

## UNDERSTANDING SCIENCE DURING A PUBLIC HEALTH EMERGENCY

During a public health emergency (PHE), expect the science and clinical interpretation of that science to evolve rapidly. The FCR COVID-19 convalescent plasma community activation campaign experienced many issues while reviewing materials in real-time and in trying to digest, synthesize, and address the science through the campaign materials.

The clinical and scientific advisors to the response effort should create a routine surveillance of the scientific and clinical research landscape.

### Key activities and considerations include:

- Hire a scientific librarian or information specialist to conduct daily scans of basic science, clinical research articles, and reports and provide the items of interest to the team. Sources may include:
  - PubMed and major journals throughout the world
  - Federal authorities such as NIH, FDA, and CDC
  - Clinical guidance from the World Health Organization and professional societies (e.g., Infectious Disease Society of America, The American Medical Association)
- Exercise caution and clinical judgement in the potential translation of preliminary scientific observations into public policy recommendations.
  - For example, observations in a petri dish related to medication susceptibility of a tissue culture may be an important insight but may not translate directly into risk to humans or entire populations. There will always be pressure to predict how a virus or pathogen may mutate and how this might affect illness in a community and hence different opinions on quarantine, contact tracing protocols, and immunization campaigns.
- Expect there to be substantial discourse and differences in interpretation of the findings from different organizations and individuals, especially for pre-print articles.
- Expect differences of opinion about the quality and timeliness of the evidence on which authorities must base drug authorization and public health policies.
- Expect these decisions to change in a dynamic manner as new information emerges during the public health emergency.
- Engage with the clinical and scientific advisory group to better understand the science and how the conclusions influence campaign decisions.

### A Note about Pre-Print Articles:

The scientific and clinical community will be under pressure to release research findings and opinions earlier than would occur under normal circumstances. Open science principles, if applied correctly, encourage the distribution of scientific observations and experiments from many sources in rapid sequence during a PHE. Open Access provides all scholarly articles and information available, most commonly in the form of pre-print articles.

Pre-print articles describe clinical trials and laboratory studies before peer review of the methods or the results. During a pandemic, it is common for news media or social media to comment on the implications of a study or draw conclusions that might not be completely accurate. The benefit of pre-print articles from open science is the rapid development of vaccines and therapeutics. The flip side of this is that many pre-prints, or the news articles and social media discussions around them, are not necessarily accurate. There will be greater interest in “real world evidence” and it will be difficult to establish randomized clinical trials during a pandemic. To address some of the concerns with pre-print articles, consider using registered pre-print reports, open peer reviews and data, and collaboration in real-time with journalists to keep the science reliable and transparent.

## References:

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