

Suffering from COVID-19 science overload? This team wades through the deluge so you don't have to

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Remember early spring, when it felt like we were all plunged into a crash course in epidemiology, heads spinning with terms like "R-naught," "flatten the curve" and "herd immunity?" Every new nugget of data and scientific insight about the novel coronavirus was headline news, ricocheting from Twitter to technical journals to talking heads.

The wall-to-wall coverage has eased since then, but the pace of discovery hasn't. Every day, hundreds of new research papers are published or posted about the virus and pandemic, ranging from case studies of single patients to randomized, controlled trials of potential treatments.

It's a fire hose of information that overwhelms even the most fervent COVID-19 science junkies.

But there's a way to keep current without having to spend your days and nights clicking through journal websites. For the past five months, a small group of faculty and students at the University of

Washington has been wading through the deluge so you don't have to. Five days a week, the Alliance for Pandemic Preparedness produces the "COVID-19 Literature Situation Report," which provides a succinct summary of key scientific developments.

"It's a very distilled version," said Brandon Guthrie, assistant professor of global health and epidemiology and co-leader of the effort. "What are the most important things (we) need to know that are coming out today?"

A typical report includes a list of key takeaways and summaries of a dozen or so studies, sorted into categories like "testing and treatment," "transmission" and "public health policy." There's also a shortlist of other interesting research, along with links for those who want to delve more deeply.

It's a quick read and mostly jargon-free in keeping with a target audience that includes not only public health officials, but also politicians, community leaders and the general public. The group also prepares occasional in-depth reports about issues of pressing interest, like the long-term health effects of COVID-19.

The project started as an effort by staff at the Washington Department of Health (DOH) to keep up with rapid-fire developments early in the outbreak. But the agency was stretched too thin and contracted with Guthrie and his colleagues to continue and expand the work.

Their initial distribution list was 40 people. Today, about 1,600 subscribers get the email newsletter, many of whom share it via other websites and online bulletin boards. Guthrie has heard from readers at the CDC and top universities around the country. Members of Gov. Jay Inslee's staff are on

the distribution list.

Producing what the team calls the "LitRep" is a daily deadline dance that starts at 6 a.m. and doesn't end until Guthrie or his co-leader Dr. Jennifer Ross, an infectious disease specialist at UW Medicine, hit the "send" button about 12 hours later.

Much of the work is done by a rotating group of five students—mostly doctoral candidates in global health or epidemiology—who work in shifts on a kind of virtual assembly line.

The early birds gather the raw materials, using standard search terms to pull all the new studies posted on PubMed, a free government search engine, and medRxiv and bioRxiv, which posts preprints before peer review. They also manually check several high-profile journals, including the *Lancet* and the *New England Journal of Medicine*.

The average haul is about 400 papers a day but can range between 200 and 1,000, said Lorenzo Tolentino, who just finished his master's degree at the UW Department of Global Health and was one of the first students to sign on for the project.

The second shift is "sorting"—the laborious process of scanning titles and abstracts and identifying the most significant ones. "It can be pretty mind-numbing at times, especially when you've got more than 400," said Tolentino, who's working from his home in Atlanta.

He's gotten fast—he can zip through 40 articles in 10 minutes—and good at weeding out those that don't make the cut: Studies with tiny sample sizes; detailed analyses of viral structure; hospital protocols for treating patients.

What the team is looking for are well-designed and executed studies with public health significance. Vaccine updates, analyses of school openings, modeling projections and reports about the impact of masks or social distancing get high priority. So do studies with a Washington or Northwest connection.

Once they've identified their top picks for the day,

the two people working the sorting shift swap lists and narrow them down to the final two dozen or so.

The team member on the next shift reads the studies and crafts bullet points and summaries before handing off to Guthrie and Ross for last-minute additions and editing by 6 p.m.

"It's a very strict schedule, which is sometimes challenging to meet," said Ross, who also treats patients, helps lead a study of veterans with COVID-19 and is trying not to neglect her long-standing research on tuberculosis in Sub-Saharan Africa.

She sometimes edits and transmits the report at the hospital after rounds. Once, she left her family at a backcountry campsite while she drove to a spot with Wi-Fi reception.

Wenwen Jiang, a doctoral student in epidemiology, is also busy with her own research on ways to help pregnant women with HIV in Kenya stick to their treatment regimens—even though she can't travel at the moment. But she jumped at the chance to work on the situation report, because she felt helpless watching the virus flare in her native China and race around the globe.

"Personally, I do not see this as just a job," she said. "This is something I want to help with from the bottom of my heart."

Her parents, who live in the coastal city of Dalian near Beijing, can't read the reports in English, so she briefs them on the most important news during their video chats. Jiang convinced them to start wearing masks early in the pandemic even though they—like many Americans—initially dismissed the virus as no more dangerous than the flu.

Inspired by her daughter's example, Jiang's mother recently started volunteering with a community testing program in Dalian. "They support me in continuing in this work and I agree with them one hundred percent," Jiang said.

The DOH contract expires at the end of October, but Guthrie and the team hope it will be extended at least through June. There's certainly no sign that

either the pandemic or the level of scientific output is waning, he said.

"Nothing in my career has been anything like this."

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