances will be filtered preferentially through these sites. Give a much lower priority to general news sites, blog sites, and social media. More time should be spent on the higher priority sites and less time on the lower priority sites.

3. Disconnect from 'push' information

Acquire new information proactively on your terms. Disable mobile device technology 'push' functions that provide instantaneous notifications of the arrival of new emails, news headlines, and social media updates. Each notification distracts us from our current cognitive task and wastes time. Those individual moments of time spent checking each new notification add up over the course of a day. Disabling 'push' functions allows control over when we will receive information, and produces cognitive space to become more efficient at completing tasks.

4. Set aside time for new information

Create dedicated time when you can actively seek information. Have a routine for checking emails, reviewing journals, etc. The start of the working day is likely to be the most productive time for processing information this type of information. Set strict boundaries on the time that you will spend on these tasks and only give each task the time that it deserves.

5. Become a 'monotasker'

Focus on one task at a time. Do not try to cognitively process multiple pieces of information at one time as this is inefficient, slows task completion, and places a higher psychological burden on you.

6. Share the load

If someone in your department is well read in a certain area, get them to help you by giving a tutorial, journal club, or webinar. Larger units could reach out to smaller units to allow them to join into education sessions. Look out for seminars and webinars set up by professional organisations that can provide an efficient overview of recent advances.

7. Take breaks

Disengagement from information is as important as engagement. Taking a break does not mean switching to another task, it means decreasing the cognitive load that your mind is processing by reducing the sensory input. Exercise, take a nap, meditate, or just sit quietly and practice your breathing and mindfulness techniques. Let your mind rest and you will be more able to re-engage with tasks.

8. Don't lose sight of the big picture

Dealing with the COVID-19 pandemic will continue for months and years, not days and weeks. While learning about COVID-19 is an important part of our current ICU workload, we cannot neglect all of the non-COVID diseases.

9. Switch off and rest

Avoid interacting with digital technology in the hour before bed as initiation of sleep can be impaired, and there is a risk that introducing new information may cause you to ruminate rather than rest. When not on-call, turn your phone off at night and make sleep your priority. Ensuring quality sleep will see you more able to deal with the cognitive load of high levels of information flow.

Conclusion

The COVID-19 pandemic has brought a rapidly rising tide of information that threatens to overwhelm us, but also gives us an opportunity to think about the already high cognitive load that we must process while working in ICU. Thinking about how we interact with information and taking control of the flow of information that we receive can help protect us against cognitive overload, fatigue, and negative psychological consequences that may contribute to burnout.

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