



## **Economic Impact Analysis Virginia Department of Planning and Budget**

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### **8 VAC 20-690 – Regulations for Scoliosis Screening Program Department of Education May 18, 2004**

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The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.G of the Administrative Process Act and Executive Order Number 21 (02). Section 2.2-4007.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

### **Summary of the Proposed Regulation**

House Bill 1834 enacted by the 2003 General Assembly, and codified in § 22.1-273.1 of the Code of Virginia, requires all local school boards to “provide parent educational information or implement a program of regular screening for scoliosis for pupils in grades five through ten ...” Pursuant to a legislative mandate, the board proposes to promulgate these regulations in order to implement these requirements.

### **Estimated Economic Impact**

Prior to House Bill 1834, Virginia law did not address scoliosis screening. As a matter of policy the Virginia Department of Education (department) has encouraged, but not required, screening. Recently, the department surveyed the 132 Virginia school divisions concerning whether they screen for scoliosis, and if they screen, whether a scoliometer is used. Out of the 82 responding school divisions, 60 report that students are screened for scoliosis.

Under the new law, all school divisions must either screen for scoliosis or provide parents with educational information on scoliosis. If school divisions choose to comply by providing parents with educational information, the costs will be relatively small. The department has stated that it will provide school divisions with three pages of information on scoliosis that may be copied and distributed to parents.

Screening for scoliosis has been controversial and not universally accepted or required. The U.S. Public Health Service (part of the U.S. Department of Health and Human Services) convened a panel of experts, called the U.S. Preventive Services Task Force<sup>1</sup> (USPSTF), to rigorously evaluate clinical research in order to assess the merits of preventive measures, including screening tests. The 1996 USPSTF report questioned the value and cost-effectiveness of school screening for scoliosis. The USPSTF and the Canadian Task Force on the Periodic Health Examination both state that insufficient evidence exists to support universal school-based screening.<sup>2</sup> Essentially all researchers have observed that school-based screening results in a large number of false positives. When a child tests positive in the screening, his or her parents or guardians are recommended to take the child to a physician to be examined and have x-rays taken. Most students who receive a positive evaluation in their screening are found to not need any treatment once x-rays are taken.<sup>3</sup> Also, as Morissy (1999) mentions, some of those found to need treatment would have been (and may already have been) diagnosed by their pediatrician without the screening. According to Greiner (2002), “Patients with severe curves are not difficult to diagnose (without screening). Although some advocates still recommend school-based screening of adolescents, there is no evidence to support these programs.”

The time and monetary costs associated with screening and follow-up doctor’s office visits are substantial. Monetary costs include salaries for paid personnel and seminars to train screeners, and the fees paid by parents and medical insurers for visits to the doctor’s office. The parent’s time away from work and the child’s time away from school is also costly. In addition, the child likely endures some stress due to visiting the doctor and concern about his or health.

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<sup>1</sup> The U.S. Preventive Services Task Force (USPSTF) was convened by the U.S. Public Health Service to rigorously evaluate clinical research in order to assess the merits of preventive measures, including screening tests, counseling, immunizations, and chemoprevention. The Task Force's pioneering efforts culminated in the 1989 *Guide to Clinical Preventive Services*. A second edition of the *Guide* was published in 1996. (source: <http://www.ahrq.gov/clinic/uspstfab.htm>).

<sup>2</sup> Source: Greiner (2002).

<sup>3</sup> Sources: Greiner (2002); Morissy (1999); and Yawn et al (1999)

Also, Cote et al (1998) point out that “Exposure to diagnostic radiation in patients with adolescent idiopathic scoliosis may result in a small but significant increase in cancer rates.” For those children who do not have scoliosis or only scoliosis that does not necessitate or improve with early treatment, the false positive from screening will create the aforementioned costs without producing benefit. For those children that do have scoliosis that may be successfully treated through early diagnosis, the aforementioned costs are likely exceeded by the benefit of reduced probability of future surgery, pain, and other problems associated with undiagnosed severe scoliosis.

The number of children that can benefit from early treatment and would not otherwise been diagnosed is small. For example, Yawn et al (1999) collected data on school screening for scoliosis in Rochester, Minnesota. Out of 2,242 children screened, 92 (4.1%) were referred for further evaluation. Of these, 68 (74%) already had a documented medical or chiropractic evaluation of scoliosis. Of the 92 referred for further evaluation, nine were deemed to need treatment. Four of those nine children had already been identified prior to the school screening. Thus, 0.2% (5 out of 2,242) of the screened students likely benefited from the screening. Since as Greiner (2002) notes, “the long-term health outcomes for treated versus untreated patients with scoliosis have not been well studied,” we do not have a good estimate of how much, if at all, that these children who receive early treatment due to screening actually benefit.

In practice there are essentially two methods used in screening for scoliosis: a visual judgment method called the Adams forward bend test, and measurement with an instrument called a scoliometer.<sup>4</sup> Out of the 57 school divisions that report how their students are screened, 35 report the use of a scoliometer.<sup>5</sup> There is no consensus in the peer-reviewed literature concerning the accuracy and usefulness of the scoliometer versus the Adams forward bend test. Bunnell (1984) developed the scoliometer with the intent of producing a low-cost method of screening for scoliosis that was more accurate than the Adams forward bend test. Grossman et al (1995) recommended that a scoliometer be used for screening since the Adams forward bend test failed to find significant “truncal rotation abnormalities” that are detected with the scoliometer. On the other hand, Cote et al (1998) determined that “the Scoliometer has a high level of inter-

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<sup>4</sup> As Grossman et al (1995) point out, both the scoliometer and the Adams forward bend test actually reflect truncal rotation, not scoliosis directly. Truncal rotation is used as an indicator for scoliosis. A radiographic examination is necessary to more definitively determine whether scoliosis is present.

examiner measurement error that limits its use as an outcome instrument. Because (the) Adam's forward bend test is more sensitive than the Scoliometer, the authors believe that it remains the best noninvasive clinical test to evaluate scoliosis.” Since research is inconclusive as to which method of screening is more accurate, there appears to be no clear benefit to requiring that one method be exclusively used over the other when schools do screen for scoliosis.

### **Businesses and Entities Affected**

The proposed regulations affect the 132 school divisions, their staff, and students.

### **Localities Particularly Affected**

The proposed regulations particularly affect those school divisions that are not currently screening for scoliosis.

### **Projected Impact on Employment**

The proposed regulations are unlikely to significantly affect employment since schools that do not screen for scoliosis will only be required to distribute information to parents on scoliosis. As mentioned, the department will supply school divisions with three pages of information on scoliosis that can be copied and distributed to meet this requirement.

### **Effects on the Use and Value of Private Property**

The proposed regulations will result in a moderate increase in the use of copy machines by school divisions.

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<sup>5</sup> This data is from the aforementioned survey conducted by the Department of Education.

## References

Bunnell WP. "An objective criterion for scoliosis screening." *The Journal of Bone and Joint Surgery* 1984;66:1381-7.

Bunnell WP. "Outcome of spinal screening." *Spine* 1993;18:1572-80.

Cote P, Kreitz BG, Cassidy JD, Dzus AK, Martell J. "A study of the diagnostic accuracy and reliability of the scoliometer and Adam's forward bend test." *Spine* 1998;23:796-802.

Greiner KA. "Adolescent Idiopathic Scoliosis: Radiologic Decision-Making." *American Family Physician* 2002;65:1817-22.

Grossman TW, Mazur JM, Cummings RJ. "An evaluation of the Adams forward bend test and the scoliometer in a scoliosis school screening setting." *Journal of Pediatric Orthopaedics* 1995;15:535-8.

Higginson G. "Political Considerations for Changing Medical Screening Programs." *JAMA* 1999;282:1472-4.

Huang SC. "Cut-off point of the scoliometer in school scoliosis screening." *Spine* 1997;22:1985-9.

Morrissy RT. "School screening for scoliosis." *Spine* 1999;24:2584-91.

Reamy BV, Slakey JB. "Adolescent idiopathic scoliosis: review and current concepts." *American Family Physician* July 1, 2001.

Skaggs DL. "Referrals from scoliosis screenings." *American Family Physician* July 1, 2001.

U.S. Preventive Services Task Force. AHRQ Publication No. 00-P046, January 2003. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/clinic/uspstfab.htm>.

Yawn BP, Yawn RA, Hodge D, Kurland M, Shaugnessy WJ, Ilstrup D, Jacobsen SJ. “A population-based study of school scoliosis screening.” JAMA 1999;282:1427-32.