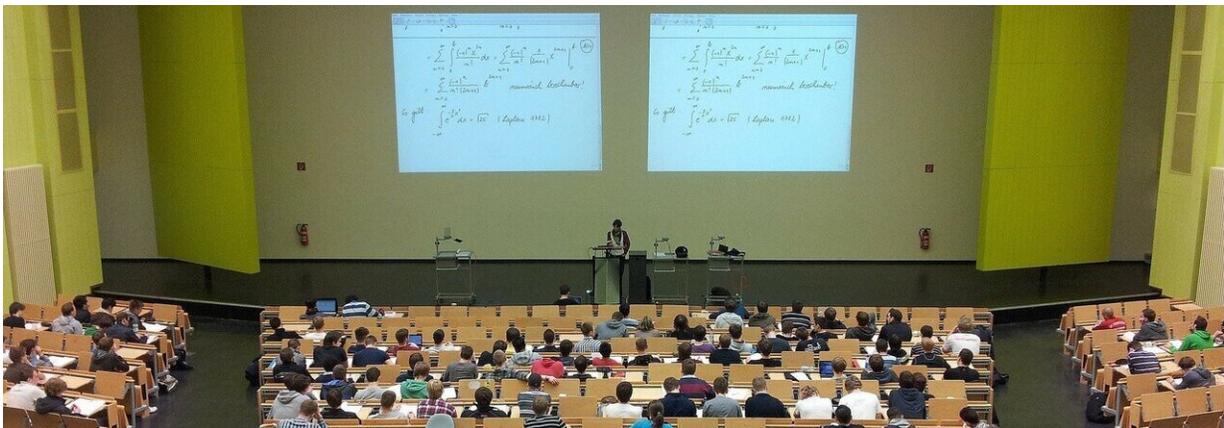


# Modeling study suggests mitigation efforts can prevent most college campus COVID cases

December 21 2020



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As colleges and universities consider strategies for the spring semester to keep COVID-19 cases down, a study conducted by experts in epidemic modeling may help shed light on what mitigation strategies may be most effective, both in terms of infections prevented and cost. Investigators from Brigham and Women's Hospital, Massachusetts General Hospital and Case Western Reserve University used the Clinical and Economic Analysis of COVID-19 interventions (CEACOV) model to perform their study, finding that combining a mandatory mask-wearing policy with extensive social distancing would prevent 87 percent of infections

among students and faculty. Routine testing was also highly effective at preventing infections, but may be cost prohibitive for many colleges and universities. The team also reports that, even if campuses remain closed, there would likely be infections among faculty acquired from the surrounding community, as well as infections among students who return to live off campus in and around college towns. Results are published in *Annals of Internal Medicine*.

"This next semester represents a critical time in the pandemic. While the vaccine rollout has begun, it is unlikely that most [college students](#) will be eligible for the vaccine until late in the spring semester," said lead author Elena Losina, Ph.D., Director of the Policy and Innovation eValuations in Orthopedic Treatments (PIVOT) Center at the Brigham. "However, our modeling shows that colleges and universities can put effective programs in place to mitigate infections. This analysis is designed to help individuals and institutions make decisions using a formal, data-driven approach."

The team evaluated 24 mitigation strategies based on four approaches: [social distancing](#), mask-wearing policies, isolation, and laboratory testing. The team compared results from a minimal social distancing program, in which only large gatherings such as sporting events or concerts were canceled, and an extensive social distancing program, where all large classes and 50 percent of smaller classes were delivered online. Laboratory testing ranged from no testing of asymptomatic students and faculty to routine testing at 14-, 7-, or 3-day intervals.

The team's modeling predicted that:

- **No mitigation:** Without any mitigation efforts, approximately 75 percent of students and 16 percent of faculty would become infected on a [college campus](#).
- **Campus closed:** Closing the campus would reduce [student](#)

infections by 63 percent with most infections coming from those students living off [campus](#).

- **Minimum social distancing:** Student infections would be reduced by only 16 percent.
- **Mandatory masking:** Universal masking would be more effective in preventing infections than either minimum or extensive social distancing.
- **Combining social distancing and masking:** A mask-wearing policy with extensive social distancing would prevent 87 percent of infections among students and faculty and would cost \$170/infection prevented.
- **Routine testing:** Adding routine laboratory testing to a policy involving extensive social distancing and mask-wearing reduced infections the most, but at a high cost/[infection](#) prevented.

"If colleges put less effort into social distancing and mask-wearing policies, they need to rely more on routine laboratory testing at higher cost to reduce the spread of COVID-19. If less costly tests were available, then routine testing would be feasible in more [college](#) settings," said co-senior author Kenneth A. Freedberg, director of the Medical Practice Evaluation Center at Massachusetts General Hospital and a professor of Medicine at Harvard Medical School.

"This analysis quantifies the value of implementing and committing to mask-wearing and social distancing in college campuses as a key to operating safely during the COVID-19 pandemic," said co-senior author Pooyan Kazemian, Ph.D., an assistant professor of operations in the Weatherhead School of Management at Case Western Reserve University. "Extensive social distancing in college campuses with a hybrid educational system, combined with a mandatory mask-wearing policy, can prevent the vast majority of COVID-19 cases on college campuses."

While the researchers tried to capture the major COVID-19 [mitigation strategies](#) colleges are considering, the study could not examine all strategies and the analysis was restricted to one semester.

"It's critical to consider the tradeoffs and costs of mitigation efforts and what's feasible for colleges and universities whose budgets vary widely," said Losina. "Our analysis showed how colleges can develop strategies to help keep infections at bay. We hope that by the end of next semester, vaccines will be available to many students and faculty. Until then, preventing infections should continue to be the highest priority."

**More information:** Elena Losina et al, College Campuses and COVID-19 Mitigation: Clinical and Economic Value, *Annals of Internal Medicine* (2020). [DOI: 10.7326/M20-6558](https://doi.org/10.7326/M20-6558)

Provided by Brigham and Women's Hospital

Citation: Modeling study suggests mitigation efforts can prevent most college campus COVID cases (2020, December 21) retrieved 3 May 2024 from <https://medicalxpress.com/news/2020-12-mitigation-efforts-college-campus-covid.html>

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