



## Behavioral Health Screening among Massachusetts Children Receiving Medicaid

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**Objective** To assess the impact of a Massachusetts Medicaid policy change (the Children's Behavioral Health Initiative; CBHI, which required and reimbursed behavioral health [BH] screening with standardized tools at well child visits and developed intensive home- and community-based BH services) on primary care practice examining the relationship of BH screening to subsequent BH service utilization.

**Study design** Using a repeated cross-sectional design, our 2010 and 2012 Medicaid study populations each included 2000 children/adolescents under the age of 21 years. For each year, the population was randomly selected and stratified into 4 age groups, with 500 members selected per group. Two data sources were used: medical records and Medicaid claims.

**Results** The CBHI had a large impact on formal BH screening and treatment utilization among children/adolescents enrolled in Medicaid. Screening increased substantially (73%: 2010; 74%: 2012) since the baseline/premandate period (2007) when only 4% of well child visits included a formal screen. BH utilization increased among those formally screened but decreased among those with informal assessments.

**Conclusions** CBHI implementation transformed the relationship between primary care and BH services. Changes in regulation and payment resulted in widespread BH screening in Massachusetts primary care practices caring for children/adolescents on Medicaid. (*J Pediatr* 2016;178:261-7).

Between 13% and 24% of all US children have behavioral health (BH) conditions.<sup>1-3</sup> Most children with BH conditions do not receive needed treatment,<sup>4</sup> and children from racially/ethnically diverse backgrounds are less likely than whites to receive services.<sup>5,6</sup> Undertreatment puts children with BH conditions at increased risk of suicide, school dropout, substance abuse, criminal behavior, and risky sexual behaviors.<sup>7,8</sup> Early intervention among children with BH problems results in better outcomes.<sup>9,10</sup> Pediatric providers can promote early intervention through BH screenings during well child visits (WCVs).<sup>11-13</sup> Enhanced systematic screenings maximize health attainment when interventions are begun early. Standardized screening instruments have been shown to be more effective in identifying developmental, behavioral, and psychosocial issues than are clinical assessments alone.<sup>14-16</sup> In addition, screening fosters communication between parents and providers with the potential to improve health.<sup>17-19</sup> Pediatric providers, however, have been slow to adopt screening<sup>14,15,20-23</sup> citing a variety of barriers<sup>14,23-27</sup> despite recommendations to screen for behavioral and developmental issues at WCVs.<sup>28,29</sup>

BH screening rates have risen in response to policy and regulatory changes that mandate use of standardized screening instruments at WCVs.<sup>30,31</sup> However, little is known about the impact of BH screening on subsequent service utilization. Rushton et al<sup>32</sup> found that fewer than one-half of patients referred by their pediatrician for BH had a BH visit in the subsequent 6 months. Romano-Clarke et al<sup>33</sup> examined referrals and BH service utilization after the implementation of mandated BH screening at WCVs. Even though they found an increase in BH services, many children for whom further assessment and/or treatment seemed warranted did not access BH services.

In 2007, the Children's Behavioral Health Initiative (CBHI) implemented by MassHealth (Massachusetts Medicaid) required and reimbursed for BH screening for children and adolescents during WCVs in response to a 2001 Massachusetts class action law suit (Rosie D et al vs Jane Swift et al<sup>34</sup>) filed on behalf of MassHealth-enrolled children under the age of 21 years who had serious emotional disturbances. The Rosie D judgement (implemented on December 31, 2007) required MassHealth providers to offer standardized BH screening at every WCV

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| BH   | Behavioral health                       |
| CBHI | Children's Behavioral Health Initiative |
| ED   | Emergency department                    |
| ESP  | Emergency services program              |
| FY   | Fiscal year                             |
| MRR  | Medical record review                   |
| WCV  | Well child visit                        |

using a formal screening tool from the MassHealth-approved standardized BH tools. The court order established a timetable for rolling out (in 2009) an extensive array of new home- and community-based services designed to support and treat children and adolescents with complex BH needs. A previous chart audit of BH screening practices prior to the implementation of the Rosie D remedy showed that few providers were engaged in formal BH screening.<sup>35</sup> We sought to assess the result of this policy change on primary care practice through a statewide chart audit of WCVs and to describe BH screenings and subsequent BH service utilization.

## Methods

A repeated cross-sectional design examined standardized screenings, screening results, referral rates, and service utilization. Our baseline study,<sup>35</sup> using fiscal year (FY) 2007 data, guided the current study of 2 follow-up periods spanning the implementation of the CBHI: FYs 2010 (July 1, 2009-June 30, 2010) and 2012 (July 1, 2011-June 30, 2012). Similar to the baseline study, medical record data were obtained to assess screenings, screening results, and service referrals. We used MassHealth enrollment and claims data to identify the study population, supplement chart abstraction screening results, and assess service utilization. The study was approved by the University of Massachusetts Medical School's Institutional Review Board.

The study population for each period consisted of MassHealth-enrolled children under the age of 21 years. The final inclusion criterion, for each period, required children/adolescents to have a paid claim for a WCV, identified using current procedural terminology and *International Classification of Diseases, Ninth Revision, Clinical Modification* diagnosis codes. Based on age group stratification identified from American Academy of Pediatrics periodicities for WCVs and recommendations for MassHealth-approved standardized screening tools, stratified random sampling selected 500 members from each of 4 age groups (ie, 6 months-2 years, 3-5 years, 6-11 years, and 12-20 years) in each study period, resulting in a total sample of 2000 members per year. Children under 6 months of age were excluded because the MassHealth-approved BH screening tools had not been validated for the youngest children. Sample size calculations per age group were based on Healthcare Effectiveness Data and Information Set sampling guidelines ( $n = \sim 411$ ) and increased by 20% to account for potentially absent medical records.

An experienced medical record review (MRR) vendor conducted a retrospective MRR of the sample's 4000 children/adolescents. Three registered nurses used a chart abstraction tool developed by one of the researchers and a panel of practicing physicians. Before implementation of the MRR, nurse abstractors had to pass Gold Standard Testing and attain interrater reliability scores of 95% or higher. The abstraction tool was piloted in a large community-based practice. From chart notes and documentation, nurse abstractors determined the presence of standardized BH screening, screening results, and referrals. They also detailed the presence of non-MassHealth approved screening tools and notations of informal

screening/surveillance without a specific tool. Where both formal and informal screens were conducted and abstracted, subsequent analyses prioritized results from the formal screening. In addition, abstractors recorded charted notes and documentation on BH referrals (made at the time of the WCV), patient demographics (ie, age, sex, ethnicity, and primary language spoken at home), interpreter use during the WCV, and use of a non-English BH screening tool. MRR occurred at the practice or remotely (vendor's office, through secure postal delivery or faxed transmittal of medical record information) depending on the number of abstracted records per practice.

## Claims Data

Chart abstraction data were merged with MassHealth enrollment and claims data to assess BH services utilization. Paid claims from July 1, 2009 to December 31, 2012 were extracted to account for a 6-month follow-up period. BH assessment and treatment services were identified and diagnosis/procedure codes extracted, also identifying the setting where BH services were conducted (ie, inpatient, emergency department [ED], outpatient, and emergency services program [ESP]). Claims for laboratory, radiology, or pharmacy services were excluded. When chart abstraction data indicated a standardized BH screening tool was used but no result documented, we used claims data to identify billing codes indicating the provider conducted BH screening and the screening result. These results supplemented missing chart abstraction data.

## Variables

Dependent variables included (1) standardized BH screening defined as the percent of WCVs for children/adolescents where a MassHealth-approved BH screening tool was used; (2) positive screening rate defined as the percent of WCVs with a screen for which a positive screen for BH conditions resulted; (3) referral rate defined as the percent of WCVs where a positive screen resulted in a BH referral; and (4) BH service utilization defined as the percent of WCVs with a formal screen (positive or negative) where the child subsequently received BH services as well as services following informal screening or provider surveillance (eg, general observations about BH noted in the medical records). BH utilization was categorized into 4 groups based on service setting: (1) inpatient; (2) ED; (3) outpatient; and (4) ESP. ESP provides critical BH services in the community (primarily in-home) including crisis assessment, intervention, and stabilization. The new array of home- and community-based services created under CBHI were categorized as outpatient services. Analyses combined inpatient/ED services as well as outpatient/ESP services.

Independent variables included age, sex, race, ethnicity, primary language, and MassHealth plan type (ie, managed care vs primary care case management). All sociodemographic variables were obtained from medical records except for plan type, which was derived from MassHealth. With substantial missing data for race, ethnicity, and primary language in the medical records (ie, 18% of our 2010 data and 15% of our 2012 data were absent all 3 sociodemographic variables), we used MassHealth data when available. For race and ethnicity (where

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