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is an Unlikely COVID-19 Threat to Staff**

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Research on coronavirus transmission from young children to adults in child care settings is largely based on case reports with limited generalizability,<sup>1,2</sup> impeding evidence-based assessment of infection risk to child care providers. Gilliam and colleagues address these limitations in their multistate study of 57,335 child care providers reporting on exposures, risk mitigation strategies in the workplace, and COVID-19 infection from March through May 2020.<sup>3</sup> The team solicited child care providers through contact lists provided by national child care organizations and state child care workforce registries, conducted three rounds of surveys, and collected data on key variables including exposure to child care (provided child care during the pandemic compared to program closure) and COVID-19 infection based on a positive test or hospitalization for COVID-19. Respondents who had exposure to child care services from March through May also reported numerous infection prevention strategies, such as class size reduction, masking, and disinfection practices. This exposure was not associated with odds of COVID-19 infection in both unmatched and propensity score matched analyses that accounted for community infection indicators. However, being a home-based child care provider was associated with COVID-19 infection in matched analyses. These findings are of national and international interest, and we comment on strengths, weaknesses, and additional considerations for policymakers, child care providers, and the public.

Study strengths are numerous and include a large sample with respondents from multiple states, high response rate for an online survey, and multiple modeling strategies to understand robustness of findings. The use of propensity scoring in the context of non-randomness of child care closure across the nation is a significant strength. The ability of the authors to compare infection likelihood of in-person providers to a control group of providers with similar demographics but who were not exposed is a significant improvement over the approach of

looking only at providers in child care settings. Studying COVID cases in the context of infection prevention measures in child care settings is also critical, as data on real-world effectiveness of these mitigation strategies in school and childcare settings are only now emerging.

However, several limitations bear mentioning. First, most data are self-reported and may suffer from self-report bias. The outcome, COVID-19 infection, was limited to cases confirmed by testing and/or hospitalization at a time when national testing capacity was limited; individuals diagnosed by health care providers with presumed COVID would not be included and as a result true infection burden is likely underestimated. In both cases it is unclear how and in which direction biases could influence results. Importantly, the dose of exposure to child care for those who remained working is unmeasured; the dichotomization of the exposure variable into program open/closed misses the opportunity to understand potential differences in infection risk among workers with varying weeks of exposure during the study period. The study also occurred at a time when infection rates in children were low, limiting generalizability to periods when infection rates are higher.

The study adds to the body of literature on COVID-19 transmission in child care settings in notable ways. First, it focuses on child care providers rather than children, providing crucial evidence to understand risks to adults working in direct contact with young children. The low risk to adults is consistent with epidemiologic evidence from South Korea, where household transmission was least common among index cases aged 0-9 years.<sup>3</sup> In contrast to case reports this study also investigates a counterfactual question, albeit retrospectively: what happened to demographically similar providers who were not exposed to child care during the same period? This approach has an advantage over recent contact tracing reports in child care environments

by holding constant other important contextual factors influencing infection risk. Finally, the study finds different infection transmission risk between center- and home-based childcare providers and this could signal a socioeconomic disparity between centers that can afford expenses related to risk mitigation and home-based providers who cannot.

We caution policymakers, school leaders, and the general public against extending these findings beyond the early childhood (age < 6) population. The authors are clear – and we affirm – the results cannot be directly applied to debates on re-opening of K-12 schools because student, teacher, and classroom dynamics differ from child care settings in ways that meaningfully influence infection transmission (e.g., increased movement of students between classrooms, increased out-of-school mobility and social activity of adolescents, more adults in the school environment). Gilliam et al. provide a methodologic roadmap for other research teams to evaluate primary and secondary school reopening patterns and school staff infection risk, and we underscore the urgency for high quality research to inform school return. The results from this study should give confidence to center-based child care providers that the risk of COVID-19 infection from young children is low when community transmission is low and multiple risk-mitigation strategies are employed.

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