

Free school meals linked to lower childhood blood pressure



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Researchers analyzed records from more than 155,000 students across 12 states and found that universal free school meal programs not only reduce obesity and food insecurity but are also tied to healthier blood pressure outcomes in children.



Study: School Provision of Universal Free Meals and Blood Pressure Outcomes Among Youths. Image credit: Robert Kneschke/Shutterstock.com

In a recent study in the ***JAMA Network Open***, researchers investigated the benefits of the Community Eligibility Provision (CEP), a US federal policy providing universal free school meals in low-income areas. The policy has been previously linked to reductions in obesity and food insecurity, but the present study finds it was associated with improvements in blood pressure outcomes, suggesting it may also help address childhood hypertension rather than proving

a direct causal effect.

The study analyzed medical records from over 155,000 children (matched to 1,052 schools) and found that school participation in CEP was associated with a 2.71 percentage point decline in the prevalence of high blood pressure, corresponding to a relative net reduction of about 10.8% over five years. This suggests the policy's potential as a promising population-level health intervention.

Background

Hypertension, a clinical condition characterized by excessively high blood pressure, is a serious and growing public health concern. Recent reports suggest that childhood presents a particularly vulnerable time for hypertension, highlighting both that prevalence among school-goers is rising, as well as that hypertension during childhood significantly increases the risk of hypertension and cardiovascular disease (CVD) during adulthood.

Furthermore, surveys reveal that hypertension disproportionately affects children from low-income and minoritized communities, driven by factors like obesity and unhealthy diets. While the Dietary Approaches to Stop Hypertension (DASH) diet is a recommended treatment, few public health mechanisms capable of implementing these recommendations at scale currently exist.

School meals offer a unique opportunity for hypertension-mitigating public health interventions. Following the United States (US) 2010 Healthy, Hunger-Free Kids Act, nutritional standards for school lunches and breakfasts were significantly strengthened nationwide, making them healthier than packaged or processed alternatives and the most nutritious food source for many underprivileged children.

The Community Eligibility Provision (CEP) policy, authorized by that same act, empowers schools in high-poverty areas to offer free meals to all students, aimed at simultaneously eliminating societal stigma and increasing participation. While emerging evidence has linked CEP to reduced obesity and food insecurity, its impact on blood pressure, a key long-term indicator of cardiovascular health, remains unknown.

About the study

The present study aims to address this knowledge gap using an extensive pooled cohort and a 'difference-in-differences' study methodology. The study examines the CEP policy's impacts (over and above obesity) by analyzing electronic health record (EHR) data for 155,778 pediatric patients (age = 4 to 18 years) who received care at community health organizations within the OCHIN network across 12 US states.

Patient addresses were subsequently used to match EHR data with 1,052 low-income public and charter schools. Identified schools were longitudinally observed between 2013 and 2019, coinciding with the gradual rollout of CEP policy implementation. This "staggered adoption" design allowed statistical analyses to compare changes in blood pressure outcomes in schools after they adopted CEP versus schools that had not yet adopted the policy.

The study's primary outcome of interest was the annual school-level proportion of students with a high blood pressure measurement (at or above the 90th percentile for their age, sex, and height).

Study findings

Study analyses revealed that the Community Eligibility Provision was associated with statistically significant reductions in school-level blood pressure outcomes with measurable differences observed in the annual proportion of high blood pressure cases before and after CEP policy implementation. Specifically, schools saw a net reduction of 2.71 percentage points in the proportion of patients with high blood pressure following the switch to free lunches (95% Confidence Interval [CI], -5.10 to -0.31; $P = .03$).

These findings correspond to a net decrease of 10.8% over five years. Furthermore, the study found that CEP's participation benefits were also associated with a 2.48 percentage point net reduction in the proportion of students with hypertensive measurements (at or above the 95th percentile) and a 2.21 percentage point net reduction in their mean diastolic blood pressure percentile.

Importantly, these outcomes remained statistically significant even after accounting for obesity prevalence, suggesting that improved nutrition from

healthier school meals is one important mechanism, alongside reduced food insecurity. The study emphasized that these are plausible explanations rather than directly measured causes. Finally, CEP's effects were most pronounced in elementary schools, where participation in school meal programs is typically highest.

However, the study noted that statistically significant improvements in high blood pressure were observed mainly four to five years after policy adoption, and results may not be generalizable nationwide since most schools in the sample were located in California and Oregon.

Conclusions

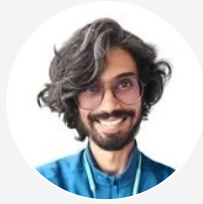
The present study provides evidence of the broad spectrum of public paediatric health benefits offered by universal free school meal policies like the Community Eligibility Provision by demonstrating their association with reduced childhood hypertension.

By increasing access to nutritious meals, the policy not only addresses food insecurity and obesity but also appears linked to improvements in blood pressure, a crucial long-term clinical outcome.

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Journal reference:

- Localio, A. M., Hebert, P. L., Knox, M. A., Bensken, W. P., Ochoa, A. M., Sonney, J., & Jones-Smith, J. C. (2025). School Provision of Universal Free Meals and Blood Pressure Outcomes Among Youths. *JAMA Network Open*, 8(9), e2533186. DOI – 10.1001/jamanetworkopen.2025.33186. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2839328>



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