Overview of the attention deficit and hyperactivity disorder episode of care

State of Ohio

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Overview of the attention deficit and hyperactivity disorder episode of care

1. CLINICAL REVIEW AND RATIONALE FOR DEVELOPMENT OF THE ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD) EPISODE

1.1 Rationale for development of the ADHD episode of care

Attention deficit and hyperactivity disorder (hereinafter referred to as ADHD) is the most common neurobehavioral disorder, characterized by pervasive inattention and hyperactivity-impulsivity that often results in substantial functional impairment.[1] In a recent study, ADHD prevalence in children aged 18 and under was estimated to be 7% globally.[2] In the US, recent surveys show that approximately 11% of children aged 4-17 have been diagnosed with ADHD as of 2011.[3]

In the state of Ohio, the percentage of children aged 4-17 who were ever diagnosed with ADHD increased from 8.9% in 2003, to 14.2% in 2011.[4] Between October 2014 and September 2015 there were over 70,000 ADHD episodes among Medicaid beneficiaries aged 4-20. These episodes represented over $130 million in spend.[5] A study reported that children and adolescents with ADHD cost between $38 billion and $72 billion each year in the US.[6] Significant financial burden to families with ADHD was reported where in one study, it was found that 26% of families of children with ADHD reported financial problems because of the child's ADHD.[7]

1 Mental Health in the United States: Prevalence of Diagnosis and Medication Treatment for Attention-Deficit/Hyperactivity Disorder—United States, 2003. (2005). JAMA, 294(18), 2293.

2 Thomas, R. (2015). Prevalence of Attention-Deficit/Hyperactivity Disorder: A Systematic Review and Meta-analysis. Pediatrics, 135(4).

3 Data & Statistics. (2016). Retrieved November 22, 2016, from http://www.cdc.gov/ncbddd/adhd/data.html

4 State-based Prevalence Data of Parent Reported ADHD Diagnosis by a Health Care Provider. (2016). Retrieved December 05, 2016, from http://www.cdc.gov/ncbddd/adhd/prevalence.html

5 Ohio Medicaid claims data for episodes ending between October 1, 2014 and September 30, 2015

6 Doshi, J. A. (2012). Economic Impact of Childhood and Adult Attention-Deficit/Hyperactivity Disorder in the United States. Journal of the American Academy of Child & Adolescent Psychiatry, 51(10).

7 Ronis, S. D. (2015). Patient-Centered Medical Home and Family Burden in Attention-Deficit Hyperactivity Disorder. Journal of Developmental & Behavioral Pediatrics, 36(6), 417-425.

Evidence-based clinical guidelines from the American Academy of Pediatrics outline several best practices for clinicians to improve quality of care and outcomes for patients with ADHD. To make a diagnosis of ADHD, these guidelines strongly recommend that the primary care clinician should determine that the American Psychiatric Association's Diagnostic and Statistical Manual, Fifth edition (DSM-5) criteria have been met. Additionally, information should be obtained from individuals involved in the child's care and alternative causes for the symptoms should be ruled out. Furthermore, the guidelines recommend variations in treatment by age group. For example, preschool-aged children (4-5 years of age) should be treated with evidence-based parent-and/or teacher-administered behavior therapy as first line treatment. Ohio's Minds Matter initiative also advises clinicians to follow DSM-5 criteria and age-appropriate, evidence-based treatments for ADHD.

Despite these guidelines, among Ohio Medicaid beneficiaries, about 76% of non-comorbid ADHD episodes for patients aged 4-5 included medication. Furthermore, approximately 43% of first-time ADHD episodes (i.e., episodes for patients that had not received an ADHD diagnosis in the past) did not include assessments or testing. The evaluation and treatment of ADHD also seem to vary from one provider to another: more than tenfold variation in average episode spend was seen among providers with 100 or more episodes.[8]

Implementing the ADHD episode of care will incentivize evidence-based, guideline concordant care through an outcomes-based payment model. As part of a concerted effort aimed at improving overall care for behavioral health conditions among Ohio Medicaid patients, the ADHD episode is being deployed together with the oppositional defiant disorder (ODD) episode. Alongside ODD, other episodes of care, and Ohio's Comprehensive Primary Care (CPC) program, the ADHD episode will contribute to a model of care delivery that benefits patients through improved care quality and clinical outcomes, and a lower overall cost of care.

1.2 Clinical overview and typical patient journey for ADHD

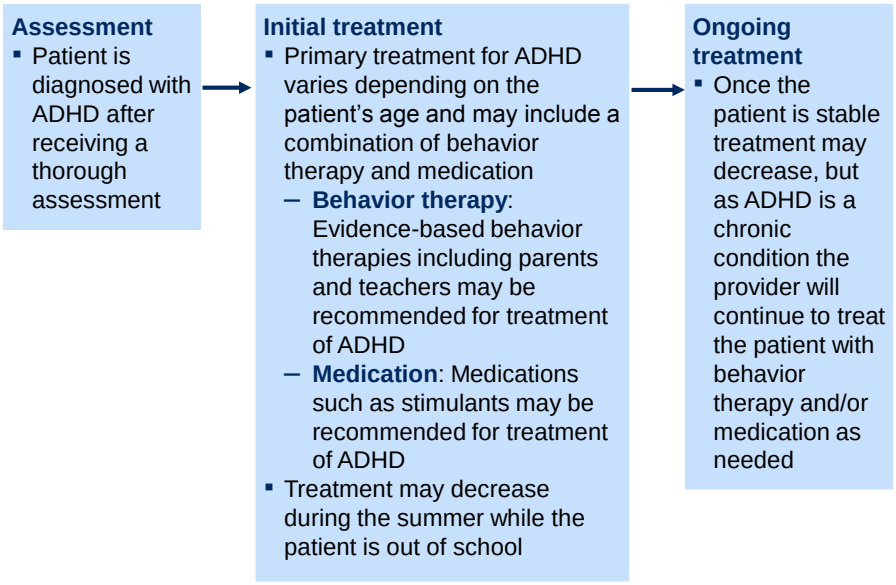
ADHD is a condition involving a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development. The pattern of inattention or hyperactivity-impulsivity is identified by five or more symptoms of inattention or hyperactivity-impulsivity (depending on age) over a period of at least 6 months. Additionally, the symptoms should be considered

[8] Ohio Medicaid claims data for episodes ending between October 1, 2014 and September 30, 2015

inappropriate for the person's developmental level.[9] There are three types of ADHD depending on the symptoms: Predominantly inattentive presentation, predominantly hyperactive-impulsive presentation, and combined presentation.[10]

As depicted in Exhibit 1, the patient journey begins when a patient receives a thorough assessment and is diagnosed with ADHD. The patient may begin initial treatment that involves behavioral therapy and/or medication, depending on the patient's age and conditions. Behavioral therapy may include sessions with parents and teachers. Medications such as stimulants may be recommended for treatment of ADHD. Treatment may decrease during the summer while the patient is out of school. As ADHD is a chronic condition, treatment continues throughout the year based on the patient's needs.

EXHIBIT 1 – ADHD PATIENT JOURNEY



Source: Clinical experts, AAP (2011) *ADHD: Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents*

1.3 Potential sources of value within the patient journey

Within the ADHD episode, providers have several opportunities to improve quality of care and reduce unnecessary spend associated with the episode (see Exhibit 2). For

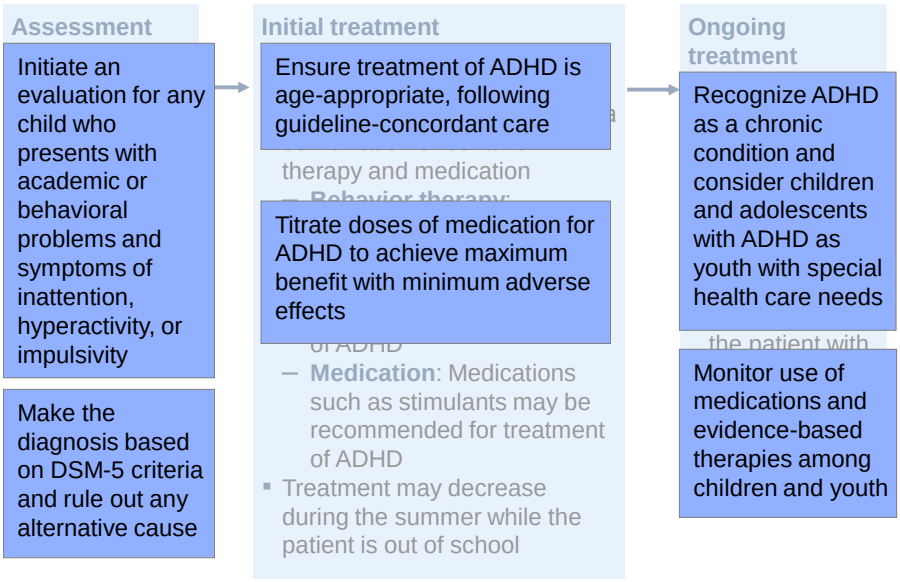
[9] Diagnostic and Statistical Manual of Mental Disorders: DSM-5. (2014). Reference Reviews, 28(3), 36-37.

[10] Symptoms and Diagnosis. (2016). Retrieved November 22, 2016, from http://www.cdc.gov/ncbddd/adhd/diagnosis.html

example, providers can use assessments effectively to make an accurate diagnosis. This involves conducting an evaluation for any child presenting with academic or behavioral problems, and symptoms of inattention, hyperactivity, or impulsivity, based on DSM-5 criteria, and ruling out alternative causes. There is also an opportunity for providers to follow guideline-concordant care and prescribe age-appropriate treatment, for example, treating preschool aged children with therapy and not medication unless clinically necessary.

Additionally, providers can make appropriate choices regarding the use of medications, for example, using antipsychotics only when necessary. There is also an opportunity for the provider to follow up in a timely fashion and titrate doses of medication to achieve the optimal outcome for the patient. Furthermore, because this is a chronic condition, there is an opportunity for providers to ensure continuous monitoring of the patients given their special needs, especially around medication adherence and the use of evidence-based therapies.

EXHIBIT 2 – ADHD SOURCES OF VALUE



Source: Ohio Minds Matter. *ADHD DSM Criteria and Evidence-based Treatments.*

2. OVERVIEW OF THE ADHD EPISODE DESIGN

2.1 Episode Trigger

The ADHD episode is triggered by a professional visit with an AD/ADHD primary diagnosis code. Alternatively, a professional visit with a secondary diagnosis of AD/ADHD and a primary diagnosis of a contingent trigger code (e.g., impulse control disorder) also triggers an ADHD episode (see Table 1 for the list of trigger and contingent trigger ICD-9 and ICD-10 diagnosis codes, and Exhibit 1 for an analysis of triggers in the Appendix).

2.2 Principal Accountable Provider

The principal accountable provider (PAP) is the person or entity best positioned to influence the patient journey and the clinical decisions made throughout the course of the episode. For the ADHD episode, the following plurality logic is used to identify the PAP (see Exhibit 2 for an analysis of the PAPs in the Appendix):

- **Visit(s) for evaluation and management (E&M), and/or medication management:** When the episode has at least one visit for E&M and/or medication management, the PAP is the provider with an eligible provider type that has the plurality of ADHD-related visits for E&M and/or medication management during the episode window. The rationale is that the provider who sees patients for E&M visits and/or medication management for ADHD is in the best position to manage the overall care pathway for the patient.
- **Any visit(s):** When the episode does not have any ADHD-related visits for E&M and/or medication management, the PAP is the provider with an eligible provider type that has the plurality of any ADHD-related professional visits during the episode window. The rationale is that, in the absence of E&M and/or medication management visits, the provider who sees the patient the most for ADHD is in the best position to manage the overall care pathway.

2.3 Episode Duration

The ADHD episode begins on the day of the triggering claim and extends for an additional 179 days (called the “episode window”). While recognizing the chronic nature of ADHD, the 180-day episode window was deemed an appropriate period of time to capture services associated with ADHD and compare provider performance. Because a patient may receive services associated with ADHD for longer periods of time (potentially years), it is expected that patients may have multiple, consecutive

episodes of care. The duration of the episode window also allows for an appropriate length of time between the PAP becoming accountable and receiving feedback through the release of episode performance reports.

2.4 Included Services

The episode model is designed to address spend for care and services directly related to the diagnosis and treatment of patients with AD/ADHD during the episode window. In addition, the included care and services are understood to be directly or indirectly influenced by the PAP during that period.

During the ADHD episode window all services that are associated with ADHD are included. This means that hospitalizations, outpatient, and professional claims with a primary diagnosis for AD/ADHD, or with a secondary diagnosis of AD/ADHD and a primary diagnosis of a contingent code are included. Pharmacy claims with eligible therapeutic codes are also included.

The total episode spend is calculated by adding up the spend amounts on all of the individual claims that were included in the episode window.

2.5 Episode Exclusions and Risk Factors

To ensure that episodes are comparable across patient panels select risk factors and exclusions are applied before assessing PAP performance. Risk factors are applied to episodes to make spend more comparable across different patient severities, while episode exclusions are applied when a clinical factor deems the patient too severe (and too high spend) for risk adjustment to be possible.

In the context of episode design, risk factors are attributes (e.g., age) or underlying clinical conditions (e.g., anxiety, ODD) that are likely to impact a patient's course of care and the spend associated with a given episode. Risk factors are selected via a standardized and iterative risk-adjustment process which gives due consideration to clinical relevance, statistical significance, and other contextual factors. Based on the selected risk factors, each episode is assigned a risk score. The total episode spend and the risk score are used to arrive at an adjusted episode spend. This values is used to calculate a provider's average risk-adjusted spend across all episodes, which is the measure across which providers are compared to each other.[11] Other risk factors were

11 For a detailed description of the principles and process of risk adjustment for the episode-based payment model see the document, "Supporting documentation on episode risk adjustment." A current version of this document is available here: http://medicaid.ohio.gov/Portals/0/Providers/PaymentInnovation/Episode-Risk-Adjustment.pdf

included in the model to test for significance because of their clinical relevance to the ADHD episode but were not determined to be significant.[12] The final list of risk factors is included in Table 2, and Exhibit 3 presents an analysis of these risk factors in the Appendix.

By contrast, an episode is excluded from a patient panel when the patient has clinical factors that suggest he or she has experienced a distinct or different journey indicative of significant increases in spend relative to the average patient. In addition, there are several "business-related" exclusions regarding reimbursement policy (e.g., whether a patient sought care out of state), the completeness of spend data for that patient (e.g., third-party liability or dual eligibility), and other topics relating to episode design and implementation, such as overlapping episodes, during the comparison period. Episodes with no exclusions are known as "valid" and used for provider comparisons. Episodes that have one of any of the exclusions are known as "invalid" episodes.

For the ADHD episode, both clinical and business exclusions apply. Several of the business exclusions (e.g., dual Medicare and Medicaid eligibility, patient left against medical advice) are standard across most episodes while clinical exclusions relate to the scope of the episode design. Some of the episode-specific clinical exclusions include claims with diagnoses indicating 1) bipolar disorders, 2) psychosis, and 3) autism. The list of business and clinical exclusions is included in Table 3, and Exhibit 4 presents an analysis of these exclusions in the Appendix.

2.6 Quality Metrics

To ensure the episode model incentivizes quality care, the ADHD episode has nine quality metrics. Two are linked to performance assessment, meaning that performance thresholds on these must be met in order for PAP to be eligible for positive incentive. The specific threshold amount will be determined during the informational reporting period. Seven of the quality metrics are for informational purposes only.

The metrics tied to positive incentive payments are the percentage of valid episodes that meet the minimum care requirement of five relevant visits or claims during the episode window, and the percentage of valid episodes with no coded behavioral health comorbidity for which the patient received antipsychotics. Informational metrics include the percentage of valid episodes of patients ages 6-12 for which there was a follow-up visit within 30 days of a prescription for ADHD medication, the

[12] Some of these factors include adjustment reaction, cardiac conditions, and phobias

percentage of valid episodes that had a claim with ADHD as a primary or secondary diagnosis in the year prior to the episode start, the average number of pharmacy claims included in the episode, the percentage of valid episodes with 20 or more included pharmacy claims, and the percentage of valid episodes of patients ages 4-5, 6-12, and 13-20 that include any pharmacy claims for behavioral health medications. A complete list of quality metrics is provided in Table 4, and Exhibit 5 presents an analysis of these quality metrics in the Appendix.

3. APPENDIX: SUPPORTING INFORMATION AND ANALYSES

Table 1 – Episode triggers

Trigger category	Trigger codes	Code type	Description
AD/ADHD	31400	ICD-9 diagnosis	Attention deficit dis wo Hyperactv
	31401	ICD-9 diagnosis	Attention deficit dis w Hyperact
	3141	ICD-9 diagnosis	Hyperkinesis w developmental delay
	3142	ICD-9 diagnosis	Hyperkinetic conduct disorder
	3148	ICD-9 diagnosis	Other manifestations hyperkinetic
	3149	ICD-9 diagnosis	Unspec hyperkinetic syndrome
	F900	ICD-10 diagnosis	Attn-defct hyperactivity disorder, predom inattentive type
	F909	ICD-10 diagnosis	Attention-deficit hyperactivity disorder, unspecified type
	F901	ICD-10 diagnosis	Attn-defct hyperactivity disorder, predom hyperactive type
	F902	ICD-10 diagnosis	Attention-deficit hyperactivity disorder, combined type
	F908	ICD-10 diagnosis	Attention-deficit hyperactivity disorder, other type
AD/ADHD contingent	31230	ICD-9 diagnosis	Uns impulse control disorder
	3129	ICD-9 diagnosis	Uns disturbance conduct
	31289	ICD-9 diagnosis	Oth conduct disorder other
	31383	ICD-9 diagnosis	Academic underachievement disorder

Trigger category	Trigger codes	Code type	Description
	V200	ICD-9 diagnosis	Health supervision foundling
	V201	ICD-9 diagnosis	Healthy infant/child receiving care
	V202	ICD-9 diagnosis	Routine infant/child health check
	V2031	ICD-9 diagnosis	Health supervision nb <8 days
	V2032	ICD-9 diagnosis	Health supervision nb 8-28 days
	V700	ICD-9 diagnosis	Routine medical exam health facil
	V703	ICD-9 diagnosis	Oth medical exam for admin purposes
	V704	ICD-9 diagnosis	Examination for medicolegal reasons
	V705	ICD-9 diagnosis	Health examination defined subpop
	V706	ICD-9 diagnosis	Health examination in population
	V707	ICD-9 diagnosis	Exam for clinical research
	V708	ICD-9 diagnosis	Other general medical examinations
	V709	ICD-9 diagnosis	Uns general medical examination
	F639	ICD-10 diagnosis	Impulse disorder, unspecified
	F910	ICD-10 diagnosis	Conduct disorder confined to family context
	F918	ICD-10 diagnosis	Other conduct disorders
	F919	ICD-10 diagnosis	Conduct disorder, unspecified
	F938	ICD-10 diagnosis	Other childhood emotional disorders
	Z761	ICD-10 diagnosis	Encounter for health supervision and care of foundling
	Z762	ICD-10 diagnosis	Encntr for hlth suprvsn and care of healthy infant and child
	Z00121	ICD-10 diagnosis	Encounter for routine child health exam w abnormal findings

Trigger category	Trigger codes	Code type	Description
	Z00129	ICD-10 diagnosis	Encntr for routine child health exam w/o abnormal findings
	Z00110	ICD-10 diagnosis	Health examination for newborn under 8 days old
	Z00111	ICD-10 diagnosis	Health examination for newborn 8 to 28 days old
	Z0000	ICD-10 diagnosis	Encntr for general adult medical exam w/o abnormal findings
	Z0001	ICD-10 diagnosis	Encounter for general adult medical exam w abnormal findings
	Z020	ICD-10 diagnosis	Encounter for exam for admission to educational institution
	Z022	ICD-10 diagnosis	Encounter for exam for admission to residential institution
	Z024	ICD-10 diagnosis	Encounter for examination for driving license
	Z025	ICD-10 diagnosis	Encounter for examination for participation in sport
	Z026	ICD-10 diagnosis	Encounter for examination for insurance purposes
	Z0282	ICD-10 diagnosis	Encounter for adoption services
	Z0289	ICD-10 diagnosis	Encounter for other administrative examinations
	Z0281	ICD-10 diagnosis	Encounter for paternity testing
	Z0283	ICD-10 diagnosis	Encounter for blood-alcohol and blood-drug test
	Z021	ICD-10 diagnosis	Encounter for pre-employment examination
	Z023	ICD-10 diagnosis	Encounter for examination for recruitment to armed forces
	Z008	ICD-10 diagnosis	Encounter for other general examination
	Z006	ICD-10 diagnosis	Encntr for exam for nrml cmprsn and ctrl in clncl rsrch prog
	Z005	ICD-10 diagnosis	Encounter for exam of potential donor of organ and tissue
	Z0070	ICD-10 diagnosis	Encntr for exam for delay growth in chldhd w/o abn findings
	Z0071	ICD-10 diagnosis	Encntr for exam for delay growth in chldhd w abn findings

Table 2 – Episode risk factors

Risk factor	Relevant time period
Adoption status	During the episode or up to 365 days before the start of the episode
Age 6 to 12 years	Episode start date
Age 13 to 20 years	Episode start date
Anxiety	During the episode or up to 365 days before the start of the episode
Depression excluding major depression	During the episode window and 365 days before the episode window
Disruptive mood dysregulation disorder	During the episode window and 365 days before the episode window
Emotional disturbance	During the episode window and 365 days before the episode window
Epilepsy and seizures	During the episode window and 365 days before the episode window
Fetal alcohol syndrome	During the episode window and 365 days before the episode window
First ADHD episode	During the episode window and 365 days before the episode window
Foster care status	During the episode window and 365 days before the episode window
Mild intellectual and developmental disabilities	During the episode window and 365 days before the episode window
Nutrition deficiencies	During the episode window and 365 days before the episode window
Obsessive compulsive disorder	During the episode window and 365 days before the episode window

Risk factor	Relevant time period
Oppositional defiant disorder	During the episode window and 365 days before the episode window
Unspecified conduct disorder	During the episode window and 365 days before the episode window
Unspecified mood disorder	During the episode window and 365 days before the episode window
Post-traumatic stress disorder	During the episode window and 365 days before the episode window
Substance use (cannabis)	During the episode window and 365 days before the episode window
Substance use (tobacco)	During the episode window and 365 days before the episode window

Table 3 – Episode exclusions

Exclusion type	Episode exclusion	Description	Relevant time period
Business exclusion	Dual	An episode is excluded if the patient had dual coverage by Medicare and Medicaid	During the episode window
	FQHC/RHC	An episode is excluded if the PAP is classified as a federally qualified health center or rural health clinic	During the episode window
	Incomplete	An episode is excluded if the non-risk adjusted episode spend (not the risk-adjusted episode spend) is less than the incomplete episode threshold	During the episode window

Exclusion type	Episode exclusion	Description	Relevant time period
	Enrollment	Patient is not enrolled in Medicaid	During the episode window
	Long Admission	An episode is excluded if the patient has one or more hospital admissions for a duration greater than 30 days	During the episode window
	Long Term Care	An episode is excluded if the patient has one or more long-term care claim detail lines which overlap the episode window	During the episode window
	No DRG	An episode is excluded if a DRG-paid inpatient claim is missing the APR-DRG and severity of illness	During the episode window
	Multi Payer	An episode is excluded if a patient changes enrollment between MCPs	During the episode window
	No PAP	An episode is excluded if the PAP cannot be identified	During the episode window
	One Professional Claim	An episode is excluded if it has only one professional claim included in the episode	During the episode window
	Out of State	PAP operates out of state	N/A
	Third Party Liability	An episode is excluded if third-party liability charges are present on any claim or claim detail line or if the patient has	During the episode window

Exclusion type	Episode exclusion	Description	Relevant time period
		relevant third-party coverage at any time	
Clinical exclusion	Age	Patient is younger than four or older than twenty	Episode start date
	Death	An episode is excluded if the patient has a discharge status of "expired" on any inpatient or outpatient claim	During the episode window
	Left Against Medical Advice	Patient has discharge status of "left against medical advice"	During the episode window
	Multiple Comorbidities	Patient is affected by too many risk factors to reliably risk adjust the episode spend	During the episode or up to 365 days before the start of the episode
	Adverse Effects of Medication	Patient has a diagnosis of adverse effects of medication	During the episode or up to 365 days before the start of the episode
	Antisocial Personality Disorder	Patient has a diagnosis of antisocial personality disorder	During the episode or up to 365 days before the start of the episode
	Autism	Patient has a diagnosis of autism	During the episode or up to 365 days before the start of the episode
	Bipolar Disorders	Patient has a diagnosis of bipolar disorders	During the episode or up to 365 days before the start of the episode
	Borderline Personality Disorder	Patient has a diagnosis of borderline personality disorder	During the episode or up to 365 days before the start of the episode
	Other CNS Infection	Patient has a diagnosis of other central nervous system (CNS) infection	During the episode or up to 365 days before the start of the episode
	Conduct Disorders	Patient has a diagnosis of conduct disorders	During the episode or up to 365 days before

Exclusion type	Episode exclusion	Description	Relevant time period
			the start of the episode
	Delirium and Dementia	Patient has a diagnosis of delirium and dementia	During the episode or up to 365 days before the start of the episode
	Dissociative Disorders	Patient has a diagnosis of dissociative disorders	During the episode or up to 365 days before the start of the episode
	Encephalitis	Patient has a diagnosis of encephalitis	During the episode or up to 365 days before the start of the episode
	Homicidal Ideation	Patient has a diagnosis of homicidal ideation	During the episode or up to 365 days before the start of the episode
	Manic Disorders	Patient has a diagnosis of manic disorders	During the episode or up to 365 days before the start of the episode
	Moderate and Severe Intellectual Disabilities	Patient has a diagnosis of moderate and severe intellectual disabilities	During the episode or up to 365 days before the start of the episode
	Psychosexual Disorders	Patient has a diagnosis of a psychosexual disorder	During the episode or up to 365 days before the start of the episode
	Psychosis	Patient has a diagnosis of psychosis	During the episode or up to 365 days before the start of the episode
	Psychosomatic Disorders (Factitious)	Patient has a diagnosis of psychosomatic disorders (factitious)	During the episode or up to 365 days before the start of the episode
	Schizophrenia	Patient has a diagnosis of schizophrenia	During the episode or up to 365 days before the start of the episode

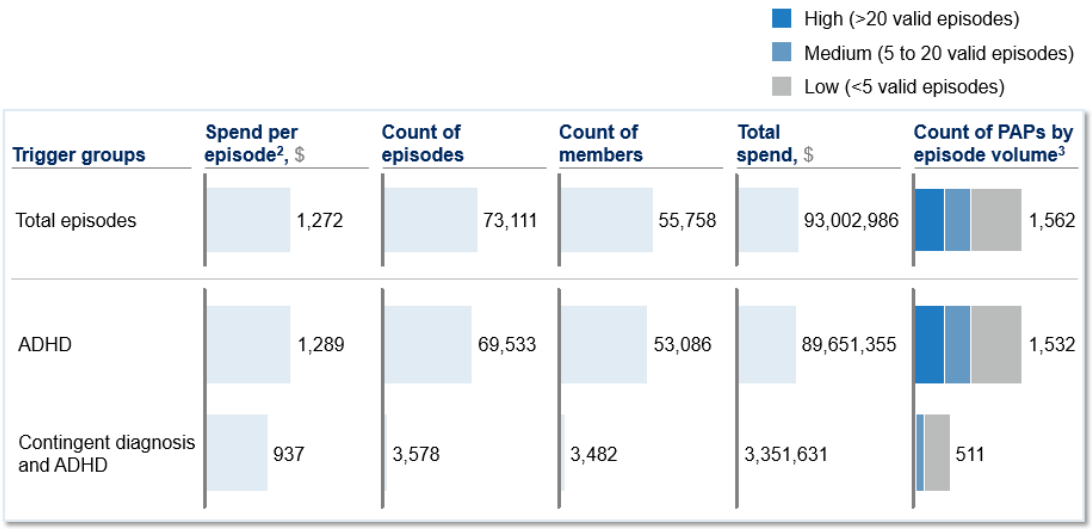
Exclusion type	Episode exclusion	Description	Relevant time period
	Substance Use Prescription and Illicit	Patient has a diagnosis of substance use prescription and illicit	During the episode or up to 365 days before the start of the episode
	Suicide Attempt or Self-Harm	Patient has a diagnosis of suicide attempt or self-harm	During the episode or up to 365 days before the start of the episode
Outlier	High outlier	An episode is excluded if the risk-adjusted episode spend (not the non-risk adjusted episode spend) is greater than the high outlier threshold	During the episode or up to 365 days before the start of the episode

Table 4 – Episode quality metrics

Metric type	Field name	Description	Relevant time period
Tied to incentive payments	Minimum care requirement	Percentage of valid episodes that meet the minimum care requirement of five relevant visits or pharmacy claims during the episode window	During the episode window
	Antipsychotics in non-comorbid episodes	Percentage of valid episodes with no coded behavioral health comorbidity for which the patient received antipsychotics	During the episode window
Informational	Follow-up visits within 30 days of prescription	Percentage of valid episodes of patients ages 6-12 for which there was a follow-up visit within 30 days of a prescription for ADHD medication	During the episode window
	Repeat ADHD episodes	Percentage of valid episodes that had a claim with ADHD as a primary or secondary diagnosis in the year prior to the episode start	During the episode or up to 365 days before the start of the episode
	Average number of	Average number of pharmacy claims included in the episode	During the episode window

Metric type	Field name	Description	Relevant time period
	pharmacy claims		
	Episodes with 20 or more pharmacy claims	Percentage of valid episodes with 20 or more included pharmacy claims	During the episode window
	Medications for patients age 4 to 5	Percentage of valid episodes of patients ages 4-5 that include pharmacy claims	During the episode window
	Medications for patients age 6 to 12	Percentage of valid episodes of patients ages 6-12 that include pharmacy claims	During the episode window
	Medications for patients age 13 to 20	Percentage of valid episodes of patients ages 13-20 that include pharmacy claims	During the episode window

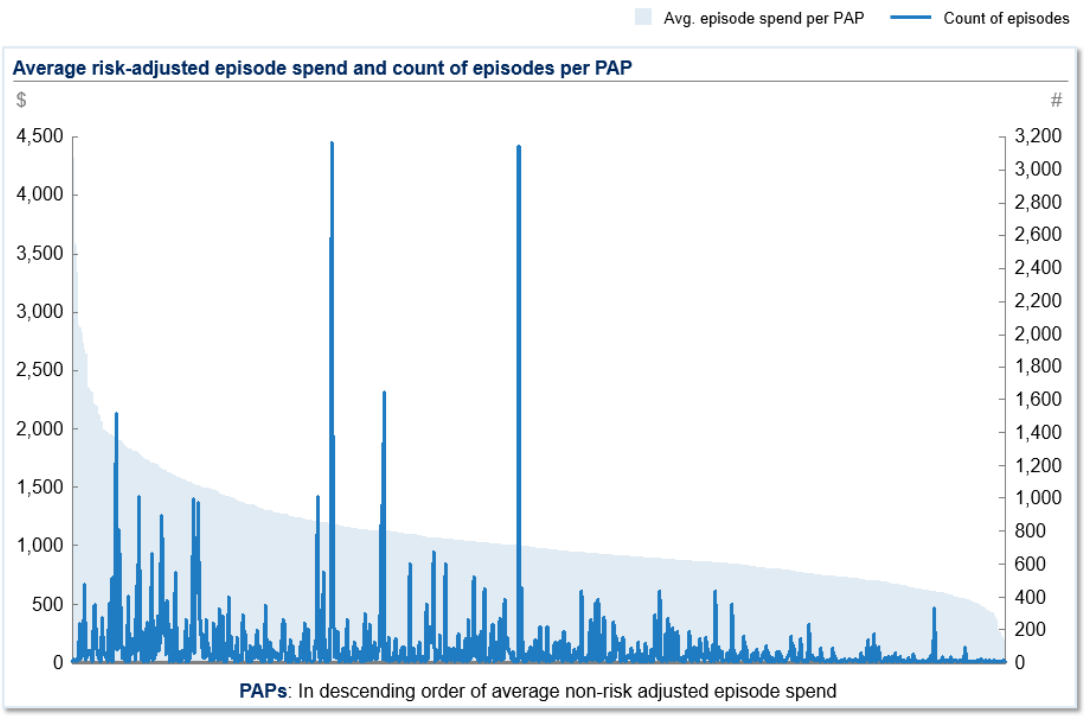
EXHIBIT 1 – ADHD EPISODE TRIGGER GROUPS[1]



1. For valid episodes (73,111 episodes) across 1,562 PAPs; valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., bipolar disorder, psychosis); count of PAPs includes valid PAPs (≥ 5 valid episodes) and invalid PAPs (< 5 valid episodes)
2. Risk-adjusted episode spend
3. Low volume is defined as PAPs with less than five valid episodes, Medium volume as PAPs with five to 20 valid episodes and High volume as PAPs with more than 20 valid episodes

SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

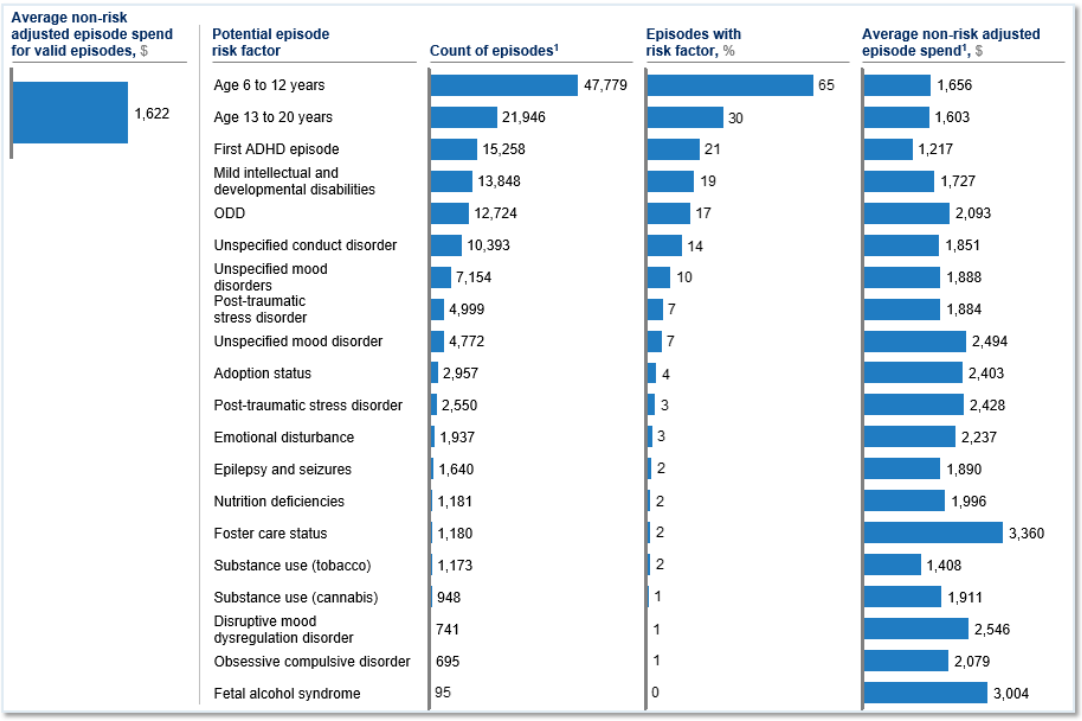
EXHIBIT 2 - DISTRIBUTION OF AVERAGE RISK-ADJUSTED EPISODE SPEND AND COUNT BY PAP[1]



1. For valid episodes (71,740) across valid PAPs (821); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., bipolar disorder, psychosis); valid PAPs are physicians with five or more valid episodes

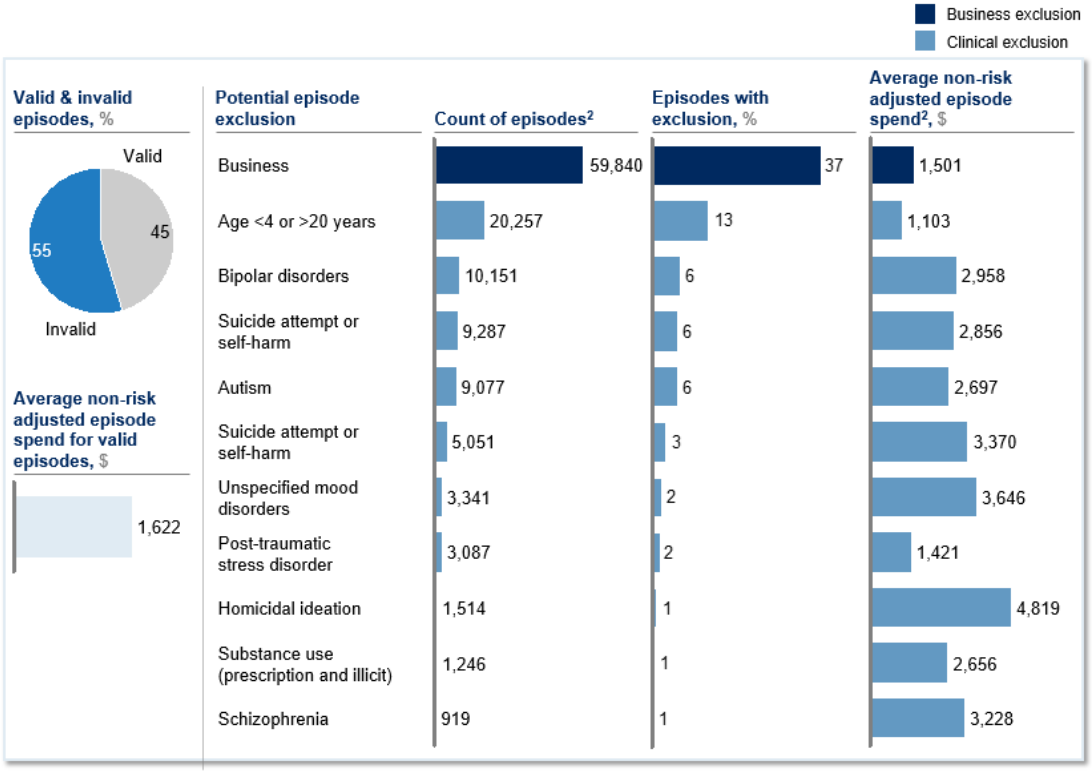
SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 3 - EPISODE COUNT AND SPEND BY RISK FACTORS[1]



1. For episodes with this risk factor; one episode can have multiple risk factors
SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

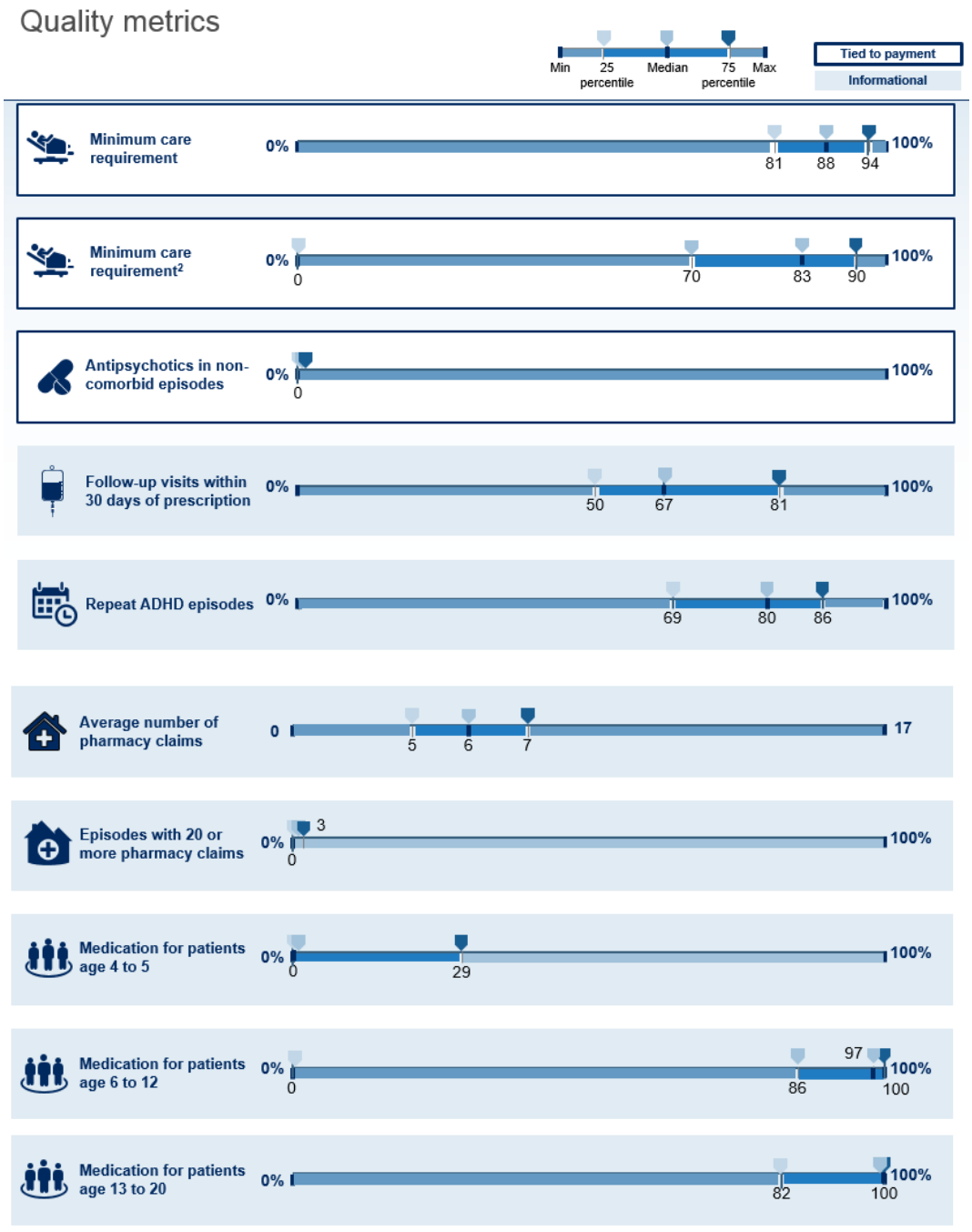
EXHIBIT 4 - EPISODE COUNT AND SPEND BY EXCLUSIONS[1]



1. Showing business exclusion and top ten (by volume) clinical exclusions
2. For episodes with this exclusion; one episode can have multiple exclusions

SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015

EXHIBIT 5 - PAP PERFORMANCE ON EPISODE QUALITY METRICS[1]



1. For valid episodes (73,111) across valid PAPs (821); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., bipolar disorder, psychosis); valid PAPs are physicians with five or more. Valid episodes for invalid PAPs (those with less than five valid episodes) are not included in this analysis.
2. Calculations reflect post-BH redesign code changes (e.g., not including HCPCS code H0004)

SOURCE: OH claims data, episodes ending between 10/1/2014 and 9/30/2015