

REVIEW OF HB 1440
VIRGINIA DEPARTMENT OF HEALTH
DIVISION OF CHILD AND ADOLESCENT HEALTH

Purpose

HB1440, introduced during the 2008 Regular Session of the General Assembly, would have required local school boards to provide parental education information or implement a program for regular screening of kidney disease for pupils at all grade levels. The bill would also have directed the State Board of Education to promulgate regulations for the implementation of such screenings. An Amendment in the Nature of a Substitute for HB1440 would have expanded the comprehensive physical examination required for entry into public kindergarten or elementary schools to include age appropriate testing for hypertension and diabetes. HB1440 was tabled in by the House Committee on Education. The committee chairman subsequently requested that the Virginia Department of Health review HB 1440 and the Amendment in the Nature of a Substitute to determine if hypertension and diabetes testing are appropriate for inclusion in the comprehensive physical examination.

Background

Code of Virginia § 22.1-270 stipulates that the State Health Commissioner determine the content of a comprehensive physical examination performed prior to the date a pupil first enters public kindergarten or elementary school. The School Health Entrance Form documents the comprehensive physical exam; it also includes a parental report of the child's health history, family health history, and a report of completed immunizations. The physical examination must be done by a licensed physician, nurse practitioner, or physician assistant, and must be completed no longer than one year before school entry. The physical examination is required to protect the public from communicable disease, and to identify physical, social-emotional, or developmental needs the child has so that (1) the school can begin to prepare to assist those needs and, (2) necessary interventions can be initiated to maximize the child's school readiness and success. The School Health Entrance Form is also widely used by providers of child care, Head Start, Virginia Preschool Initiative, and Infant and Toddler Connection (Part C Early Intervention) services.

Standard of Care

The comprehensive physical examination currently defined by the State Health Commissioner is based upon the age appropriate recommendations in *Bright Futures Health Guidelines for Infants, Children, and Adolescents Third Edition*. *Bright Futures* is published by the American Academy of Pediatrics (AAP) and funded by the Health Resources and Services Administration, Maternal Child Health Bureau. This comprehensive document represents the national standard for well-child care. Since 2001, Bright Futures has been recognized as the standard of well-child care in the Commonwealth by the Virginia Departments of Health, Education, and Medical Assistance Services; subsequently is has been adopted as a standard

by the Departments of Mental Health, Mental Retardation, and Substance Abuse Services, and Social Services.

Under the Recommendations for Preventive Pediatric Health Care Periodicity Chart, blood pressure measurement – which would constitute hypertension screening -- begins at age three; as such, this is currently included in the comprehensive physical exam.

Previous editions of *Bright Futures* included a screening urinalysis at age five to identify early signs of kidney or endocrine disorders, including diabetes, and this was reflected on the School Health Entrance Form until 2006. Over several years, the Departments of Health and Education received comments from many pediatric health care providers urging that the urinalysis be discontinued. The reasons given included: difficulty in obtaining a specimen from a young child; high rates of false positives; expensive follow-up testing of positive screens, which was often unnecessary due to the rates of false positives; lack of reimbursement from insurers and inability to collect payment from many parents. Despite these urgings, the State Health Commissioner maintained the requirement for the screening urinalysis as long as it was consistent with the AAP Recommendations for Preventive Pediatric Health Care Periodicity Chart under *Bright Futures*.

Serum studies to routinely screen for diabetes (i.e., fasting glucose) have never been part of *Bright Futures* or the Recommendations for Preventive Pediatric Health Care Periodicity Chart.

The current edition of *Bright Futures* does not recommend routine urinalysis for any age group and it is not included on the Recommendations for Preventive Pediatric Health Care Periodicity Chart. This requirement has therefore been removed from the comprehensive physical examination. Parental report of a child's health history, family history, and/or symptoms or observations, as documented on the School Health Entrance Form, would yield further investigation by the health care provider and would warrant a screening test if diabetes were suspected.

The American Diabetes Association recommends screening for type 2 diabetes mellitus among high risk children beginning at age 10, or the onset of puberty (whichever is earlier). High risk is defined as body mass index higher than 85th percentile, or weight greater than 120% of ideal along with two other risk factors: family history of type 2 diabetes; signs of insulin resistance; maternal history of gestational diabetes; being a member of an ethnic group at increased risk. The recommended screening test in this instance is a fasting plasma glucose.

The US Preventive Services Task Force has produced guidelines for diabetes screening in adults, but notes that evidence is limited in reference to children. The Task Force has made no formal recommendation for or against routine screening in children.

Literature Review

In 2001, Liese, et al, identified 6379 US youth with diabetes in a population of about 3.5 million. They estimated the overall prevalence of diabetes in children and adolescents at approximately 0.18% (1.82 cases per 1000 youth). This amounted to about 2.80 cases per 1000 youth aged 10 – 19. For children ages birth – 9, the rate was 0.79 cases per 1000 (Liese, et al, 2006).

The literature suggests that there is little benefit to routine urinalysis screening in children. Initial routine urinalysis screening is defined as dipstick urine screening. In many instances, the routine dipstick urine screen may provide false-positive results, resulting in further unnecessary evaluation. In asymptomatic children, the results of the routine dipstick urine screen carry questionable value and “do not necessarily demand therapy” (Gruskin & Linshaw, 1997, p. 1031).

In a study by Gutgesell, random urine samples were collected on all eligible patients on their initial visit to a primary care setting located in Houston, Texas. This pediatric clinic served a low to moderate socio-economic group. The study population consisted of a diverse group of pediatric patients representing many ethnicities. Results of the routine dipstick urine screens were reviewed by a healthcare provider and if positive for the presence of proteinuria, hematuria or glucosuria, the chart was subsequently pulled for review. Prevalence rates for proteinuria, hematuria and glucosuria were low. Follow up appointments were made for these patients to return for further evaluation. It was found that a large percentage of patients with “an abnormal finding on initial urinalysis had a normal follow up urinalysis” (Gutgesell, 1978, p.105).

Mitchell & Stapleton (1990) documented that routine urine dipstick screening added cost and little yield to the asymptomatic patient. This study sought to determine “whether screening urinalysis had an impact on patient care, and whether the cost effectiveness of the screening justified its implementation” (Mitchell and Stapleton, 1990, p.345). The patient population studied included admissions to two units at Le Bonheur Children’s Medical Center in Memphis over two months in 1987. Of the total of 732 screening urinalyses obtained, 149 (20%) were abnormal. In the subsequent analysis, only 6 of the 732 patients were diagnosed with a urinary tract infection and treated. The total cost of urinalyses and follow-up tests for these two months was \$23,465 with 6 definitive diagnoses (\$3,911 per diagnosis).

Cost Implications

Kaplan, Springate, and Feld (1997) estimated the cost for initial urinalysis screening to be 65 cents per patient and \$129 to \$179 for evaluation of those with persistent abnormalities. Nine percent of the study sample (n=2000) had an initial abnormal urinalysis, however 84% of these were false positives. After retesting, 1.5% had a persistent abnormality.

Approximately 23% of children in Virginia have publicly funded health insurance, 10% are uninsured, and 64% have employer sponsored insurance (Urban Institute and Kaiser Commission on Medicaid and the Uninsured estimates based on the Census Bureau's March 2006 and 2007 Current Population Survey: Annual Social and Economic Supplements).

Initial urine screening for 81,002 school-entry age children (age 5) costs approximately \$286,747 based on the Virginia Department of Medical Assistance Services (DMAS) Medicaid reimbursement rate (\$3.54) for a urine dipstick without microscopy (CPT code 81002). More significant costs are incurred with false positives. False positive rates range in the literature from 9 to 20%, although 20% seems to be the more cited percentage for sensitivity and specificity. The cost of follow up for false positive results could range between \$182,542 (9% repeat dipstick and 1.5% evaluation at \$129) and \$274,833 (20% repeat dipstick and 1.5% evaluation at \$179) for the school age population. No studies found estimated costs of medical care provided by specialists such as nephrologists or endocrinologists and are not included here.

Private insurers' benefit coverage generally follows the AAP Recommendations for Preventive Pediatric Health Care Periodicity Chart. As such, screening urine dipsticks are not likely to be covered by private insurers. Up to 74% of the affected population is therefore self-pay for these tests. Between initial screening and repeat dipsticks, up to \$254,630 may not be paid for by insurance. Some of this cost may be written off by providers or passed on to consumers at charges which may be higher than the DMAS reimbursement rate. It is assumed that those requiring further evaluation would be covered by insurance.

Recommendations

The standard of care, reflected by *Bright Futures* and Recommendations for Preventive Pediatric Health Care Periodicity Chart, supports the use of blood pressure measurement, patient history and physical exam as the best current method to assess for potential hypertension, diabetes, and kidney disease.

Presently there is no routine population based screening for children with diabetes. The standard promoted by the American Diabetes Association, and supported by the American Academy of Pediatrics, describes a risk assessment beginning at age 10, followed by screening tests as indicated.

The current School Health Entrance Form gives the health care provider a parental report of health history, signs, and symptoms. This, coupled with the provider's examination (including assessment of body mass index, or BMI), constitute a risk assessment for suspicion of diabetes and kidney disease. Based on the information obtained from these sources, the provider can follow up with testing if indicated.

Based upon current acceptable practice, the high rate of false positives, and the low likelihood of finding significant kidney disease, routine dipstick urinalysis is not indicated at school entry. Children should be monitored for risk by their primary

care provider as recommended by the standard of care, with appropriate testing where risk warrants it, in the context of the medical home.

References

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