Reference: Muennig, Peter & Woolf, Steven H. (2007). Health and economic benefits of reducing the number of students per classroom in US primary schools. American Journal of Public Health, 97 (11) pp. 2020-2027.

STRUCTURED ABSTRACT

Background: Approximately 600,000 to 800,000 students in the United States do not graduate from high school by age 20. A growing body of evidence indicates a causal link between educational achievement and health.

Purpose: To estimate the health and economic effects of reducing class size from 22-25 students to 13-17 students in kindergarten through 3rd grade throughout the United States.

Research Design: Cost-benefit analysis; secondary analysis.

Data Collection and Analysis: Project STAR, the Tennessee randomized-controlled field trial on reducing class size in the early grades, was the source of data for estimating intervention effectiveness: a 12% increase in high school graduation rates, including an 18% increase among students from low-income families. A sample of 12,000 adults from the 2003 Medical Expenditure Panel Survey was used to estimate the effect of smaller class size on health-related quality of life. National Health Accounts data were used to estimate per-enrollee costs for Medicare and Medicaid. Current Population Surveys from March 2003 and March 2004 provided earnings and welfare data. Crime data were obtained from the Uniform Crime Report from the Federal Bureau of Investigation. Federal tax return data for different levels of educational attainment were generated using TAXSIM software. All data were incorporated in the development of a model that followed a hypothetical cohort from age 5, when the small class size intervention began in kindergarten (and continued for the next four years until the end of 3rd grade), through age 65.

Findings: Reducing class size in the early grades resulted in a net cost savings to society of an estimated $168,000 per additional student who graduated from high school by age 20 (i.e., the additional 12 students who graduated from high school in the general population per 100 students participating in the class-size intervention, and the additional 18 students among low-income families). For low-income students, the cost savings per added graduate rose to an estimated $196,000. In terms of health, the life expectancy for added graduates increased by an estimated 1.7 quality-adjusted life years

Conclusions: An education intervention to reduce class size in kindergarten through 3rd grade provides important long-term benefits not only in learning but also in health, with major economic cost savings to society. Reducing class size compares favorably with childhood vaccinations in terms of quality of life years gained per dollar invested. As the class-size intervention appears to be more cost-effective than most medical and public health interventions, an education initiative may exert a greater positive impact on public health outcomes than comparable investments in medical care.