In their study on the use of insulin pumps among children with type 1 diabetes (T1D) in Canada, Ladd et al. used an interprovincial comparison to examine whether disparities in socioeconomic status (SES) were associated with use of insulin pumps despite government assistance. The authors assessed factors associated with insulin pump uptake in Québec and Manitoba and the use of province-level programs to support the financial costs associated with insulin pump use. The analysis first notes that markers of low SES (measured by material deprivation index) are associated with lower levels of insulin pump uptake in both provinces. Taking advantage of the differential levels of financial support for diabetes management devices between 2 otherwise comparable provinces (ie, similar population level distribution of SES) within the same national health care system, the authors suggest that provision of comprehensive financial support for use of insulin pumps is associated with decreased SES-based disparities in insulin pump uptake in Québec, which provides full coverage, compared with Manitoba, which provides partial support.

The authors' approach to a common limitation in health services research related to health care disparities is creative and mitigates the confounding related to the overlap between cost of diabetes management devices and the association between SES and use of the devices. By noting that, even with universal financial coverage for insulin pump–related costs, individuals from neighborhoods with higher levels of material deprivation remained less likely to start using insulin pumps, the authors reported on what eludes health services researchers studying the use of diabetes management devices in countries without such expansive financial support for insulin pumps. This research design supports the conclusion that SES factors other than pure financial cost (ie, parental educational level, employment, race and ethnicity, and family structure) play a greater role in levels of insulin pump uptake than cost alone. The authors aptly characterize this finding in the discussion, stating that “disparities may not be strictly owing to monetary concerns” The US literature is lacking in its capacity to separate the association between the cost of devices and family income from other SES variables; although authors have attempted to conduct similar analyses using stratification by insurance type or poverty level, the health care system financing in the US precludes conclusive analyses such as those conducted by Ladd et al. However, even with this improved capacity to partially eliminate confounding, the authors were unable to control for what remains a challenging variable to capture and quantify in health care disparities research: implicit bias. Multiple findings within the study suggest the persistence of bias despite financial support (eg, the association between race and ethnicity and insulin pump uptake in Québec); yet, as the authors acknowledge, without explicit data about family preference and/or health care professional biases, they cannot measure its outcome.

Studies that establish the role of implicit bias in the uptake of diabetes management devices among pediatric patients with T1D are limited. In one recent study out of Hasbro Children's Hospital, Fredette et al conducted a survey of 192 pediatric endocrinology clinicians across the US and found that 70% reported using personal guidelines to select patients to whom to prescribe insulin pumps. The use of such guidelines, rather than explicit and unbiased criteria, opens the door to unacknowledged implicit biases and more explicit prejudices. Limited studies have begun to investigate the perspectives of patients and families from low SES and diverse backgrounds, and their findings suggest the importance of shared decision-making and understanding of patient and
family preferences. The study conducted by Ladd et al further reinforces the importance of expanding research questions to better characterize and minimize the biases present in prescribing practices.

In addition, although mitigating some of the disparate access to diabetes management devices based on cost, the pump financing programs described in this article perpetuate underlying disparities. The insulin pump funding programs in both provinces had prohibitive requirements for eligibility, including the ability to regularly monitor blood glucose levels and attend pump trainings and diabetes visits. In Manitoba, the pump program also required patients to maintain hemoglobin A1c levels less than 10% and have fewer than 2 episodes of diabetic ketoacidosis in the past year. Although the authors conducted a sensitivity analysis to assess the diabetic ketoacidosis requirement, they were unable to address the hemoglobin A1c level restrictions. It is important to recognize that the limits on patients with high hemoglobin A1c levels in Manitoba (which are not present under the Québécois program) may be associated with more of the difference in material deprivation in Manitoba than the degree of financial support for insulin pumps.

With the advent of diabetes management devices and advancement of the field in the early 21st century, health care professionals were taught to view use of continuous glucose monitoring and insulin pumps as a privilege to be earned by patients through demonstration of excellent diabetes control. However, we must shift this thinking by viewing this issue through a health equity lens. With the recognition that these requirements for tight metabolic control may be less achievable by individuals from areas of high material deprivation who may benefit the most from insulin pumps, it is time to adjust this teaching to characterize access to diabetes technology as a right, rather than a privilege.

The pediatric diabetes literature has repeatedly established the significant disparities in T1D care and outcomes that exist based on SES and race and ethnicity as well as the improvements in metabolic control and short- and long-term complications of diabetes afforded by use of insulin pumps. This article by Ladd et al adds to that literature by noting the benefits achieved through comprehensive government assistance for financial costs associated with insulin pump use and disparities in access to insulin pumps based on material deprivation. In addition, the analysis encourages researchers to look deeper at variables that are more difficult to measure, including parental educational level and employment and family structure, as well as implicit bias and prejudice.

ARTICLE INFORMATION
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REFERENCES


