Cost-Benefit Study of School Nursing Services
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Introduction

- **Demand for school nursing services**
  - Rise in chronic health conditions
  - Increase in special care needs
  - Improved medical technology

- **Funding for school nursing services**
  - Eliminate nurses
  - Reduce nurse hours
  - Replace nurses with untrained employees

- **Effect of school nursing services**
  - Improve student attendance
  - Reduce early dismissals
  - Reduce teacher time on addressing health issues
Introduction

- No study assessed the economic impact
- School nursing services must not only be shown effective but also cost-effective
- The objective of this study
  - Conduct a case study of documented school nursing practices
  - Demonstrate the cost-benefit of school health services delivered by full-time registered school nurses
Study site

- Massachusetts Essential School Health Services program
  - ≥1 full-time registered school nurse per school
  - Direct care, health education, case management, policy/program development and oversight
  - Monthly activity report
  - Annual data report

- The 2009-2010 ESHS report
  - No. of districts: 78
  - No. of student health encounters: 4,946,7579
  - No. of medication doses administered: 1,191,060
  - No. of medical procedures performed: 1,016,140
  - Early dismissal rate: 6.2%
Study design

- Societal perspective and standard cost-benefit analysis methods were used
- The ESHS program was compared with a “no school nursing services” scenario

Data sources
- The 2009-2010 ESHS report data
- Published estimates
  - Early dismissal rate without a school nurse
  - Teachers’ time spent on health issues with/without a school nurse
- Physicians Fee and Coding Guide (PFCG), HCPC code book, and Massachusetts Medicaid Fee Schedule
Study design

- In each scenario we estimated:
  - Health care costs
    - Medical procedures
  - Parents’ productivity loss costs
    - Medication administration
    - Early dismissals
  - Teachers’ productivity loss costs
    - Teachers’ time spent on addressing health concerns

- We did not include costs averted related to reduced 911 calls, ER visits, or hospitalizations.

- Program benefits were measured as costs averted when compared with the “no school nursing services” scenario.
Study design

- **Program costs**
  - Nurse salary and fringe benefits
  - Medical equipment and supplies

- **Cost-benefit measures**
  - Net benefits
  - Benefit cost ratio

- **All costs and benefits in 2009 dollars**
Results

- **Base case analysis results:**
  - Program costs: $79 million
  - Costs averted
    - $20.0 million in medical care costs
    - $28.1 million in parents’ productivity loss
    - $129.1 million in teachers’ productivity loss
  - Net benefit: $98.2 million
  - Benefit cost ratio: 2.2

- **Sensitivity analysis results**
  - Costs averted: $56-$302 million
  - Benefit cost ratio: 0.7-3.8
  - 89% of 10,000 trials resulted in net benefit
Summary

- The ESHS program was cost-beneficial and generated net benefits to society.
- The actual benefits might be much higher if other benefits were counted:
  - Reduced 911 calls, ER visits, and hospitalizations
  - Reduced health screenings by physicians
  - Increased attendance and reduced dropout rates
  - Reduced teacher time on medical procedures
  - Reduced long-term costs from early identification
  - Benefits from other service activities:
    - Linking students to insurance and health providers
    - Health education and promotion
Implications

- School nursing services can be
  - Cost-beneficial
  - A benefit to students, families, health care system, and community
    - Increased student attendance
    - Increased teacher productivity
    - Reduced health care costs
    - Increased worker productivity

- Schools must have a full-time registered nurse
  - Education agencies can work with the health care system to explore other funding sources
  - Health care system might value their contributions as community benefit investment
Limitations

- The benefits of the ESHS program were projected, not measured.
- The cost benefit estimates generated in this study may not be generalizable to other states.
- Only a single data source was available for some input parameters.
- Assumptions were made for certain input parameters when there was no available data.
Future research

- The analytical approach developed in this study can be used to assess other programs

- School nurses should regularly
  - Record their service activities
  - Collect data on school absence, early dismissals, teacher time spent, medication administration and 911 calls when there is no nurse present at schools

- Future research should assess
  - Impact on 911 calls, ER visits, and hospitalizations
  - Impact on early dismissals, medication administrations, and teachers’ time spent
Questions?