U.S. Department of Health and Human Services

Office of Inspector General

Many Medicaid-Enrolled Children Who Were Treated for ADHD Did Not Receive Recommended Followup Care

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Attention deficit hyperactivity disorder (ADHD) is a common neurobehavioral disorder with symptoms of inattention, hyperactivity, and impulsivity. The Department of Health and Human Services publishes national quality measures that outline timeframes for followup care for children with ADHD. Additionally, professional guidelines from American Academy of Pediatrics and American Academy of Child and Adolescent Psychiatry describe the importance of followup care and behavioral therapy for these children. Some children may not receive followup care or behavioral therapy for reasons such as limited access to care or because practitioners may be unaware of the professional recommendations. This study focuses specifically on the extent to which children do not receive followup services and behavioral therapy.

What OIG Found

Over 500,000 Medicaid-enrolled children who were newly prescribed an ADHD medication and over 3,500 children who were hospitalized with a primary diagnosis of ADHD did not receive followup care within the timeframes outlined in the national quality measures. Additionally, over 54,000 children did not receive any behavioral therapy as recommended by professional guidelines.

What OIG Recommends

The Office of Inspector General (OIG) recommends that the Centers for Medicare & Medicaid Services (CMS) work toward improving health outcomes by developing strategies to increase the number of children who receive timely followup care for ADHD. We recommend that CMS accomplish this by working in three ways:

Collaborate: CMS should collaborate with partners to develop strategies for improving rates of followup care for children who receive treatment for ADHD.

Assist: CMS should provide technical assistance to States to implement strategies for improving rates of followup care for children who receive treatment for ADHD.

Analyze: CMS should analyze the effectiveness of strategies for improving rates of followup care for children who receive treatment for ADHD.

CMS concurred with all three recommendations.

Full report can be found at oig.hhs.gov/oei/reports/oei-07-17-00170.asp

Why OIG Did This Review

Children with ADHD have higher rates of repeating grade levels, dropping out of school, and receiving hospital care. Childhood ADHD is also associated with negative outcomes in adulthood such as increased rates of other mental health problems, criminal behavior, and increased risk for suicide. The annual societal costs of ADHD are estimated at up to $266 billion from loss of productivity, as well as spending in the healthcare, justice, and educational systems.

An estimated 13 percent of Medicaid-enrolled children are impacted by ADHD. Treatment involving behavioral therapy, medication, and followup care can help improve these children's outcomes, long-term prognoses, and quality of life.

OIG conducted this review in response to a congressional request to evaluate pharmaceutical and behavioral therapy treatment of Medicaid-enrolled children with ADHD.

How OIG Did This Review

We reviewed Medicaid claims data, fiscal years 2014 and 2015, from all States and the District of Columbia for Medicaid-enrolled children who received treatment for ADHD. We examined whether children received: (1) timely followup care with practitioners after being newly prescribed an ADHD medication, (2) timely followup care after ADHD hospitalizations, and (3) behavioral therapy in addition to ADHD medication. We also interviewed professionals to understand the impact ADHD has on children.

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BACKGROUND

Objectives

To determine the extent to which Medicaid-enrolled children who were treated for attention deficit hyperactivity disorder (ADHD) received:

1. timely followup care with practitioners, and
2. behavioral therapy in addition to medication.

Medicaid is a joint State and Federal program that provides health coverage to individuals based on eligibility criteria such as income, disability, and placement in foster care. In fiscal year (FY) 2017, nearly 37 million children were enrolled in Medicaid.[1] An estimated 13 percent of children enrolled in Medicaid have been diagnosed with ADHD.[2]

ADHD is one of the most common neurobehavioral disorders of childhood and can affect all aspects of a child's life, including academic achievement, well-being, and social interactions.[3] Children with ADHD may experience symptoms of inattention, hyperactivity, and impulsivity, and have higher rates of repeating grade levels, dropping out of school, and receiving hospital care.[4, 5] More than half of children with ADHD (60 percent) have at least one other mental health disorder.[6]

ADHD is associated with negative outcomes in adulthood such as increased rates of other mental health problems, criminal behavior, and increased risk for suicide.[7, 8] The annual societal costs of ADHD are estimated at up to $266 billion from loss of productivity, as well as spending in the healthcare, justice, and educational systems.[9]

Professional Guidance on ADHD Treatment for Children

Professional organizations such as the American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP), along with researchers, have published a large body of guidance and information on treatment for children diagnosed with ADHD. Treatment recommendations include Food and Drug Administration-approved ADHD medication and/or evidence-based behavioral therapy (i.e., training in specific, evidence-based techniques for both the child and parent); generally, the preferred treatment is both medication and behavioral therapy.[10, 11] Treatment should be individualized for each child and include followup care with a practitioner.[12] Followup care includes monitoring of the child to confirm that ADHD symptoms are well controlled, that medication is effective, and that behavioral therapy and academic support needs are met.[13, 14] Additionally, some children with

ADHD who have complex care needs may be hospitalized and need followup care. [15]

The Centers for Medicare & Medicaid Services' Use of Quality Measures

The Centers for Medicare & Medicaid Services (CMS) uses the core set of children's healthcare quality measures for Medicaid and the Children's Health Insurance Program (the Child Core Set), a broad set of national quality measures published by the Department of Health and Human Services (HHS), to promote improved healthcare outcomes.[16] The Child Core Set measures are not clinical guidelines. CMS uses these measures to collect data about the quality of care provided to these children. The Child Core Set includes two followup care quality measures related to this evaluation: 1) when a child is newly prescribed an ADHD medication, and 2) when a child is hospitalized for mental illness.[17, 18] ADHD is one of the diagnoses included in the broad range of mental health conditions assessed in the followup after hospitalization for mental illness measure. States' reporting of these quality measures is voluntary.[19, 20] The Child Core Set describes timeframes for followup visits with practitioners related to ADHD treatment.

After a child is newly prescribed an ADHD medication:

- an initial visit within 30 days after the prescription, and
- two additional visits between 31 and 300 days after the prescription.

After a child is hospitalized for mental illness, including ADHD:

- a visit within 7 days after hospitalization, or
- a visit no later than 30 days after hospitalization.

Other Federal Agency Efforts Related to ADHD

Other agencies have published work related to ADHD in children, including the Centers for Disease Control and Prevention (CDC), National Institute of Mental Health (NIMH), Substance Abuse and Mental Health Services Administration (SAMHSA), Health Resources and Services Administration (HRSA), and the Administration for Children and Families (ACF). For example, CDC has identified treatment of ADHD in young children as a public health priority and is developing effective strategies in this area.[21] Additionally, NIMH has collected data on ADHD to establish priorities for prevention, treatment, and research.[22]

Challenges to Providing ADHD Followup Care

Professional organizations (e.g., AAP, AACAP), governmental agencies, and academic researchers have identified several challenges, which are not unique to Medicaid-enrolled children, related to ensuring that all children receive followup care for ADHD. These challenges include the following:

- Workforce shortages persist among many types of behavioral health practitioners (e.g., psychiatrists, psychologists, social workers, and mental health counselors).[23, 24]
- Pediatricians and other practitioners, who may lack specialized training in diagnosing and treating behavioral health disorders, are often tasked with identifying and managing children's behavioral health needs.[25, 26]
- Parents and practitioners might lack awareness of current professional recommendations and the benefits of evidence-based services.[27, 28]
- Evidence-based services may not exist in every community, and parents and practitioners may have difficulty identifying and accessing ADHD treatment consistent with professional recommendations.[29]
- Some parents of children with ADHD are also diagnosed with ADHD and may experience challenges in consistently providing medication and behavioral interventions.[30]

Concerns About Medication Monitoring for Children and Related OIG Work

Previous Office of Inspector General (OIG) work identified concerns related to monitoring of second-generation antipsychotics (SGAs), a class of psychotropic medications that were prescribed to children.[31] Specifically, a 2015 study identified quality-of-care concerns in the medical records for 67 percent of claims for SGAs prescribed to Medicaid-enrolled children, including children diagnosed with ADHD.[32] To ensure the quality of the care provided to children receiving SGAs, we recommended that CMS work with State Medicaid programs to perform utilization reviews, conduct periodic reviews of medical records, and consider other methods of enhanced oversight. CMS implemented all of these recommendations.

A 2018 OIG study found that 34 percent of Medicaid-enrolled children in foster care who were prescribed psychotropic medication, including ADHD medication, did not receive treatment planning or medication monitoring.[33] We recommended that ACF work to improve States' compliance with foster care requirements related to treatment planning and medication monitoring of psychotropic medications and to assist States in strengthening these requirements.

In addition, OIG received a congressional request raising concerns about treatment for Medicaid-enrolled children with ADHD and asking that OIG examine these issues. This evaluation is responsive to that request.

Methodology

Scope

This study is limited to an evaluation of Medicaid claims data and interviews with ADHD professionals. We did not conduct medical record review or

assess the quality of the treatment or accuracy of the diagnoses children received.

Data Collection and Analysis

We collected Medicaid Statistical Information System (MSIS) and Medicaid Management Information System (MMIS) fee-for-service claims, managed care encounters, and eligibility data for all 50 States and the District of Columbia (hereinafter, referred to as States).[34, 35] These data included FYs 2014 and 2015, the most complete data available at the time of our review. We then analyzed MSIS and MMIS claims data to determine the percentages of children continuously enrolled in Medicaid who received (1) followup care with practitioners after being newly prescribed an ADHD medication, (2) followup care after hospitalizations for ADHD, and (3) behavioral therapy in addition to being newly prescribed an ADHD medication.

We developed our analyses to respond to the specifics of the congressional request. We used the technical specifications established by FYs 2014 and 2015 Child Core Set measures to identify ADHD medications and hospitalizations, timeframes for followup care, and which claims are considered followup care. For the rate of followup care after hospitalization for mental illness, we analyzed only hospitalizations for ADHD.[36] We added an analysis related to behavioral therapy for children treated with ADHD medication. Each analysis in the report assesses different aspects of ADHD treatment using distinct criteria; therefore, each finding reflects a different population of children. The analyses in this study are not comparable to States' voluntary reporting on the Child Core Set. See Appendix A for additional details about our methodology.

We conducted structured interviews with representatives from professional organizations who focus on the study and treatment of children with ADHD. Our interviews consisted of questions related to the impacts of ADHD on the lives of children and their families, clinical implications of inconsistent followup care, and circumstances surrounding hospitalization for ADHD.

Limitations

The results of our analysis are limited to the data we received. It is possible that some children received services that could not be included in our analysis (e.g., incorrect or incomplete diagnosis or procedure coding, services not paid for by Medicaid, such as school counseling).[37] Therefore, this study may have underestimated the provision of services for these children. It is also possible that the population of children treated for ADHD could be underestimated if Medicaid claims data were incomplete. To the extent practicable, we conducted extensive quality assurance reviews to ensure the usability of Medicaid claims data. See Appendix A for additional details about our methodology for data validation.

Standards

We conducted this study in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

FINDINGS

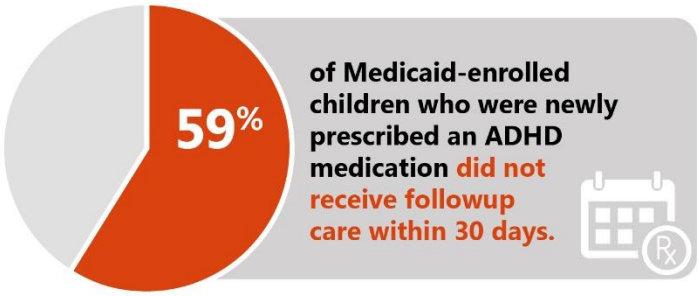
Over 500,000 Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive followup care within the timeframes outlined in HHS' national quality measures

Over 500,000 Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive followup care within the timeframes outlined in HHS' national quality measures. Professional guidelines state that children should have regular followup care to assess medication effectiveness, identify side effects, and monitor for appropriate medication use when children are newly prescribed an ADHD medication. Followup care is an important part of treatment for ADHD as the disorder can affect all aspects of a child's academic and health outcomes (e.g., increased risk of dropping out of school, substance abuse, and suicide). See Appendix B for detailed information about the rate of followup care in each State, and Appendix C for detailed information about the rate of followup care by age.

Fifty-nine percent of Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive followup care within 30 days

During our review period, 873,833 children were newly prescribed an ADHD medication, but over half did not receive followup care within 30 days. Specifically, 59 percent (516,285 children) did not receive followup care with a practitioner within 30 days as outlined in the national quality measures.

Professional guidelines indicate that followup care is critical for practitioners to determine whether medication is effective (i.e., reducing ADHD symptoms and improving the child's outcome). Followup care allows practitioners to assess children treated with ADHD medication for side effects such as changes in blood pressure and heart rate, sleep problems, tics, personality changes, irritability, and impaired growth.[38, 39] Practitioners may then adjust medication as necessary.

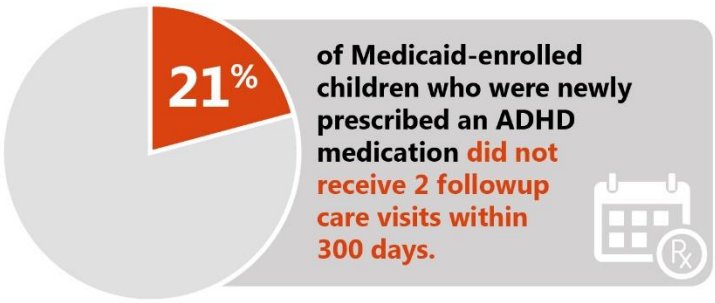


Twenty-one percent of Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive 2 followup care visits within 300 days

Almost a quarter of the 121,364 children who were subject to the 300-day analysis did not receive 2 followup care visits.[40] Specifically, 21 percent (26,081 children) who were newly prescribed an ADHD medication did not receive 2 followup care visits between days 31 and 300, as outlined in the national quality measures. Continued followup care allows practitioners to

evaluate the medication and dose to ensure that the child's needs are met, that ADHD symptoms are improved, and that side effects are managed. Further, followup care includes close monitoring for appropriate medication use.

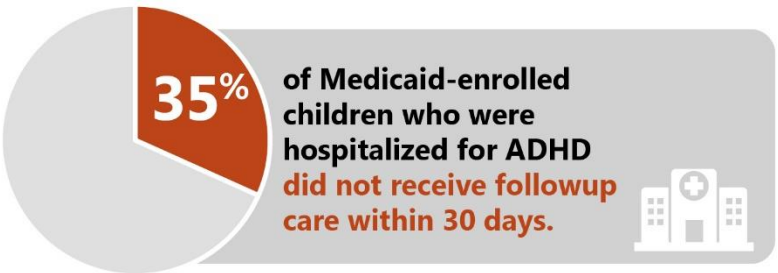
For the 300-day analysis, we reviewed those children who were newly prescribed an ADHD medication, had a Medicaid claims history long enough to analyze their followup care for 300 days, and met other criteria (e.g., continuously eligible for Medicaid, had at least 210 days of medication).[41] For more information about the different populations analyzed for different measures, see the Detailed Methodology in Appendix A.



Nine percent of Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive any followup care within 300 days. Of the 121,364 children who were newly prescribed an ADHD medication and were subject to the 300-day analysis, 9 percent (11,410) did not receive any followup care visits within 300 days.[42] Although this measure is not included as part of the Child Core Set of national quality measures, we have included it to demonstrate the number of children who continued to receive ADHD medication in the absence of any visits with a practitioner. Followup visits are critical to ensure that a practitioner conducts ongoing assessments of medication efficacy and side effects. Additionally, some of the medications prescribed for ADHD are in a drug category with significant potential for misuse, abuse and diversion (i.e., giving away, trading, or selling of prescription medication); followup allows a practitioner to screen for these concerns.[43]

Thirty-five percent of Medicaid-enrolled children who were hospitalized for ADHD did not receive followup within 30 days

More than one-third of children who were hospitalized with ADHD did not receive followup care within the timeframes outlined in the national quality measures.[44] Specifically, 35 percent (3,694) of the 10,521 children reviewed for this analysis did not receive followup care after hospitalization within 30 days. Although the Child Core Set national quality measure



does not report a separate rate of followup for each mental illness diagnosis, we analyzed the rate for ADHD admissions to demonstrate the number of children who were hospitalized for this condition and did not receive followup visits with a practitioner within 30 days. Followup care after hospitalization is essential to assess the child's response to any treatment changes made during the hospital stay and to ensure that symptoms are managed with minimal side effects. See Appendix D for detailed information about the rate of followup care in each State.

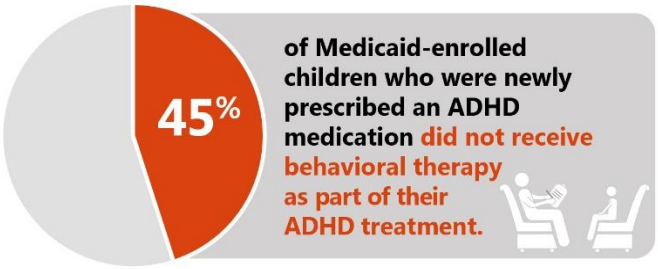
Some children with ADHD have complex care needs and other mental health conditions and may be hospitalized.[45] Timely followup after hospitalization can help a child transition back to home and school and prevent hospital readmissions.[46] See Appendix C for detailed information about the rate of followup care by age.

Additionally, we found that 60 percent (6,560) of Medicaid-enrolled children who were hospitalized for ADHD did not receive followup care within 7 days. The national quality measure reports two rates of followup care after hospitalization for mental illness (including ADHD): within 7 days, and within 30 days. The Child Core Set reporting states that followup care after these hospitalizations should ideally include a visit within 7 days. For this review, we analyzed followup care for the 10,918 children who were hospitalized with ADHD as the primary reason. The number of children subject to the 7-day analysis is slightly higher than for the 30-day analysis because the shorter review period allowed fewer opportunities for lapses in Medicaid eligibility and hospital readmissions.

Nearly half of Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive behavioral therapy

Forty-five percent (54,726) of Medicaid-enrolled children who were newly prescribed an ADHD medication did not receive behavioral therapy during the 120 days prior to, and 300 days following, the new prescription. For this analysis, we reviewed the 121,364 children who were subject to the 300-day analysis. We used this approach to allow the greatest amount of time for at least one behavioral therapy visit before, during, or after being newly prescribed an ADHD medication. See Appendix E for detailed information about the rate of behavioral therapy in each State.

Although this rate is not reported in the Child Core Set of national quality measures, it does align with professional recommendations for ADHD treatment, namely that children receive both ADHD medication and evidence-based behavioral therapy.[47, 48] Behavioral therapy could include parent training and group or individual sessions conducted over time, with activities assigned for completion between sessions.[49]



Through these activities, parents can learn skills and strategies to help their child succeed at school, at home, and in relationships. Behavioral therapy can also help improve children's behavior, self-control, self-esteem, and their ability to understand how the disorder impacts their life. See Appendix C for detailed information about the rate of followup care by age.

CONCLUSION AND RECOMMENDATIONS

Many Medicaid-enrolled children who receive treatment for ADHD are not receiving followup care within the timeframes outlined in national quality measures and professional guidelines. Specifically, OIG found that over 500,000 Medicaid-enrolled children who were newly prescribed an ADHD medication and over 3,500 children who were hospitalized for ADHD did not receive timely followup care as outlined in the national quality measures. Additionally, over 54,000 children did not receive any behavioral therapy as recommended by professional guidelines. Some children may not receive followup care or behavioral therapy for reasons such as limited access to care or because practitioners may be unaware of the professional recommendations.

CMS is engaged in ongoing efforts related to children's behavioral health needs (e.g., Child Core Set measures).[50] Consistent with these efforts, CMS should work toward improving health outcomes by developing strategies to increase the number of children who receive followup care for ADHD. We recommend that CMS accomplish this by working in three ways:

Collaborate

Collaborate with partners to develop strategies for improving rates of followup care for children treated for ADHD

CMS should work with professional organizations, States, and Federal agencies (e.g., CDC, NIMH, SAMHSA, HRSA, and ACF[51, 52]) to:

- identify barriers that may inhibit children's receipt of followup care, and
- develop strategies that States can adapt for improving followup rates and promoting positive long-term outcomes for Medicaid-enrolled children.

Assist

Provide technical assistance to States to implement strategies for improving rates of followup care for children treated for ADHD

CMS should help States implement strategies for improving rates of followup care for children treated for ADHD. This technical assistance should be accomplished through information-sharing methods such as in-person educational offerings, distance learning, or webinars.

Analyze

Analyze the effectiveness of strategies for improving rates of followup care for children treated for ADHD

CMS should establish a plan to analyze the effectiveness of these strategies for improving rates of followup care for children treated for ADHD. CMS could accomplish this by doing the following:

- establishing a mechanism to continue engaging professional organizations, States, and Federal agencies to measure outcomes of these implemented strategies; and
- analyzing current CMS data to assess whether the rates of ADHD followup care improve in States over time.

CMS should share findings from these analyses so that States may evaluate followup rates and adjust strategies as necessary.

AGENCY COMMENTS AND OIG RESPONSE

In its response to our draft report, CMS reaffirmed its commitment to providing accessible, high-quality healthcare for Medicaid-enrolled children, including those being treated for ADHD. CMS outlined some of its ongoing efforts related to children's behavioral health needs and stated that it is committed to collaborating with States to increase the number of children who receive followup care for ADHD.

CMS concurred with each of our three recommendations. Specifically, in response to our recommendation to collaborate with partners, CMS stated that it would work with various stakeholders to identify barriers to care and best practices for improving rates of followup care for children treated for ADHD.

In response to our recommendation for technical assistance to States, CMS stated that it would use information gleaned from working with stakeholders, provide technical assistance to States, and share strategies that States can implement to improve rates of followup care for children treated for ADHD.

Finally, in response to our recommendation to analyze the effectiveness of strategies, CMS stated that it will use publicly reported data to analyze whether efforts implemented by States have an impact on the rates of followup care for children treated for ADHD.

The full text of CMS's comments can be found in Appendix F.

APPENDIX A: Detailed Methodology

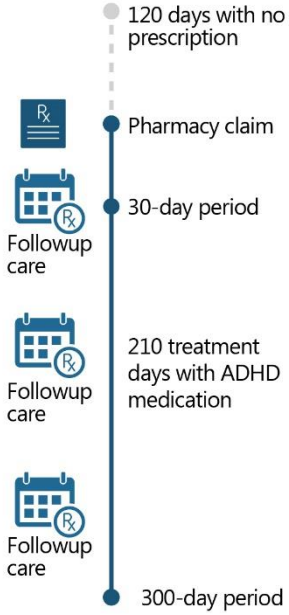
Population Selection

This study evaluates the entire population of children, aged 3–21 years, who were continuously enrolled in Medicaid, and had a claim during FYs 2014 or 2015 for either of the following: (1) a new prescription for an ADHD medication, or (2) an inpatient hospitalization with ADHD as the primary diagnosis. We used criteria from the FYs 2014 and 2015 Child Core Set technical specifications to define which medications and which hospitalizations to include in the population.

Medicaid Claims Data Analysis

We collected MSIS and MMIS claims and eligibility data for all 50 States and the District of Columbia for FYs 2014 and 2015. The data included eligibility information and all incurred claims (i.e., all claims that practitioners submitted) for children up to 21 years of age, enrolled in Medicaid, who had a prescription for an ADHD medication or an inpatient admission with ADHD as the principal diagnosis during the review period.

Exhibit 1: Followup Timeline for a Newly Prescribed ADHD Medication



Source: OIG methodology for determining followup rates, 2019.

New ADHD medication prescriptions. The FYs 2014 and 2015 Child Core Set outlines criteria for followup care after initiating and continuing ADHD medication. We used these criteria in the Child Core Set technical specifications to analyze the followup rates for children who were newly prescribed an ADHD medication during the review period. A new prescription for an ADHD medication is a pharmacy claim for an ADHD medication with no ADHD medication claims during the previous 120 days. For the followup rate within 300 days, the population includes only children who had at least 210 treatment days (i.e., calendar days covered with dispensed prescriptions) within the 300-day period following the new prescription. We reviewed incurred claims data for evidence of at least one followup visit with any practitioner within 30 days, and at least two followup visits within days 31 through 300 after the new ADHD medication prescription (see Exhibit 1). In the 300-day measure, the criteria allow one of the two visits to be a claim for a telephone visit. Finally, the criteria exclude any children who had a hospital stay with a mental illness primary diagnosis during the followup measure period because a hospital stay could impede their ability to receive outpatient care.

To respond to the congressional request, we made some revisions to the Child Core Set technical specifications. We limited followup visits to those with mental health diagnoses to avoid including visits for unrelated medical conditions (e.g., conjunctivitis, ear infections, influenza). We also limited the population of children reviewed to those who had a mental health diagnosis on at least one claim within the review period.[53] Further, we calculated a rate for children who had no followup visits within 300 days of receiving a

new ADHD medication, a rate that is not included in the Child Core Set technical specifications.

Differences in number of newly medicated children reviewed. The population for the 30-day analysis was 873,833 children; the population for the 300-day analyses was 121,364 children. There are various reasons for the difference in populations. The full review period for our claims analysis was 2 years spanning October 1, 2013, through September 30, 2015. For the 30-day analysis, we reviewed new ADHD prescriptions occurring through August 31, 2015. For the 300-day analysis, we were limited to new ADHD prescriptions occurring through December 4, 2014, to allow for 300 days of followup to occur. Therefore, the 300-day analysis allowed review of fewer children over a shorter span of time. Additionally, many children were not subject to the 300-day claims analysis because they did not receive at least 210 days of ADHD medication throughout the 300-day analysis period.[54] Further, children reviewed for followup within 30 days were excluded from the 300-day analysis if they were not continuously eligible for Medicaid, had a hospital admission, or turned 21 years of age.

Hospitalization for ADHD. The FYs 2014 and 2015 Child Core Set outlines criteria for followup after admission for mental illness, including ADHD. We used these criteria in the Child Core Set technical specifications to analyze the followup rates specifically for children who had an inpatient admission for ADHD during the review period. We identified the population of children with a claim for an inpatient admission with the principal diagnosis of ADHD. We then analyzed incurred claims data for evidence of followup with any practitioner after the hospitalization (i.e., a claim for an outpatient visit, an intensive outpatient encounter or a partial hospitalization with a mental illness diagnosis that occurred within 7 days after discharge and within 30 days after discharge). We excluded children who had any hospital readmission during the rate measure period because hospitalization could prevent an outpatient followup visit from occurring.

To respond to the congressional request, we made some revisions to the Child Core Set technical specifications. We limited followup visits to those with mental illness diagnoses to avoid including visits for unrelated medical conditions (e.g., conjunctivitis, ear infections, influenza).

Differences in number of hospitalized children reviewed. The population for the 7-day analysis was 10,918 children; the population for the 30-day analysis was 10,521 children. The differences in populations for the 7-day analysis and 30-day analysis result from excluding children if they were not continuously eligible for Medicaid, had a hospital readmission, or turned 21 years of age.

Behavioral therapy. There is no Child Core Set measure for behavioral therapy. Therefore, we developed criteria to calculate a behavioral therapy rate for the children who were prescribed a new ADHD medication (i.e., the 121,364 children included in the 300-day analysis).

We selected the same population of children from the 300-day analysis to assess whether each child received a behavioral therapy visit before or during their treatment with ADHD medication. We used this population to allow for the greatest amount of time to identify a behavioral therapy visit prior to, during, or following the new medication prescription. These children had continuous eligibility for Medicaid, no hospital admissions that would impede behavioral therapy, and at least 210 days of medication within a 300-day period prior to turning 21 years of age.

We analyzed incurred claims data for instances of behavioral therapy procedure codes that occurred within the period of 120 days before and up to 300 days after the new ADHD prescription. Because there are no specific procedure codes for evidence-based ADHD behavioral therapy, we defined behavioral therapy as those procedure codes from the technical specifications that had definitions related to psychotherapy, counseling, and behavioral health. We then searched for evidence of at least one of these visits with any practitioner. Thus, the percentage of children who received an evidence-based ADHD treatment is likely smaller than the figure we report for any behavioral therapy.

Weighted analysis. For all calculations, the unit of measure was the aggregated proportion of ADHD followup care that each child received for each study measure (i.e., newly prescribed medication, behavioral therapy, and hospitalization). Children may have had more than one new ADHD prescription event or hospitalization event during our review period. When a child had more than one event in a particular measure during the review period, we weighted the results of the child's followup visits to create an individual child statistic. The formula below demonstrates this calculation.

$$Individual\ child\ statistic = \frac{sum\ of\ events\ without\ followup\ for\ each\ child}{sum\ of\ all\ events\ for\ each\ child}$$

To determine the percentage of children who received followup care, we calculated the weighted aggregate rate for each measure and then divided the sum of all individual child statistics by the total number of children.

Data Validation

We performed extensive data validation checks due to inherent concerns with Medicaid data quality, including:

- null analysis of selected variables compared to MSIS threshold tolerances,[55]
- month-over-month and year-over-year analysis of claims volume to assess completeness,
- analysis of date variables to determine whether variables were logically ordered, and

- contact with State officials to inquire about data anomalies (e.g., nonsensical values, State-specific code definitions, and illogical claim volume).

Through this validation process, we concluded that the data were usable for the analyses conducted for this study.

Before publishing this report, we shared each State's results with their respective State Medicaid officials.

Interviews With ADHD Professionals

Interview references in this report are from conversations with practitioners from professional organizations (i.e., Society for Developmental and Behavioral Pediatrics (SDBP) and the American Professional Society of ADHD and Related Disorders (APSARD)). SDBP seeks to improve the health and well-being of children and their families by supporting interdisciplinary professionals to advance the field of developmental and behavioral pediatrics. APSARD members include multidisciplinary mental health experts working to improve the quality of care for patients with ADHD through the advancement and dissemination of research and evidence-based practices.

APPENDIX B: Medicaid-Enrolled Children Who Did Not Receive Followup Care After Being Newly Prescribed an ADHD Medication

Exhibit B-1: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015

State	Population of Medicaid-Enrolled Children Who Were Newly Prescribed an ADHD Medication	Number of Medicaid-Enrolled Children Who Did Not Receive a Followup Visit Within 30 Days After Being Newly Prescribed an ADHD Medication	Percentage of Medicaid-Enrolled Children Who Did Not Receive a Followup Visit Within 30 Days After Being Newly Prescribed an ADHD Medication
Virginia	2,401	2,034	84.7%
Delaware	4,674	3,815	81.6%
Massachusetts	10,653	8,634	81.0%
South Dakota	1,725	1,374	79.6%
Idaho	5,884	4,405	74.9%
Wisconsin	10,194	7,618	74.7%
Oklahoma	16,557	12,131	73.3%
Rhode Island	488	350	71.7%
Texas	34,567	24,657	71.3%
New York	9,804	6,658	67.9%
Florida	65,971	43,529	66.0%
North Carolina	42,398	27,563	65.0%
Alabama	26,957	17,005	63.1%
South Carolina	29,756	18,686	62.8%
North Dakota	1,637	1,016	62.1%
California	47,672	29,443	61.8%
New Jersey	16,371	10,085	61.6%
Tennessee	25,109	15,379	61.2%
Missouri	18,055	11,021	61.0%
Illinois	26,631	16,002	60.1%
Colorado	11,167	6,690	59.9%
Georgia	48,290	28,884	59.8%
Louisiana	39,094	23,322	59.7%

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Exhibit B-1: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015 (continued)

State	Population of Medicaid-Enrolled Children Who Were Newly Prescribed an ADHD Medication	Number of Medicaid-Enrolled Children Who Did Not Receive a Followup Visit Within 30 Days After Being Newly Prescribed an ADHD Medication	Percentage of Medicaid-Enrolled Children Who Did Not Receive a Followup Visit Within 30 Days After Being Newly Prescribed an ADHD Medication
West Virginia	4,547	2,693	59.2%
NATIONAL AVERAGE			**59.1%**
Hawaii	1,753	1,027	58.6%
New Hampshire	1,425	815	57.2%
Oregon	6,908	3,881	56.2%
Kentucky	23,780	13,244	55.7%
Michigan	31,121	17,307	55.6%
Indiana	34,946	19,402	55.5%
Arizona	17,851	9,841	55.1%
Mississippi	18,268	9,991	54.7%
Minnesota	15,880	8,599	54.1%
Utah	4,573	2,460	53.8%
Ohio	58,452	31,270	53.5%
Washington	19,473	10,376	53.3%
Iowa	10,547	5,547	52.6%
Maine	4,936	2,584	52.4%
Alaska	1,694	878	51.8%
Nebraska	5,918	3,066	51.8%
New Mexico	7,465	3,853	51.6%
Nevada	4,299	2,084	48.5%
Vermont	2,218	1,073	48.4%
Connecticut	11,442	5,504	48.1%
Wyoming	1,220	570	46.7%
Maryland	8,323	3,822	45.9%
Kansas	10,666	4,826	45.2%
Arkansas	24,589	10,993	44.7%
Pennsylvania	40,103	17,898	44.6%
District of Columbia	2,311	1,027	44.4%
Montana	3,070	1,353	44.1%
NATIONAL TOTAL	**873,833**	**516,285**	

Source: OIG analysis of Medicaid data, 2019.

Exhibit B-2: Medicaid-Enrolled Children Who Did Not Receive 2 Followup Care Visits Within 300 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015

State	Population of Medicaid-Enrolled Children Who Were Newly Prescribed an ADHD Medication*	Number of Medicaid-Enrolled Children Who Did Not Receive 2 Followup Visits Within 300 Days After Being Newly Prescribed an ADHD Medication	Percentage of Medicaid-Enrolled Children Who Did Not Receive 2 Followup Visits Within 300 Days After Being Newly Prescribed an ADHD Medication
Virginia	73	46	63.0%
Delaware	413	258	62.5%
Massachusetts	1,828	1,119	61.2%
Oklahoma	5,208	2,873	55.2%
Rhode Island	64	34	53.1%
South Dakota	315	159	50.5%
Wisconsin	1,895	940	49.6%
Idaho	1,026	481	46.9%
New York	1,256	554	44.1%
New Hampshire	153	40	26.1%
Florida	12,098	3,068	25.4%
Missouri	2,640	669	25.3%
North Dakota	194	47	24.2%
California	5,627	1,357	24.1%
Maryland	1,045	244	23.3%
New Jersey	1,896	435	22.9%
Texas	2,607	565	21.7%
Colorado	1,697	367	21.6%
NATIONAL AVERAGE			**21.5%**
Indiana	6,129	1,311	21.4%
Montana	556	119	21.4%
Utah	653	137	21.0%
Vermont	471	96	20.4%
Oregon	447	87	19.5%
North Carolina	4,581	889	19.4%
Michigan	4,654	889	19.1%
South Carolina	3,636	683	18.8%
Iowa	1,776	330	18.6%
Hawaii	110	20	18.2%
Nebraska	1,057	192	18.2%
Illinois	2,569	451	17.6%

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Exhibit B-2: Medicaid-Enrolled Children Who Did Not Receive 2 Followup Care Visits Within 300 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015 (continued)

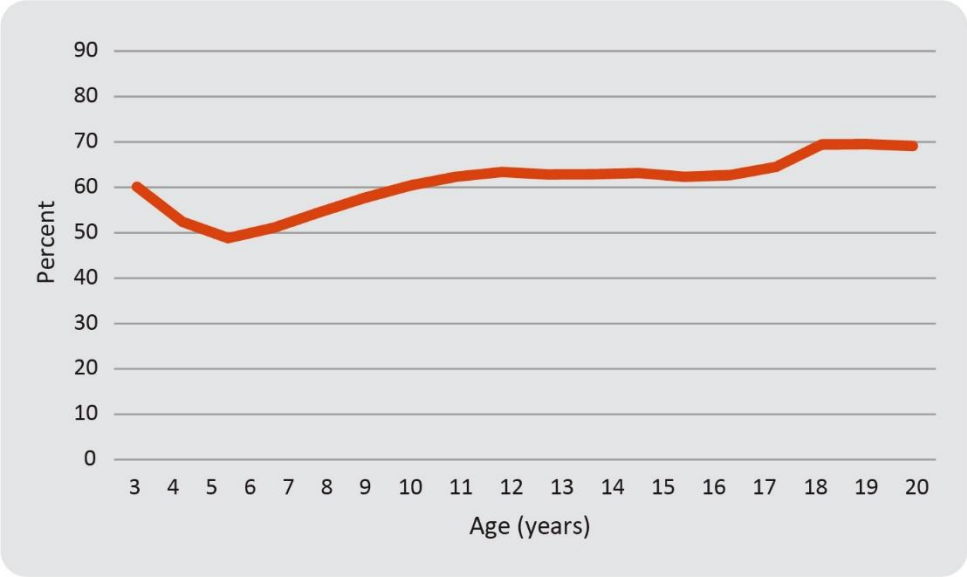
State	Population of Medicaid-Enrolled Children Who Were Newly Prescribed an ADHD Medication*	Number of Medicaid-Enrolled Children Who Did Not Receive 2 Followup Visits Within 300 Days After Being Newly Prescribed an ADHD Medication	Percentage of Medicaid-Enrolled Children Who Did Not Receive 2 Followup Visits Within 300 Days After Being Newly Prescribed an ADHD Medication
Minnesota	2,185	371	17.0%
Alaska	259	43	16.6%
Wyoming	217	36	16.6%
New Mexico	917	151	16.5%
Ohio	5,688	912	16.0%
Alabama	4,024	615	15.3%
Connecticut	1,626	245	15.1%
Washington	3,031	454	15.0%
Nevada	422	61	14.5%
Tennessee	3,993	570	14.3%
West Virginia	650	92	14.2%
Arizona	2,870	401	14.0%
Kentucky	4,553	620	13.6%
Arkansas	3,681	496	13.5%
Pennsylvania	5,991	794	13.3%
Louisiana	4,744	617	13.0%
Maine	774	100	12.9%
Georgia	4,858	584	12.0%
Mississippi	2,359	272	11.5%
Kansas	1,709	174	10.2%
District of Columbia	139	13	9.4%
NATIONAL TOTAL	**121,364**	**26,081**	

Source: OIG analysis of Medicaid data, 2019.

*Children were not reviewed for followup within days 31–300 if they were not continuously eligible for Medicaid, had a readmission, did not receive at least 210 days of medication, or turned 21 years of age.

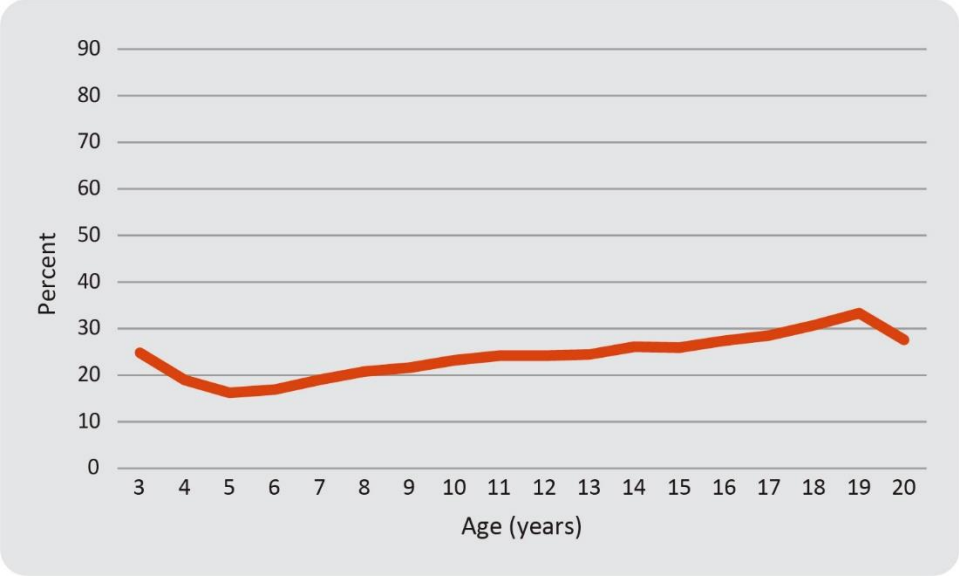
APPENDIX C: Treatment for Medicaid-Enrolled Children With ADHD by Age

Exhibit C-1: Percentage of Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015, by Age



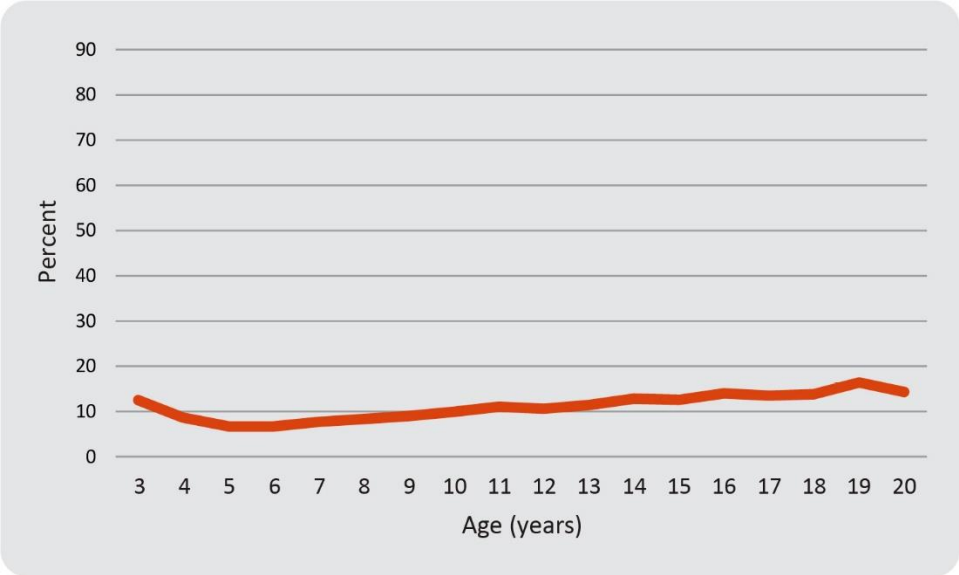
Source: OIG analysis of Medicaid data, 2019.

Exhibit C-2: Percentage of Medicaid-Enrolled Children Who Did Not Receive 2 Followup Care Visits Within 300 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015, by Age



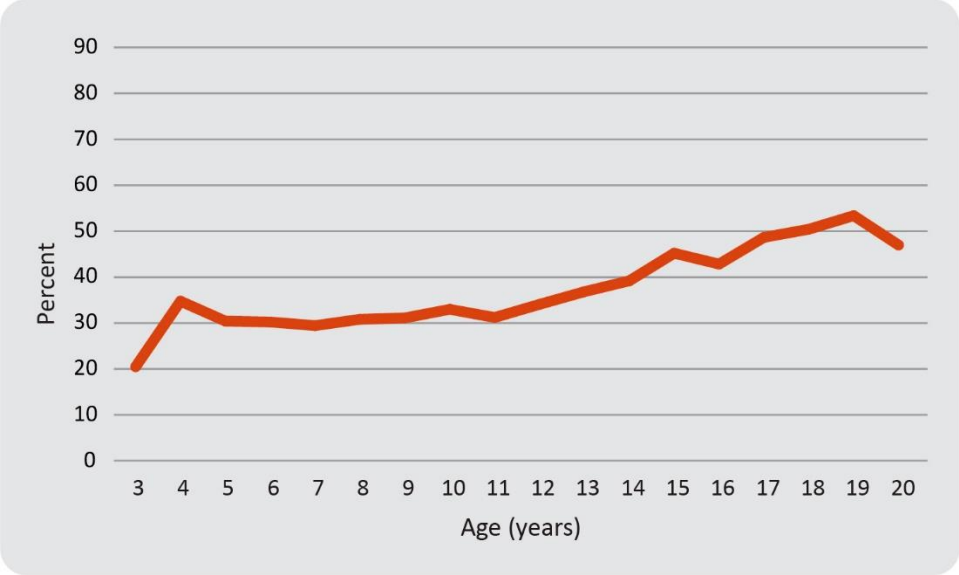
Source: OIG analysis of Medicaid data, 2019.

Exhibit C-3: Percentage of Medicaid-Enrolled Children Who Did Not Receive Any Followup Care Within 300 Days After Being Newly Prescribed an ADHD Medication, FYs 2014–2015, by Age



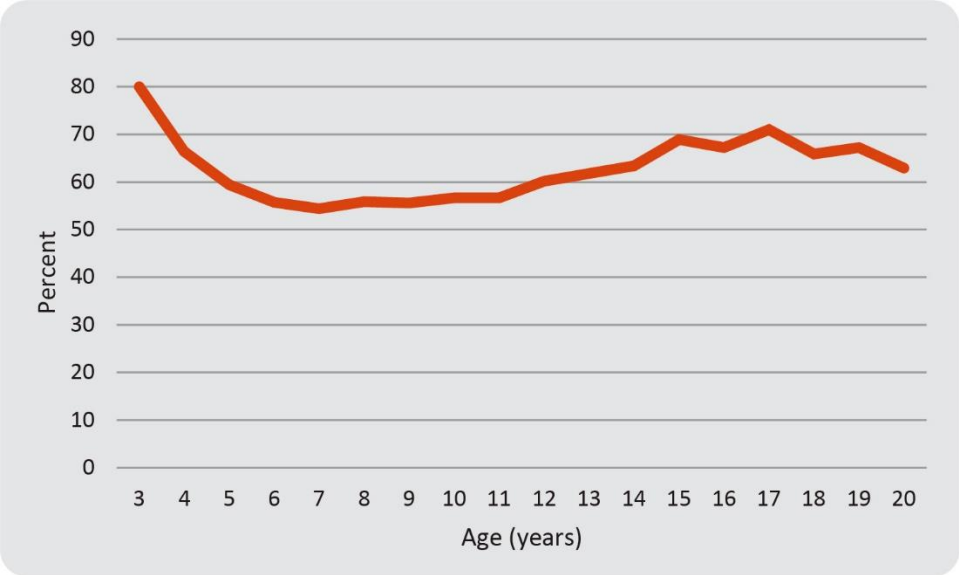
Source: OIG analysis of Medicaid data, 2019.

Exhibit C-4: Percentage of Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Hospitalization for ADHD, FYs 2014–2015, by Age



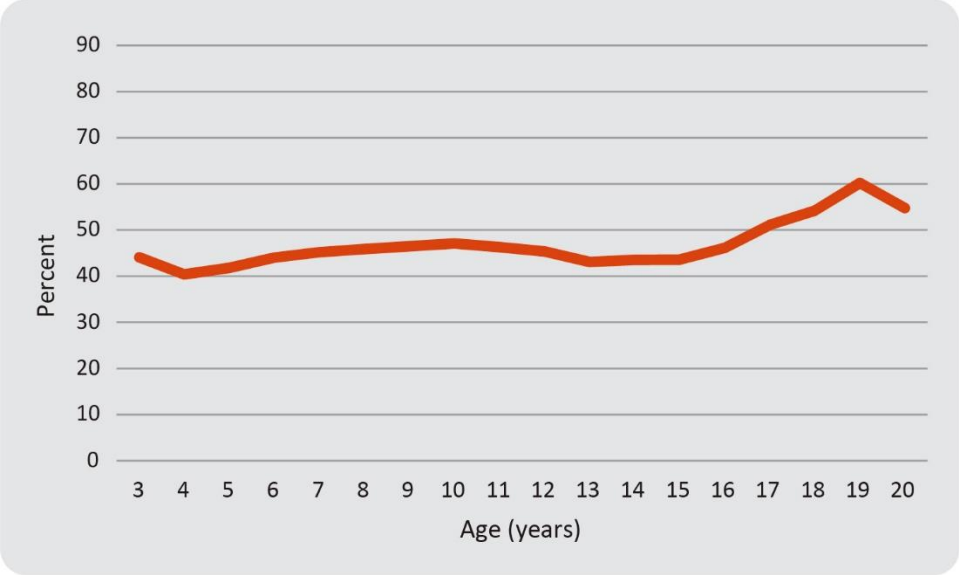
Source: OIG analysis of Medicaid data, 2019.

Exhibit C-5: Percentage of Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 7 Days After Hospitalization for ADHD, FYs 2014–2015, by Age



Source: OIG analysis of Medicaid data, 2019.

Exhibit C-6: Percentage of Medicaid-Enrolled Children Who Were Medicated for ADHD and Did Not Receive Behavioral Therapy, FYs 2014–2015, by Age



Source: OIG analysis of Medicaid data, 2019.

APPENDIX D: Medicaid-Enrolled Children Who Did Not Receive Followup Care After Hospitalization for ADHD

Exhibit D-1: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Hospitalization for ADHD, FYs 2014–2015

State	Population of Medicaid-Enrolled Children Who Were Hospitalized for ADHD*	Number of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 30 Days	Percentage of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 30 Days
Delaware**	--	--	100.0%
Rhode Island**	--	--	100.0%
Virginia	23	19	82.6%
Idaho	25	20	80.0%
Massachusetts	14	11	78.6%
South Dakota	140	103	73.6%
New York	1,101	747	67.8%
Colorado**	--	--	63.6%
Montana	19	12	63.2%
North Carolina	316	189	59.8%
Oklahoma	21	12	57.1%
Florida	1,095	531	48.5%
North Dakota**	--	--	47.1%
New Mexico	64	28	43.8%
New Hampshire**	--	--	40.0%
New Jersey	410	164	40.0%
Kentucky	176	66	37.5%
NATIONAL AVERAGE			**35.1%**
Arizona	72	25	34.7%
Maine	139	48	34.5%
Alabama	529	178	33.6%
Wyoming**	--	--	33.3%
Mississippi	611	199	32.6%
Alaska	233	76	32.6%
Georgia	53	16	30.2%
South Carolina	159	47	29.6%

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Exhibit D-1: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 30 Days After Hospitalization for ADHD, FYs 2014–2015 (continued)

State	Population of Medicaid-Enrolled Children Who Were Hospitalized for ADHD*	Number of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 30 Days	Percentage of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 30 Days
Tennessee	136	40	29.4%
Connecticut	98	28	28.6%
West Virginia	363	101	27.8%
Maryland	641	176	27.5%
Louisiana	48	13	26.5%
Arkansas	178	46	25.7%
Hawaii**	--	--	25.0%
Indiana	204	50	24.4%
Wisconsin	207	50	24.0%
Texas	280	66	23.6%
California	96	22	22.9%
Nebraska	133	30	22.6%
Nevada	126	28	22.0%
Missouri	493	108	21.9%
Minnesota	221	47	21.3%
District of Columbia	122	26	21.1%
Illinois	149	31	20.7%
Ohio**	--	--	20.0%
Pennsylvania	1,227	238	19.4%
Michigan	67	12	17.6%
Kansas	80	12	14.8%
Iowa	345	48	13.9%
Washington**	--	--	7.7%
Oregon**	--	0	0.0%
Utah**	--	0	0.0%
Vermont**	--	0	0.0%
NATIONAL TOTAL	**10,521**	**3,694**	

Source: OIG analysis of Medicaid data, 2019.

*Children were not reviewed for followup 30 days after hospitalization for ADHD if they were not continuously eligible for Medicaid, had a readmission, or turned 21 years of age.

**To protect privacy, values of 1 to 10 are not reported. Additionally, values that allow a value of 1 to 10 to be derived are also not reported.

Exhibit D-2: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 7 Days After Hospitalization for ADHD, FYs 2014–2015

State	Population of Medicaid-Enrolled Children Who Were Hospitalized for ADHD	Number of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 7 Days	Percentage of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 7 Days
Delaware**	--	--	100.0%
Rhode Island**	--	--	100.0%
South Dakota	145	129	88.4%
Virginia	23	20	87.0%
Oklahoma	22	19	86.4%
Montana	20	17	85.0%
North Carolina	330	274	83.0%
New York	1,149	944	82.2%
Colorado**	--	--	81.8%
New Mexico	69	56	81.2%
Idaho	25	20	80.0%
Massachusetts	14	11	78.6%
Wyoming	14	11	78.6%
Florida	1,151	827	71.9%
New Jersey	436	294	67.4%
Mississippi	630	423	67.1%
West Virginia	377	252	66.8%
Hawaii**	--	--	66.7%
Alabama	542	348	64.2%
Kentucky	182	115	63.2%
North Dakota	19	12	63.2%
New Hampshire**	--	--	60.0%
NATIONAL AVERAGE			**60.0%**
Texas	289	173	59.9%
Maine	141	84	59.6%
Arkansas	186	110	58.8%
Alaska	242	141	58.3%
Illinois	158	90	57.0%
Ohio**	--	--	56.3%
South Carolina	164	90	54.9%
Maryland	659	359	54.5%
Tennessee	140	76	54.3%

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Exhibit D-2: Medicaid-Enrolled Children Who Did Not Receive Followup Care Within 7 Days After Hospitalization for ADHD, FYs 2014–2015 (continued)

State	Population of Medicaid-Enrolled Children Who Were Hospitalized for ADHD	Number of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 7 Days	Percentage of Medicaid-Enrolled Children Who Were Hospitalized for ADHD Who Did Not Receive a Followup Visit Within 7 Days
Connecticut	103	54	51.9%
Nevada	131	64	48.5%
Indiana	213	103	48.4%
Georgia	56	27	48.2%
Arizona	79	38	48.1%
Wisconsin	222	107	48.0%
Missouri	520	244	46.9%
Minnesota	223	103	46.2%
Nebraska	135	61	45.2%
Pennsylvania	1,252	544	43.5%
Kansas	87	38	43.2%
Louisiana	49	21	42.0%
District of Columbia	123	52	41.9%
Michigan	69	26	37.7%
California	98	36	36.4%
Oregon**	--	--	30.8%
Washington**	--	--	30.8%
Iowa	351	107	30.5%
Utah**	--	0	0%
Vermont**	--	0	0%
NATIONAL TOTAL	**10,918**	**6,560**	

Source: OIG analysis of Medicaid data, 2019.

**To protect privacy, values of 1 to 10 are not reported. Additionally, values that allow a value of 1 to 10 to be derived are also not reported.

APPENDIX E: Medicaid-Enrolled Children Who Were Medicated for ADHD and Did Not Receive Behavioral Therapy

Exhibit E-1: Medicaid-Enrolled Children Who Were Medicated for ADHD and Did Not Receive Behavioral Therapy, FYs 2014–2015

State	Population of Medicaid-Enrolled Children Who Were Medicated for ADHD*	Number of Medicaid-Enrolled Children Who Were Medicated for ADHD Who Did Not Receive Behavioral Therapy	Percentage of Medicaid-Enrolled Children Who Were Medicated for ADHD Who Did Not Receive Behavioral Therapy
Massachusetts	1,828	1,642	89.8%
Idaho	1,026	804	78.4%
Virginia	73	53	72.6%
South Dakota	315	216	68.6%
Florida	12,098	7,755	64.1%
South Carolina	3,636	2,149	59.1%
North Carolina	4,581	2,658	58.0%
New York	1,256	709	56.4%
Wisconsin	1,895	1,053	55.6%
Louisiana	4,744	2,583	54.4%
North Dakota	194	102	52.6%
Texas	2,607	1,306	50.1%
Washington	3,031	1,463	48.3%
Missouri	2,640	1,264	47.9%
New Jersey	1,896	905	47.7%
Alabama	4,024	1,833	45.6%
Delaware	413	187	45.3%
NATIONAL AVERAGE			45.1%
Tennessee	3,993	1,789	44.8%
Utah	653	292	44.7%
Oklahoma	5,208	2,324	44.6%
Colorado	1,697	752	44.3%
Indiana	6,129	2,673	43.6%
Illinois	2,569	1,117	43.5%

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Exhibit E-1: Medicaid-Enrolled Children Who Were Medicated for ADHD and Did Not Receive Behavioral Therapy, FYs 2014–2015 (continued)

State	Population of Medicaid-Enrolled Children Who Were Medicated for ADHD*	Number of Medicaid-Enrolled Children Who Were Medicated for ADHD Who Did Not Receive Behavioral Therapy	Percentage of Medicaid-Enrolled Children Who Were Medicated for ADHD Who Did Not Receive Behavioral Therapy
Michigan	4,654	1,962	42.1%
Georgia	4,858	2,039	42.0%
Kentucky	4,553	1,897	41.7%
California	5,627	2,329	41.4%
Oregon	447	183	40.8%
Rhode Island	64	26	40.6%
New Hampshire	153	62	40.5%
West Virginia	650	261	40.2%
Alaska	259	100	38.6%
Ohio	5,688	2,173	38.2%
Maine	774	287	37.1%
Nevada	422	149	35.3%
Mississippi	2,359	815	34.5%
Hawaii	110	36	32.7%
Connecticut	1,626	529	32.5%
Wyoming	217	69	31.8%
Arkansas	3,681	1,136	30.9%
Minnesota	2,185	674	30.8%
Iowa	1,776	530	29.8%
Montana	556	158	28.4%
Vermont	471	131	27.8%
Nebraska	1,057	293	27.7%
New Mexico	917	254	27.7%
Pennsylvania	5,991	1,626	27.1%
Kansas	1,709	438	25.6%
Maryland	1,045	251	24.0%
District of Columbia	139	32	23.0%
Arizona	2,870	657	22.9%
NATIONAL TOTAL	**121,364**	**54,726**	

Source: OIG analysis of Medicaid data, 2019.

*Children were not reviewed for behavioral therapy if they were not continuously eligible for Medicaid, had a readmission, did not receive at least 210 days of medication, or turned 21 years of age.

APPENDIX F: Agency Comments

DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

Administrator
Washington, DC 20201

DATE: JUL 15 2019

TO: Joanne Chiedi
Acting Inspector General
Office of Inspector General

FROM: Seema Verma
Administrator
Centers for Medicare and Medicaid Services

SUBJECT: Office of Inspector General (OIG) Draft Report: Many Medicaid-Enrolled Children Treated for ADHD Did Not Receive Recommended Followup Care (OEI-07-17-00170)

The Centers for Medicare & Medicaid Services (CMS) appreciates the opportunity to review and comment on the Office of Inspector General's (OIG) draft report. CMS is committed to providing accessible, high quality health care for Medicaid and Children's Health Insurance Program (CHIP) enrollees, including enrolled children being treated for attention-deficit/hyperactivity disorder (ADHD).

Medicaid is the single largest payer for mental health services in the United States, and CMS is engaged in ongoing efforts related to children's behavioral health needs, including using the Medicaid and CHIP Child Core Set for quality improvement work with states. The Child Core Set allows CMS to evaluate states' performance using a wide array of evidence-based quality metrics which are reviewed annually through a rigorous stakeholder engagement process to ensure that they are current and meaningful for the Medicaid and CHIP beneficiary populations. As part of a behavioral health subset of measures, the Child Core Set has included a measure on follow-up care for children prescribed ADHD medication. By including this measure in the carefully selected Child Core Set of 26 measures, CMS is recognizing and highlighting the importance of quality care for children treated for ADHD. While it is currently voluntary for states to submit the Child Core Set data to CMS, 37 states reported on this measure in FY 2017. The Bipartisan Act of 2018 mandates that all states will be required to submit data to CMS for the complete Child Core Set beginning in 2024.

It is important to note that the Child Core Set measures are not meant to set clinical guidelines. Rather, the data collected from these measures helps CMS better understand the quality of health care children receive through Medicaid and CHIP programs. In the case of children receiving follow-up care when prescribed ADHD medication, we note that, since 2014, children covered by Medicaid have had a higher rate of follow-up treatment than privately insured children, both for follow-up care after initiation of treatment and for follow-up during continuation of care.[1] CMS publishes annually Child Core Set measures that are reported by at least 25 states. In addition, CMS communicates regularly with states regarding their performance on the measures

[1] https://www.ncqa.org/hedis/measures/follow-up-care-for-children-prescribed-adhd-medication/

to encourage transparency and offer technical assistance. For example, in late 2018, CMS sent each state an individualized trend snapshot which includes the state's performance on publicly reported Child Core Set measures through FY 2017. This included information about a state's performance on each measure relative to other states' performance, and highlighted significant changes in a state's performance for each measure. This tool was designed to enable states to easily identify how their performance compares to their state peers and whether their performance has trended in a positive direction. CMS believes the trend snapshots will spur quality improvement efforts. CMS also analyzes this data to identify states that are outperforming their peers in order to glean information and disseminate the lessons they learned and share best practices with other states. While CMS does not currently have the statutory authority to mandate the clinical areas to which states must direct resources or quality improvement efforts, we are able to offer meaningful technical assistance to states who are addressing quality improvement for the care of their beneficiaries.

CMS is committed to collaborating with states to improve health outcomes to increase the number of children who receive follow-up care for ADHD.

OIG's recommendations and CMS' responses are below.

OIG Recommendation
CMS should collaborate with partners to develop strategies for improving rates of follow-up care for children treated for ADHD.

CMS Response
CMS concurs with this recommendation. CMS will work with various stakeholders to identify both barriers to care and best practices for improving rates of follow-up care for children treated for ADHD.

OIG Recommendation
CMS should provide technical assistance to States to implement strategies for improving rates of follow-up care for children treated for ADHD.

CMS Response
CMS concurs with this recommendation. Using information gleaned from working with stakeholders, CMS will provide technical assistance to states and will share strategies that states can implement to improve rates of follow-up care for children treated for ADHD.

OIG Recommendation
CMS should analyze the effectiveness of strategies for improving rates of follow-up care for children treated for ADHD.

CMS Response
CMS concurs with this recommendation. CMS will use state trends from the publicly reported Child Core Set measures to analyze if efforts implemented by states have an impact on the rates of follow-up care for children treated for ADHD.

ACKNOWLEDGMENTS

Jamila Murga served as the team leader for this study, and Abbi Warmker served as lead analyst. Others in the Office of Evaluation and Inspections who conducted the study include Katharine Fry, Anna Pechenina, Dana Squires, and Andrea Staples. Office of Evaluation and Inspections central office staff who provided support include Clarence Arnold, Eddie Baker, Jr., and Kevin Manley. Other Office of Inspector General staff who provided support include Erin Fratangelo, Scott Frederixon, Gus George, Logan Kingma, Art Livingston, Ann Lowe, Conswelia McCourt, Jim Rodgers, Jessica Swanstrom, and Michael Willey.

This report was prepared under the direction of Brian T. Whitley, Regional Inspector General for Evaluation and Inspections in the Kansas City regional office, and Jennifer E. King, Deputy Regional Inspector General.

To obtain additional information concerning this report or to obtain copies, contact the Office of Public Affairs at Public.Affairs@oig.hhs.gov.

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ENDNOTES

[1] CMS, "FY 2017 Children's Enrollment Report." Accessed at https://www.medicaid.gov/chip/downloads/fy-2017-childrens-enrollment-report.pdf on December 26, 2018.
[2] Danielson, et al., "Prevalence of Parent-Reported ADHD Diagnosis and Associated Treatment Among U.S. Children and Adolescents, 2016." *Journal of Clinical Child and Adolescent Psychology,* pp. 1–14.
[3] American Academy of Pediatrics (AAP), "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 17, 2016.
[4] Visser, et al., "Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years—United States, 2008–2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 17, May 2016. Accessed at https://www.cdc.gov/mmwr/volumes/65/wr/mm6517e1.htm on December 16, 2016.
[5] Untreated adolescents with ADHD have higher rates of risky sexual behaviors, suicidal thoughts in college, incarcerations, automobile accidents, and medical burdens. Brahmbhatt, et al., "Diagnosis and Treatment of ADHD during Adolescence in the Primary Care Setting: Review and Future Directions," Journal of Adolescent Health, Vol. 59, No. 2, August 2016. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5576000/ on May 14, 2019.
[6] Centers for Disease Control and Prevention (CDC) "Attention-Deficit/Hyperactivity Disorder and Psychiatric Comorbidity: Functional Outcomes in a School-Based Sample of Children." Accessed at https://www.cdc.gov/ncbddd/adhd/features/adhd-keyfindings-psychiatric-comorbidity-school-children.html on May 6, 2019.
[7] Visser, et al., "Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years—United States, 2008–2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 17, May 2016. Accessed at https://www.cdc.gov/mmwr/volumes/65/wr/mm6517e1.htm on December 16, 2016.
[8] Fletcher, et al., "Long-term Consequences of Childhood ADHD on Criminal Activities," *Journal of Mental Health Policy Economics*, Vol 12, No. 3, September 2009, pp. 119–138. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3398051/pdf/nihms386784.pdf on April 15, 2019.
[9] Doshi, et al., "Economic Impact of Childhood and Adult Attention-Deficit/Hyperactivity Disorder in the United States," *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 51, No. 10, pp. 990–1002, October 2012.
[10] AAP, "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 17, 2016.
[11] Centers for Disease Control and Prevention (CDC), "Behavior therapy for young children with ADHD." Accessed at https://www.cdc.gov/ncbddd/adhd/behavior-therapy.html on November 16, 2018.
[12] AACAP, "Practice Parameter for the Assessment and Treatment of Children and Adolescents With Attention-Deficit/Hyperactivity Disorder," *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 46, No. 7, July 2007. Accessed at https://www.aacap.org/App_Themes/AACAP/docs/practice_parameters/jaacap_adhd_2007.pdf on January 10, 2018.
[13] Ibid.
[14] AAP, "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 7, 2016.
[15] Although ADHD is not typically the primary reason for inpatient admissions, the disorder is often listed as one of the health conditions treated during children's hospital stays. For hospitalizations with any mental health diagnosis in children ages 3-20 years, ADHD was one of the most commonly listed health conditions treated during the hospitalization. Specifically, ADHD was one of the diagnoses in 19 percent of hospitalizations in general hospitals (i.e., those that serve adults and children) and 23 percent of hospitalizations in children's hospitals (i.e., those that serve children only). This finding suggests that ADHD may contribute to factors (e.g., accidents, medical nonadherence) that lead to hospitalization. Bardach, et al., "Common and Costly Hospitalizations for Pediatric Mental Health Disorders," *Pediatrics*, Vol. 133, No. 4, April 2014. Accessed at http://pediatrics.aappublications.org/content/early/2014/03/11/peds.2013-3165 on December 16, 2016.
[16] The Child Core Set was developed as a requirement of Section 401 of the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA), P.L. No. 111-3 (Feb. 4, 2009). Accessed at https://www.gpo.gov/fdsys/pkg/PLAW-111publ3/pdf/PLAW-111publ3.pdf on November 22, 2016.
[17] The first measure includes the percentage of children who were newly prescribed an ADHD medication who had at least two followup visits within a 10-month period. Two rates are reported: (1) the percentage of children who had one followup visit with a

practitioner within 30 days; (2) the percentage of children who had at least two followup visits within 300 days. The second measure includes the percentage of discharges for children 6 years of age and older who were hospitalized for treatment of selected mental health disorders and who had an outpatient visit, an intensive outpatient encounter, or partial hospitalization with a mental health practitioner. The Child Core Set measure reports the followup after hospitalization rate for all mental illness diagnoses in aggregate. ADHD is one of the diagnoses included in the hospitalization measure. The followup timeframes outlined in this measure were not developed specifically for ADHD hospitalizations, but rather for any hospitalization for the broad range of mental illnesses. Two rates are reported: (1) the percentage of children who received followup within 7 days of discharge; (2) the percentage of children who received followup within 30 days of discharge. CMS, 2015 Annual Report on the Quality of Care for Children in Medicaid and CHIP, Chart Pack (August 2016), pp. 49-55. Accessed at https://www.medicaid.gov/medicaid/quality-of-care/downloads/2015-child-chart-pack.pdf on November 29, 2016.

[18] The Child Core Set measure establishes an ADHD medication list which includes all drugs indicated for ADHD; it is possible children were prescribed these medications for other indications. We used the list exactly as defined in the Child Core Set measure to identify the population of children who were newly prescribed an ADHD medication.

[19] There are several limitations to voluntary data reporting. States may not always adhere to technical specifications when reporting, or include different populations in the measures (i.e., Medicaid versus CHIP). Additionally, not all States submit data because reporting is voluntary. The Department of Health and Human Services (HHS), *2015 Annual Report on the Quality of Care for Children in Medicaid and CHIP*. Accessed at https://www.medicaid.gov/medicaid/quality-of-care/downloads/2015-child-sec-rept.pdf on November 11, 2016.

[20] Recent legislation will require States' mandatory reporting beginning fiscal year 2024. P.L. 115-123 § 50102. Accessed at https://www.congress.gov/bill/115th-congress/house-bill/1892/text on December 18, 2018.

[21] CDC has identified treatment of ADHD in young children as a public health priority that has the potential for large-scale, positive impact in a relatively short amount of time. Therefore, the agency has applied their Winnable Battles approach to this high-priority area, using known effective strategies to address it. CDC uses the Winnable Battles approach for certain public health challenges to identify priority strategies, define clear targets, and work closely with public health partners, to make significant progress in reducing the health burden from diseases and conditions. The Winnable Battles approach enabled the treatment of ADHD program in CDC's National Center on Birth Defects and Developmental Disabilities to garner agency-wide leadership support and collaboration to refine and advance its work on this initiative to promote impact. Accessed at https://www.cdc.gov/winnablebattles/report/docs/winnable-battles-final-report.pdf on March 11, 2019.

[22] NIMH has collected data on the prevalence and distribution of ADHD to establish resource allocation priorities for prevention, treatment and research. Merikangas, et al. "Lifetime Prevalence of Mental Disorders in US Adolescents: Results from the National Comorbidity Study-Adolescent Supplement (NCS-A)," *Journal of American Academy of Child Adolescent Psychiatry*. Vol 49, No 10, October 2010. Accessed at https://www.ncbi.nlm.nih.gov/pubmed/20855043 on January 24, 2019.

[23] HHS Health Resources and Services Administration, *National Projections of Supply and Demand for Selected Behavioral Health Practitioners: 2013-2025*. Accessed at https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-analysis/research/projections/behavioral-health2013-2025.pdf on September 19, 2018.

[24] In 2012, there were approximately 8,300 practicing child and adolescent psychiatrists in the country. Children in rural areas and areas of low socioeconomic status had significantly reduced access. The national child and adolescent psychiatrist to per youth was 12.9 to 100,000. AACAP, *Child and Adolescent Psychiatry Workforce Crisis: Solutions To Improve Early Intervention and Access to Care*. Accessed at https://www.aacap.org/App_Themes/AACAP/docs/resources_for_primary_care/workforce_issues/workforce_brochure_2013.pdf on January 23, 2018.

[25] Reimbursement for practitioners who provide recommended ADHD care may not be proportionate to their services since this condition requires more time than other conditions they typically address. For example, recommended ADHD care requires that practitioners spend more time with patients and families, developing contacts with school personnel, and providing continuous, coordinated care than for other conditions. AAP, "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 7, 2016.

[26] An AAP survey assessed pediatricians' perception of availability of mental health services in the community, the extent of their mental health education and their interest in future education in this area. When asked to name barriers to treatment or referral of mental health problems for children, pediatricians listed the following: lack of training in mental health treatment (70 percent), lack of competence in ability to diagnose mental health problems (65 percent), lack of confidence in ability to treat mental health problems with medication (64 percent), lack of time to treat mental health problems (80 percent), long waiting periods for referred mental health providers (79 percent), inadequate reimbursement for treatment (54 percent), unfamiliarity with procedure codes that reimburse for treatment (49 percent). AAP, *Periodic Survey #59 Identification, Management, and Referral for Patient Mental Health Problems and Maternal Depression*. Accessed at https://www.aap.org/en-us/professional-

resources/Research/Pages/PS59_Executive_Summary_IdentificationManagementandReferralforPatientMentalHealthProblems.aspx on March 11, 2019.

[27] Visser, et al., "Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years—United States, 2008–2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 17, May 2016. Accessed at https://www.cdc.gov/mmwr/volumes/65/wr/mm6517e1.htm on December 16, 2016.

[28] Research has identified inconsistencies in pediatricians' ADHD care practices when compared to professional guidelines. Specifically, a 2014 study that conducted chart review of a random sample of 1,594 medical records across 188 pediatricians at 50 different practices found approximately 90 percent of pediatricians did not use parent and teacher rating scales to monitor treatment response and side effects despite AAP consensus recommendations to do so. Additionally, the study found that only half of children evaluated for ADHD received an evidence-based assessment and diagnosis. Epstein, et al., "Variability in ADHD Care in Community-Based Pediatrics," *Pediatrics*. Vol. 134, No. 6, September 2014. Accessed at www.pediatrics.org/cgi/doi/10.1542/peds.2014-1500 on January 8, 2018.

[29] Visser, et al., "Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years—United States, 2008–2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 17, May 2016. Accessed at https://www.cdc.gov/mmwr/volumes/65/wr/mm6517e1.htm on December 16, 2016.

[30] AAP, "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 7, 2016.

[31] OIG, *Second-Generation Antipsychotic Drug Use Among Medicaid-Enrolled Children: Quality-of-Care Concerns*, OEI-07-12-00320, March 2015. Accessed at https://oig.hhs.gov/oei/reports/oei-07-12-00320.asp on March 26, 2019.

[32] The sample was selected using Medicaid-paid claims for SGAs including aripiprazole, clozapine, lurasidone, iloperidone, asenapine, olanzapine, paliperidone, quetiapine fumarate, risperidone, and ziprasidone. None of these were considered an ADHD medication in the current study.

[33] OIG, *Treatment Planning and Medication Monitoring Were Lacking for Children in Foster Care Receiving Psychotropic Medication*, OEI-07-15-00380, September 2018. Accessed at https://oig.hhs.gov/oei/reports/oei-07-15-00380.asp on March 11, 2019.

[34] MSIS is the system in which CMS collects all Medicaid claims and related data from all States.

[35] MMIS are the State-specific systems to collect and process Medicaid claims. MMIS data systems are not validated by CMS. See the Detailed Methodology for more information on our process for validating these data.

[36] We analyzed children hospitalized with a primary diagnosis of ADHD. These children may have had additional diagnoses that contributed to their need for hospitalization.

[37] Additionally, Medicaid reimbursement policy differs among States. It is possible that guidelines on criteria for admission and for hospital services may have varied. These variations may have impacted the claims that were used to identify the population and determine followup rates.

[38] Visser, et al., "Vital Signs: National and State-Specific Patterns of Attention Deficit/Hyperactivity Disorder Treatment Among Insured Children Aged 2–5 Years—United States, 2008-2014," *Morbidity and Mortality Weekly Report*, Vol. 65, No. 17, May 2016. Accessed at https://www.cdc.gov/mmwr/volumes/65/wr/mm6517e1.htm on December 16, 2016.

[39] AACAP, "Practice Parameter for the Assessment and Treatment of Children and Adolescents With Attention Deficit/Hyperactivity Disorder," *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 46, No. 7, July 2007. Accessed at https://www.aacap.org/App_Themes/AACAP/docs/practice_parameters/jaacap_adhd_2007.pdf on January 10, 2018.

[40] Children were not reviewed for followup within days 31–300 if they were not continuously eligible for Medicaid, had a readmission, did not receive at least 210 days of medication, or turned 21 years of age. Therefore, the population of the 300-day analysis differs from the population of the 30-day analysis.

[41] Research shows that Medicaid-enrolled children often discontinue ADHD medication treatment over time. Charach and Fernandez, "Enhancing ADHD Medication Adherence: Challenges and Opportunities." *Current Psychiatry Reports*. 2013; 15(7): 371. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3718998/ on March 1, 2019.

[42] Children were not reviewed for followup within 300 days if they were not continuously eligible for Medicaid, had a readmission, did not receive at least 210 days of medication, or turned 21 years of age. Therefore, the population of this analysis differs from the population of the 30-day analysis.

[43] Harstad, et al., "ADHD: Attention-Deficit/Hyperactivity Disorder and Substance Abuse," *Pediatrics*, Vol. 134, No. 1, July 2014. Accessed at http://pediatrics.aappublications.org/content/pediatrics/134/1/e293.full.pdf on March 11, 2019.

[44] Children were not reviewed for followup within 30 days if they were not continuously eligible for Medicaid, had a readmission, or turned 21 years of age. Therefore, the population of the 30-day analysis differs from the population of the 7-day analysis.

[45] Bardach, et al., "Common and Costly Hospitalizations for Pediatric Mental Health Disorders," *Pediatrics*, Vol. 133, No. 4, April 2014. Accessed at http://pediatrics.aappublications.org/content/early/2014/03/11/peds.2013-3165 on December 16, 2016.

[46] HHS, *2015 Annual Report on the Quality of Care for Children in Medicaid and CHIP*. Accessed at https://www.medicaid.gov/medicaid/quality-of-care/downloads/2015-child-sec-rept.pdf on November 29, 2016.

[47] AAP, "ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents," *Pediatrics*, Vol. 128, No. 5, November 2011. Accessed at http://pediatrics.aappublications.org/content/early/2011/10/14/peds.2011-2654 on November 7, 2016.
[48] Centers for Disease Control and Prevention (CDC), "Behavior therapy for young children with ADHD." Accessed at https://www.cdc.gov/ncbddd/adhd/behavior-therapy.html on November 16, 2018.
[49] CDC, "Behavior therapy for young children with ADHD." Accessed at https://www.cdc.gov/ncbddd/adhd/behavior-therapy.html on November 16, 2018.
[50] CMS has collaborated with multiple divisions within HHS, including ACF, FDA, and SAMHSA, on behavioral health issues. For example, these agencies work together to strengthen oversight and monitoring of psychotropic medications for Medicaid-enrolled children. Accessed at https://www.medicaid.gov/Federal-Policy-Guidance/Downloads/SMD-13-07-11.pdf on April 24, 2016.
[51] ACF is responsible for the oversight of child welfare programs, including foster care.
[52] Researchers examined Medicaid outpatient and prescription drug claims from 2011 from multiple states and found that more than 1 in 4 children between the ages of 2 and 17 years who were in foster care had received an ADHD diagnosis. Additionally, children with ADHD who were in foster care were also more likely to have another mental health disorder simultaneously (e.g., oppositional defiant disorder, depression, or anxiety). These findings show a substantial need for medical and behavioral services within this group. Abstract presentation of "The Diagnosis and Treatment of ADHD among Children in Foster Care Using Medicaid Claims Data," by Melissa Danielson, CDC statistician, at the American Academy of Pediatrics Experience conference, October 26, 2015. Accessed at https://aap.confex.com/aap/2015/webprogram/Paper30570.html on March 11, 2019.
[53] Some ADHD medications can also be used to treat medical conditions (e.g., hypertension and narcolepsy). To exclude those children who were prescribed ADHD medications for a medical condition, we excluded from our analysis children who did not have at least one claim with a mental illness diagnosis and children under 3 years of age.
[54] This decrease is consistent with research that shows Medicaid-enrolled children often discontinue ADHD medication treatment over time. Some reasons for discontinuation can include side effects, ineffective medication or dosage, and lack of social supports. Charach and Fernandez, "Enhancing ADHD Medication Adherence: Challenges and Opportunities," *Current Psychiatry Reports*, 2013; 15(7): 371. Accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3718998/ on March 1, 2019.
[55] MSIS threshold error tolerances allow between 0.1 and 5.0 percent missing, unknown, or invalid codes for the variables used in this analysis. CMS, *MSIS File Specifications and Data Dictionary,* 2012. Accessed at https://www.cms.gov/Research-Statistics-Data-and-Systems/Computer-Data-and-Systems/MedicaidDataSourcesGenInfo/Downloads/MSIS-Data-Dictionary-2012.pdf on February 5, 2018.