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HEALTHY FOOD ACCESSIBILITY IN GROCERY STORES IN CENTRAL MASSACHUSETTS

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BACKGROUND. Accessibility to healthy food is one of the most influential community-level factors affecting obesity and chronic disease. The Community Nutrition Environment Evaluation Data System (C-NEEDS) is a set of instruments for objectively assessing availability and quality of 61 major healthy and unhealthy food items in foods stores in the Northeast region.

METHODS. The C-NEEDS was developed considering seasonal variations, cultural relevance and utility to cardiovascular health research. Both inter- and intra-rater reliability tests showed a high degree of agreement. Using the instruments, we conducted four rounds of longitudinal surveys of 107 grocery stores in Worcester County, Massachusetts between 2007 and 2010. A healthy food availability index (HFAI, 0-37 points) was calculated for each store, a higher score indicating a greater availability and better quality of healthy foods. Using linear regression models, we examined variations in HFAI in relation to community household income and housing density.

RESULTS. Store-level HFAI did not vary significantly by tertile of community median income, but did vary by housing density. High-density communities (upper tertile) had the greatest percentage of stores in the top HFAI tertile (34-37 points). Middle-density communities had the greatest percentage of stores in the low HFAI tertile (0-17 points). A majority of the stores located in low-density communities had middle range of HFAI (18-33 points). The mean HFAI increased with each successive round of grocery store surveys ($\beta=2.02/\text{round}$ [95% confidence interval 0.74-3.31]).

CONCLUSION. Access to healthy foods improved slightly over time, however, notable disparities still existed in Central Massachusetts during the study period. Better access was associated with community housing density but not median household income. Further studies on the causes of the disparities may inform public health organizations about necessary community actions to reduce these disparities.