Proposed Changes to Existing Measure Set for HEDIS®[1] 2020: Safe and Judicious Use of Antipsychotics in Children and Adolescents

NCQA seeks comments on the following proposed changes to the *Safe and Judicious Use of Antipsychotics in Children and Adolescents* HEDIS health plan measure set:

- *Metabolic Monitoring for Children and Adolescents on Antipsychotics (APM):*
  - Report blood glucose and cholesterol testing separately.
  - Combine the 1–5 years and 6–11 years age strata.
- *Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP):*
  - Combine the 1–5 years and 6–11 years age strata.

The measure set aims to evaluate appropriate antipsychotic prescribing and monitoring of youths (1–17 years) on antipsychotics. Antipsychotic medications are a high-risk therapeutic class with potentially far-reaching effects on development; therefore, initiation and continued use of antipsychotics should be carefully considered and monitored to ensure that efficacy is balanced against potential risks. The proposed changes to the measure set intend to improve measure feasibility and utility.

Report Blood Glucose and Cholesterol Testing Separately. The APM measure describes the percentage of youths on antipsychotics who receive both a blood glucose and a cholesterol test during the year. NCQA proposes to have blood glucose and cholesterol testing reported individually as two separate indicators, in addition to the total rate. Reporting blood glucose and cholesterol testing separately more precisely highlights the opportunities for improvement between metabolic test types.

Combine the 1–5 Year and 6–11 Year Age Strata. HEDIS results for the measure set demonstrate that few plans can meet a minimum denominator size requirement of 30 when reporting for children 1–5 years. NCQA proposes combining the 1–5 years and 6–11 years age strata within both measures in the set.

Supporting documents include the draft measure specifications, evidence workups and performance data.

NCQA acknowledges the contributions of the Technical Measurement Advisory Panel, the Behavioral Health Measurement Advisory Panel and the National Collaborative for Innovation in Quality Measurement (NCINQ) Advisory Panel

[1]HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).

*Metabolic Monitoring for Children and Adolescents on Antipsychotics (APM)**

***Developed with financial support from the Agency for Healthcare Research and Quality (AHRQ) and CMS under the CHIPRA Pediatric Quality Measures Program Centers of Excellence grant number U18HS025296.**

SUMMARY OF CHANGES TO HEDIS 2020

- Combined the 1–5 years age stratification and 6–11 years age stratification.
- Added a "Blood Glucose Numerator" and a "Cholesterol Numerator."
- Updated value sets to allow for digital measure functionality.

Description

The percentage of children and adolescents 1–17 years of age who had two or more antipsychotic prescriptions and had metabolic testing.

Eligible Population

Note: *Members in hospice are excluded from the eligible population. Refer to General Guideline 17: Members in Hospice.*

Product lines	Commercial, Medicaid (report each product line separately).
Ages	1–17 years as of December 31 of the measurement year. Report two age stratifications and a total rate for each of the three indicators: ~~• 1–5 years.~~ • 1–11 years. • 12–17 years. • Total. The total is the sum of the age stratifications.
Continuous enrollment	The measurement year.
Allowable gap	No more than one gap in enrollment of up to 45 days during the measurement year.
Anchor date	December 31 of the measurement year.
Benefit	Medical and pharmacy.
Event/diagnosis	At least two antipsychotic medication dispensing events (Antipsychotic Medications List; Antipsychotic Combination Medications List) of the same or different medications, on different dates of service during the measurement year.

Antipsychotic Medications

Description	Prescription		
Miscellaneous antipsychotic agents	• Aripiprazole • Asenapine • Brexpiprazole • Cariprazine • Clozapine • Haloperidol	• Iloperidone • Loxapine • Lurisadone • Molindone • Olanzapine • Paliperidone	• Pimozide • Quetiapine • Quetiapine fumarate • Risperidone • Ziprasidone
Phenothiazine antipsychotics	• Chlorpromazine • Fluphenazine • Perphenazine	• Prochlorperazine • Thioridazine • Trifluoperazine	
Thioxanthenes	• Thiothixene		
Long-acting injections	• Aripiprazole • Fluphenazine decanoate • Haloperidol decanoate	• Olanzapine • Paliperidone palmitate • Risperidone	

Antipsychotic Combination Medications

Description	Prescription	
Psychotherapeutic combinations	• Fluoxetine-olanzapine	• Perphenazine-amitriptyline

Administrative Specification

Denominator The eligible population.

Numerators

Blood Glucose and Cholesterol Members who received both of the following during the measurement year on the same or different dates of service:

- At least one test for blood glucose (Glucose Lab Tests Value Set, Glucose Test Result or Finding) or HbA1c (HbA1c Lab Tests Value Set, HbA1c Test Result or Finding).
- At least one test for LDL-C (LDL-C Lab Tests Value Set, LDL-C Test Result or Finding) or cholesterol (Cholesterol Tests Other Than LDL Value Set).

Blood Glucose Members who received the following during the measurement year:

- At least one test for blood glucose (Glucose Lab Tests Value Set, Glucose Test Result or Finding) or HbA1c (HbA1c Lab Tests Value Set, HbA1c Test Result or Finding).

Cholesterol Members who received the following during the measurement year:

- At least one test for LDL-C (LDL-C Lab Tests Value Set, LDL-C Test Result or Finding) or cholesterol (Cholesterol Tests Other Than LDL Value Set).

Data Elements for Reporting

Organizations that submit HEDIS data to NCQA must provide the following data elements.

Table APM-1/2: Data Elements for Metabolic Monitoring for Children and Adolescents on Antipsychotics

	Administrative
Measurement year	✓
Data collection methodology (Administrative)	✓
Eligible population	*For each age stratification and total*
Numerator events by administrative data	*Each indicator, for each age stratification and total*
Numerator events by supplemental data	*Each indicator, for each age stratification and total*
Reported rate	*Each indicator, for each age stratification and total*

*Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)**

***Developed with financial support from the Agency for Healthcare Research and Quality (AHRQ) and CMS under the CHIPRA Pediatric Quality Measures Program Centers of Excellence grant number U18HS025296.**

SUMMARY OF CHANGES TO HEDIS 2020

- Combined the 1–5 years age stratification and 6–11 years age stratification.

Description

The percentage of children and adolescents 1–17 years of age who had a new prescription for an antipsychotic medication and had documentation of psychosocial care as first-line treatment.

Definitions

Intake Period	January 1 through December 1 of the measurement year.
IPSD	Index Prescription Start Date. The earliest prescription dispensing date for an antipsychotic medication where the date is in the Intake Period and there is a Negative Medication History.
Negative Medication History	A period of 120 days (4 months) prior to the IPSD when the member had no antipsychotic medications dispensed for either new or refill prescriptions.

Eligible Population

Note: *Members in hospice are excluded from the eligible population. Refer to General Guideline 17: Members in Hospice.*

Product lines	Commercial, Medicaid (report each product line separately).
Ages	1–17 years as of December 31 of the measurement year. Report two age stratifications and a total rate: • ~~1–5 years.~~ • 1–11 years. • 12–17 years. • Total. The total is the sum of the age stratifications.
Continuous enrollment	120 days (4 months) prior to the IPSD through 30 days after the IPSD.
Allowable gap	None.
Anchor date	IPSD.
Benefit	Medical, mental health, pharmacy.

Event

Follow the steps below to identify the eligible population.

Step 1

Identify all members in the specified age range who were dispensed an antipsychotic medication (Antipsychotic Medications List; Antipsychotic Combination Medications List) during the Intake Period.

Step 2

Test for Negative Medication History. For each member identified in step 1, test each antipsychotic prescription for a Negative Medication History. The IPSD is the dispensing date of the earliest antipsychotic prescription in the Intake Period with a Negative Medication History.

Step 3

Calculate continuous enrollment. Members must be continuously enrolled for 120 days (4 months) prior to the IPSD through 30 days after the IPSD.

Step 4: Required exclusions

Exclude members for whom first-line antipsychotic medications may be clinically appropriate. Any of the following during the measurement year meet criteria:

- At least one acute inpatient encounter with a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, other psychotic disorder, autism, or other developmental disorder during the measurement year. Any of the following code combinations meet criteria:
  - BH Stand Alone Acute Inpatient Value Set with (Schizophrenia Value Set; Bipolar Disorder Value Set; Other Psychotic and Developmental Disorders Value Set).
  - Visit Setting Unspecified Value Set with Acute Inpatient POS Value Set with (Schizophrenia Value Set; Bipolar Disorder Value Set; Other Psychotic and Developmental Disorders Value Set), with or without a telehealth modifier (Telehealth Modifier Value Set).
- At least two visits in an outpatient, intensive outpatient or partial hospitalization setting, on different dates of service, with a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, other psychotic disorder, autism, or other developmental disorder during the measurement year. Any of the following code combinations with (Schizophrenia Value Set; Bipolar Disorder Value Set; Other Psychotic and Developmental Disorders Value Set), with or without a telehealth modifier (Telehealth Modifier Value Set), meet criteria:
  - An outpatient visit (Visit Setting Unspecified Value Set with Outpatient POS Value Set).
  - An outpatient visit (BH Outpatient Value Set).
  - An intensive outpatient encounter or partial hospitalization (Visit Setting Unspecified Value Set with Partial Hospitalization POS Value Set).
  - An intensive outpatient encounter or partial hospitalization (Partial Hospitalization/Intensive Outpatient Value Set).
  - A community mental health center visit (Visit Setting Unspecified Value Set with Community Mental Health Center POS Value Set).
  - Electroconvulsive therapy (Electroconvulsive Therapy Value Set).
  - An observation visit (Observation Value Set).
  - A telehealth visit (Visit Setting Unspecified Value Set with Telehealth POS Value Set).

Antipsychotic Medications

Description	Prescription		
Miscellaneous antipsychotic agents	• Aripiprazole • Asenapine • Brexpiprazole • Cariprazine • Clozapine • Haloperidol • Iloperidone	• Loxapine • Lurisadone • Molindone • Olanzapine • Paliperidone • Pimozide • Quetiapine	• Quetiapine fumarate • Risperidone • Ziprasidone
Phenothiazine antipsychotics	• Chlorpromazine • Fluphenazine • Perphenazine	• Prochlorperazine • Thioridazine • Trifluoperazine	
Thioxanthenes	• Thiothixene		
Long-acting injections	• Aripiprazole • Fluphenazine decanoate • Haloperidol decanoate	• Olanzapine • Paliperidone palmitate	• Risperidone

Antipsychotic Combination Medications

Description	Prescription	
Psychotherapeutic combinations	• Fluoxetine-olanzapine	• Perphenazine-amitriptyline

Administrative Specification

Denominator The eligible population.

Numerator Documentation of psychosocial care (Psychosocial Care Value Set) with or without a telehealth modifier (Telehealth Modifier Value Set) in the 121-day period from 90 days prior to the IPSD through 30 days after the IPSD.

Data Elements for Reporting

Organizations that submit HEDIS data to NCQA must provide the following data elements.

Table APP-1/2: Data Elements Access to Psychosocial Care for Children and Adolescents on Antipsychotics

	Administrative
Measurement year	✓
Data collection methodology (Administrative)	✓
Eligible population	*For each age stratification and total*
Number of required exclusions	*For each age stratification and total*
Numerator events by administrative data	*For each age stratification and total*
Reported rate	*For each age stratification and total*

Metabolic Screening and Monitoring for Children and Adolescents on Antipsychotics (APM)

Measure Workup

Topic Overview

Prevalence and Importance

Prevalence of antipsychotic use in children and adolescents

Nationally, 1% of children 12–19 years received an antipsychotic in the past month (Jonas et al., 2013). Children requiring antipsychotics are disproportionately covered under Medicaid than under commercial insurance (Crystal et al., 2016). Although antipsychotic utilization increased in the early through late 2000s, utilization has since declined slightly in recent years, particularly for the population under Medicaid. A study evaluating children on under Medicaid who are not in foster care demonstrated a 16% decrease in prevalence of antipsychotic use, from 9.4 per 1,000 in 2006, to 7.9 per 1,000 in 2012 (Kalverdijk et al., 2017). Although utilization rates for children under Medicaid who are in foster care on Medicaid are also decreasing, they continue to demonstrate higher utilization than children who are not in foster care. A study evaluating children on Medicaid not in foster care demonstrated a 16% decrease in prevalence of antipsychotic use from 9.4 per 1,000 in 2006 to 7.9 per 1,000 in 2012. (Kalverdijk et al., 2017). Although utilization rates for children in foster care on Medicaid are also decreasing, they continue to demonstrate higher utilization than children not in foster care.

Health importance

Antipsychotic medications offer the potential for effective treatment of psychiatric disorders in children, but they can also increase a child's risk of developing serious health concerns, including metabolic health complications. Antipsychotic medications are associated with a number of potentially adverse effects, including weight gain (Correll et al.,2009), diabetes (Andrade et al. 2011; Bobo et al., 2013) and unhealthy cholesterol levels, increasing the risk of heart disease (Miller M.C., 2010).

Diabetes is one of the most common chronic illnesses among children and adolescents; in 2011 it affected an estimated 215,000 people younger than 20. Diabetes is associated with serious cardiovascular, neurological and renal complications, including heart disease, stroke, blindness, kidney failure and nervous system damage (Centers for Disease Control and Prevention, 2011). At the current incidence rate, it is estimated that Type 2 diabetes will increase by 49% in the next 40 years (Imperatore et al., 2012).

A multi-year study of youths enrolled in three HMOs found that exposure to atypical antipsychotics was associated with a fourfold risk of diabetes in the following year, compared with children not prescribed any psychotropic medication, the broader class of medications under which antipsychotics fall (Andrade et al., 2011). Another study of youths enrolled in a state Medicaid plan found that those starting an antipsychotic had three times the risk of developing diabetes than those starting other psychotropic medications (Bobo, 2013). The association of atypical antipsychotics with diabetes has been found to be greater among children and adolescents than among adults (Hammerman et al., 2008).

Research suggests that metabolic problems in childhood and adolescence are associated with poor cardiometabolic outcomes in adulthood (Srinivasan et al., 2002). The long-term consequences of pediatric obesity and other metabolic disturbances include higher risk of heart disease in adulthood (Baker et al., 2007). Due to the potential negative health consequences associated with children developing cardiometabolic side effects from an antipsychotic medication, it is important to both establish a baseline and continuously monitor metabolic indices to ensure appropriate management of side-effect risk.

Financial importance and cost-effectiveness

Diabetes is one of the most expensive chronic conditions in children (Imperatore et al., 2012). Although there is little research available on the fiscal burden associated with adverse effects of antipsychotic use among children and adolescents, one study of youths enrolled in Medicaid who are on antipsychotics found that health care costs for patients who developed cardiometabolic side effects were 34% higher compared with those who did not (Jerrell, 2009). Proper screening and monitoring can contribute to early detection and management of these cardiometabolic side effects, thus reducing the long-term costs.

Evidence Supporting Metabolic Screening and Monitoring

Several guidelines address metabolic screening for children prescribed antipsychotics, with consensus that baseline and ongoing metabolic monitoring is a standard of care for this population. The specificity of recommendations for ongoing metabolic monitoring varies: Some guidelines recommend "appropriate" monitoring, others offer varying levels of detail about specific tests and follow-up intervals. The American Academy of Child & Adolescent Psychiatry (AACAP) practice parameters endorse APA/ADA recommendations for laboratory monitoring, including a fasting glucose and fasting lipid profile at baseline, 3 and 12 months. CAMESA calls for more frequent monitoring in youth, at baseline, 3, 6 and 12 months, and additional monitoring of fasting insulin. Refer to the Guideline Table, below.

Gaps in care

Despite the risk of adverse side effects, there is reason to believe that children and adolescents do not receive appropriate laboratory monitoring. Data suggests there are gaps in ongoing metabolic monitoring among children and adolescents on antipsychotics. The *Metabolic Monitoring for Children and Adolescents on Antipsychotics* HEDIS measure has been publicly reported since HEDIS 2016. For the past 3 years, Medicaid and commercial health plans have demonstrated slight improvement; however, performance rates continue to be low (higher is better). Medicaid and commercial HEDIS results indicate that on average across plans, 35% of youths on antipsychotics receive metabolic monitoring during the year and results from "high-performing" are not much better: 48% and 50% of youths on antipsychotics receive metabolic monitoring among commercial and Medicaid plans in the 90th percentile, respectively.

Field-testing during the measure's development demonstrated a difference in monitoring by metabolic test-type. Evaluation of 2010 New York Medicaid data demonstrates that 53% of children on antipsychotics received blood glucose testing, while only 34% received cholesterol testing.

Low rates of metabolic monitoring for children and adolescents on antipsychotics have been attributed to provider and patient barriers. While the side-effects of antipsychotics are understood, providers delivering care for psychiatric disorders may not be familiar with ordering blood and cholesterol tests and the process may not fit into the traditional clinical workflow. Children and adolescent patients may also be prevented from receiving annual monitoring due to lack of health care service access, as well as the challenges in fasting and venipuncture for that population (Lambert et al. 2018).

Health care disparities

There is little research on potential disparities in metabolic monitoring for youths prescribed antipsychotics. One study found that race/ethnicity was not associated with glucose or lipid screening rates (Morrato et al., 2010). Among adults, in general, minority groups are at much greater risk for diabetes than Whites (Centers for Disease Control and Prevention, 2011).

As part of the HEDIS measure's field-testing, we also assessed differences in metabolic screening and monitoring in Medicaid children of different races and ethnicities. Our results indicate that Hispanic children had better (higher) rates of baseline metabolic screening (10.3%) than White non-Hispanic children (5.7%) and Black non-Hispanic children (6.1%). We also found that Hispanic children also had better (higher) rates of ongoing metabolic monitoring (24.8%) than White non-Hispanic children (19.1%) and Black non-Hispanic children (19.4%).

Among youths receiving antipsychotics on Medicaid, there is a marked disparity in metabolic monitoring by foster care status. A 2011 study found that 28% of Medicaid foster children received metabolic monitoring during the year, while only 18% of children under Medicaid who are not in foster care received metabolic monitoring during the year (Crystal et al., 2016).

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Specific Guideline Recommendations

Recommendations for Metabolic Screening and Monitoring for Children and Adolescents on Antipsychotic Medication

Organization (Date)	Recommendation	Type/Grade
AACAP—AAA (2011) Practice parameter for the use of atypical antipsychotic medications in children and adolescents[1]	"The acute and long-term safety of these medications in children and adolescents has not been fully evaluated and therefore careful and frequent monitoring of side effects should be performed…*Ideally, monitoring of BMI, blood pressure, fasting glucose and fasting lipid profiles should follow, whenever feasible, the recommendations found in the consensus statement put forth by the American Diabetes Association and American Psychiatric Association."* Table: Fasting plasma glucose- Baseline, 12 weeks, annually; Fasting lipid profile- Baseline, 12 weeks (Recommendation 10, and Table 2)	Clinical Guideline
	"Careful attention should be given to the increased risk of developing diabetes with the use of AAA, and blood glucose and other parameters should be assessed at baseline and monitored at regular intervals." (Recommendation 12)	Clinical Standard
	"In those patients with significant weight changes and/or a family history indicating high risk, lipid profiles should be obtained at baseline and monitored at regular intervals" (Recommendation 13)	Clinical Guideline
AACAP-BP (2007) Practice parameter for the assessment and treatment of children and adolescents with bipolar disorder[3]	"Psychopharmacological interventions require baseline and follow-up symptom, side effect, and laboratory monitoring as indicated…. *The American Diabetes Association's recommendations for managing weight gain for patients taking antipsychotics should be followed. This includes baseline BMI, waist circumference, blood pressure, fasting glucose, and a fasting lipid panel. The BMI should be followed monthly for 3 months and then quarterly. Blood pressure, fasting glucose and lipids should be followed up after 3 months then yearly*." (Recommendation 8)	Minimal Standard
AACAP-SZ (2001) Practice parameter for the assessment and treatment of children and adolescents with schizophrenia[2]	"The use of antipsychotic agents requires…. documentation any required baseline and follow-up laboratory monitoring..."	Minimal Standard

Organization (Date)	Recommendation	Type/Grade
CAMESA (2011) Canadian Alliance for Monitoring Effectiveness and Safety of Antipsychotics in Children—Evidence-based recommendations for monitoring safety of second-generation antipsychotics in children and youth[4]	The guideline provides antipsychotic medication-specific recommendations for monitoring physical examination maneuvers (height, weight, BMI, waist circumference, blood pressure, and neurological examination for extrapyramidal symptoms), and laboratory tests (glucose, insulin, lipid profile tests, AST, ALT, prolactin, and TSH) for children on AAAs. The GRADE rating system is used to rate each test, for each medication, at each time point examined (baseline, 3, 6, and 12 months). In recognition that clinicians may not have the resources to apply drug specific recommendations, the guideline developers also created a simplified version of the recommendations. Summary recommendation: All children prescribed AAAs should be monitored for metabolic side effects at baseline, 3, 6, and 12 months with the following tests: fasting glucose, fasting insulin, and fasting lipid profile (total cholesterol, LDL, HDL, TG). (Note: Fasting insulin is not recommended for youth on aripiprazole, but is appropriate for all other AAAs)	Ranges from 1A (strong) to not recommended depending on the specific medication, laboratory test and timeframe. Strongest evidence and recommendations are for baseline tests.
	A baseline fasting glucose is recommended for all children and adolescents on AAAs (strong recommendation/low quality evidence all AAAs except Ziprasidone, weak recommendation/ consensus based)	1C (all AAA except Ziprasidone) 3 (Zip=3)
	A baseline fasting lipid profile is recommended for all children and adolescents on AAAs (strong recommendation with high to low evidence depending upon the AAA, except Ziprasidone, weak recommendation/consensus based)	1A-1C (all AAAs except Ziprasidone) 3 (Zip=3)
	A follow-up fasting glucose and fasting lipid panel (one or more of the tests within the panel) is strongly recommended for all children at one or more time points during the year. (strong recommendation/high-moderate-low evidence for all AAAs, except Ziprasidone, weak recommendation/consensus based)	1A-1C (all AAAs except Ziprasidone) 3 (Zip=3)
PPWG (2007) The AACAP-sponsored Preschool Psychopharmacology Working Group—Psychopharmacological treatment for very young children: Contexts and guidelines[5]	"Use of AAA should follow the AACAP practice parameter on AAAs. This practice parameter describes the minimum standards for monitoring vital signs, BMI, fasting blood glucose, extrapyramidal symptoms, lipid profiles, and electrocardiography." (Disruptive Behaviors Algorithm, Stage 2: Pharmacological Intervention).	Not specified
T-MAY (2012) Center for Education and Research on Mental Health Therapeutics—Treatment of maladaptive aggression in youth[6]	Practitioners should conduct appropriate, guideline-based laboratory monitoring.	Evidence: A, Recommendation: Very strong
TX (2010) Texas Department of Family and Protective Services—Psychotropic medication utilization parameters for foster children[7]	Practitioners should document appropriate monitoring of laboratory findings.	Not specified*

*TX (2010) did not specify the use of any rating system.

Grading System Key

Guideline Developer	Definition
AACAP	**Minimal Standard/ Clinical Standard:** rigorous/ substantial empirical evidence (meta-analyses, systematic reviews, RCTs) and/or overwhelming clinical consensus; expected to apply more than 95% of the time
	Clinical guidelines: strong empirical evidence (non-randomized controlled trials, cohort or case-control studies), and/or strong clinical consensus; expect to apply in most cases (75% of the time)
	Options: acceptable but not required; there may be insufficient evidence to support higher recommendation (uncontrolled trials, case/series reports).
	Not endorsed: ineffective or contraindicated.
AACAP endorsed best practice principles	**Best practice principles** that underlie medication prescribing, to promote the appropriate and safe use of psychotropic medications
CAMESA	**GRADE**[8,9]
	1A: Strong recommendation, High quality evidence
	1B: Strong recommendation, Moderate quality evidence
	1C: Strong recommendation/ Low quality evidence
	2A: Weak recommendation, High or moderate quality evidence
	2B: Weak recommendation, Low quality evidence
	3: Weak recommendation, No evidence, consensus based
PPWG	**A:** Well controlled RCTs, large meta-analyses, or overwhelming clinical consensus
	B: Empirical evidence (open trials, case series) or strong clinical consensus
	C: Single case reports or no published reports, recommendation developed by expert consensus (informal)
Guideline Developer	**Definition**
TMAY Ratings	Oxford Centre for Evidence-Based Medicine grade of evidence (A-D)[10]
	Strength of Recommendation: Very strong (≥90% agreement)
	Strength of Recommendation: Very strong (70%-89% agreement)
	Strength of Recommendation: Very strong (50%-69% agreement)
	Strength of Recommendation: Very strong (<50% agreement)

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Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

Measure Workup

Topic Overview

Prevalence and Importance

Prevalence of antipsychotic use in children and adolescents

Antipsychotic prescribing for children and adolescents rapidly increased in recent decades and peaked in the late 2000s. In 2010, 1% of children 12–19 years had received an antipsychotic in the past month (Jonas et al., 2013). Utilization has since declined slightly, however, particularly for the population under Medicaid (Crystal et al., 2016). A study evaluating children under Medicaid who are not in foster care demonstrated a 16% decrease in prevalence of antipsychotic use, from 9.4 per 1,000 in 2006, to 7.9 per 1,000 in 2012 (Kalverdijk et al., 2017). Although utilization rates for children under Medicaid who are in foster care are also decreasing, they continue to demonstrate higher utilization than children who are not in foster care.

Although antipsychotic medications may be effective for a narrowly defined set of psychiatric disorders in children, they are often prescribed for nonpsychotic conditions such as attention-deficit disorder and disruptive behaviors (McKinney and Renk, 2011; Cooper et al., 2004; Olfson et al., 2006), conditions for which psychosocial interventions are considered first-line treatment (Kutcher et al., 2004; Pappadopulos et al., 2003; Scotto Rosato et al., 2012). Thus, clinicians may be underutilizing safer first-line psychosocial interventions and using antipsychotics for nonprimary indications in children and adolescents. A study evaluating antipsychotic utilization among youths under Medicaid in 2011 found that among those newly on an antipsychotic, 33% received psychosocial care proximal to antipsychotic initiation (Crystal et al., 2016).

Health importance

Use of antipsychotics in children can increase their risk for developing serious health concerns such as metabolic and physical health complications (Crystal et al., 2009), which are of particular concern, given the potential for adversely affecting development. Antipsychotic medications are associated with a number of potential adverse impacts, including weight gain (Correll et al., 2009) and diabetes (Andrade et al. 2011; Bobo et al., 2013), which can have serious implications for future health outcomes. For example, metabolic problems in childhood and adolescence are associated with poor cardiometabolic outcomes in adulthood (Srinivasan et al. 2002). Obesity and dyslipidemias in childhood carry increased long-term health risk into adulthood, including heart disease, cancer and shortened life span (Daniels, 2006). Other serious risks associated with antipsychotic medications in children include extrapyramidal side effects, sedation and somnolence, liver toxicity and cardiac arrhythmias (Correll, 2008).

Children without a primary indication for an antipsychotic and who are not given the benefit of a trial of psychosocial treatment first may unnecessarily incur the risks associated with antipsychotic medications, including those mentioned in the paragraph above. Mental health conditions themselves in youth are associated with a number of potential adverse impacts, including increased risk for substance use (Substance Abuse and Mental Health Services Administration, 2007).
To the extent that psychosocial interventions are associated with better outcomes (Jensen et al., 2001; Eyberg et al., 2008; Schimmelmann et al., 2013), underuse of these therapies may lead to poorer mental and physical health outcomes.

Financial importance and cost-effectiveness

There have been no studies comparing the short-term cost-effectiveness of antipsychotic treatment, compared with psychosocial interventions, but psychosocial treatment is not known or proposed to have any ongoing costs after termination, while antipsychotics have the potential to cause lasting health effects and associated treatment costs.

Children without a primary indication for an antipsychotic who are not given the benefit of a trial of psychosocial treatment may unnecessarily incur the costs/ harms associated with antipsychotics, one of the most costly medication classes (Crystal et al., 2009), and substantial long-term costs of treating the health effects associated with antipsychotic medications, including treatment of obesity, diabetes and dyslipidemias. There is some evidence that health conditions such as new onset diabetes may not resolve after discontinuation of the antipsychotic (Lean and Pajonk, 2003).

Although this is an understudied area, it is reasonable to assume that unresolved health effects of antipsychotics would be associated with long-term increases in health costs established for obesity and diabetes.

Evidence Supporting Use of Psychosocial Care for Children on Antipsychotic Medication

Psychosocial care as a first-line treatment

Psychosocial interventions are associated with positive outcomes for children and youths diagnosed with conditions such as attention-deficit hyperactivity disorder (ADHD), disruptive behavior and early-onset schizophrenia (Ollendick et al., 2006; Pelham and Fabiano, 2008; Weisz et al., 2005; Kutcher et al., 2004). Practice guidelines for many pediatric behavioral health conditions commonly treated with antipsychotics, including aggression, bipolar disorder, and schizophrenia, recommend psychosocial interventions as part of a comprehensive treatment plan.

Treatment recommendations endorse the use of psychosocial treatment prior to advancing to antipsychotics, in the absence of a primary indication for use of an antipsychotic. These recommendations are based on established metabolic effects of antipsychotics and other health risks, and evidence of efficacy of psychosocial treatments. This approach preserves access to antipsychotic medications when needed, while ensuring that children have access to effective and safer alternatives first.

Psychosocial services are first-line treatment for very young children (Gleason et al., 2001), youths with aggression (Pappadopulos et al., 2003; Scotto Rosato et al., 2012) and disruptive behavior disorders (Steiner and Remsing, 2007), among other conditions. Concomitant psychosocial services are a minimal standard for youths with schizophrenia (American Academy of Child and Adolescent Psychiatry, 2011) and bipolar disorder (McClellan et al., 2007). In the absence of an FDA indication, guidelines recommend psychosocial treatments prior to initiating an antipsychotic (American Academy of Child and Adolescent Psychiatry, 2011; Pappadopulos et al., 2003; Scotto Rosato et al., 2012).

Use of antipsychotics in the absence of a primary indication

Many children and adolescents receiving antipsychotic medications do not have a primary indication for their use. Studies have found that antipsychotics are increasingly being prescribed for children who have conditions such as ADHD and disruptive behavior disorders (Cooper et al., 2004; Olfson et al., 2006), which are not primary indications for the use of antipsychotics. Use of antipsychotics in children and adolescents has been examined for a broad array of other nonprimary indications, including depression, anxiety disorders, eating disorders, obsessive compulsive disorder, post-traumatic stress disorder and even insomnia. However, for these nonprimary indications, psychosocial interventions are recommended treatment options, while antipsychotics are not.

Recommendations state that antipsychotics should not be used as first-line treatment for children who do not have a primary indication. Increasing access to indicated psychosocial treatments prior to initiating an antipsychotic in the absence of a primary clinical indication is a marker of quality, and may improve the safety of treatment by decreasing the use of antipsychotics.

Although aggression and disruptive behavior disorders do not have a Food and Drug Administration approved indication for use of antipsychotics outside of autism, there is a small but growing body of evidence that antipsychotics can be effective, and current treatment guidelines endorse a trial of antipsychotics as a second-line treatment, after psychosocial treatment.

Treatment guidelines on the use of psychosocial care and antipsychotics

Three treatment guidelines address the use psychosocial care and antipsychotics, one in general (American Academy of Child and Adolescent Psychiatry Practice Parameters for the Use of Atypical Antipsychotic Medications in Children and Adolescents [AACAP-AAA]), and two for use to manage aggression (TRAAY, TMAY). In addition, the American Psychiatric Association, as part of the Choosing Wisely campaign, released recommendations regarding antipsychotic use. All four recommend use of psychosocial treatments prior to use of antipsychotic medications for nonprimary indications. Recommendations were rated as a minimal standard of care by two guidelines, while the other two guidelines did not rate individual recommendations. Refer to the Guidelines Table, below.

Guidelines for conditions that recommend use of antipsychotics in the absence of a primary indication address the use of psychosocial interventions prior to use of an antipsychotic. Treatment guidelines for management of aggression (Scotto Rosato et al., 2012; Pappadopulos et al., 2003) and disruptive behavior disorders all endorse psychosocial interventions as first-line treatment. Antipsychotics are a recommended second-line treatment option only after psychosocial interventions have been tried, and symptoms are severe and persistent.

The AACAP practice parameters for Oppositional Defiant Disorder recommend psychosocial treatments as a standard of care, and endorse use of antipsychotics with a lower level of recommendation only after psychosocial interventions have been tried. The AACAP-sponsored Preschool Psychopharmacology Working Group published treatment algorithms for a number of conditions, including disruptive behavior disorders, ADHD, major depression, anxiety disorders (GAD, SAD, SM, SP), PTSD, OCD, PDD and sleep disorders, primarily focusing on preschool children 0–5 years of age, but also rated recommendations for children and adolescents 6–18. Psychosocial treatments were first line for all conditions. Only the disruptive behavior disorders had a nonprimary indication for use of an antipsychotic, but only after psychosocial interventions (e.g., parent management training or parent-child interaction therapy) are provided for 10–20 weeks. For very young children, the guideline recommends psychosocial interventions prior to any psychotropic medication.

Gaps in care

However, even as the use of psychopharmacological interventions increased, the proportion of children and adolescents receiving outpatient psychotherapy declined, from 2.95% in 1998 to 2.72% in 2007 (Olfson et al., 2010). One study of Medicaid-enrolled children and youths starting an antipsychotic medication found that almost one-third did not receive concurrent psychosocial therapy (Harris et al., 2012). The study also found that youths 12–17 years of age who are prescribed antipsychotics are less likely to receive concurrent psychotherapy than children 6–11 years of age. A study of privately insured children 2–5 years of age found that only 40% of those prescribed an antipsychotic also had one or more therapy visits in the measurement year (Olfson et al., 2010).

The *First-Line Psychosocial Care for Children and Adolescents on Antipsychotics* measure has been reported by Medicaid and commercial plans for four years. HEDIS results for 2017 demonstrate that, on average across plans, 59.6% and 53.6% of children receive psychosocial care proximal to initiation of antipsychotics for Medicaid and commercial plan, respectively. Measure rates are low and have not changed over time. The average Medicaid performance rate was 57.4% in 2015, roughly a 4% change from 2017 results, and the average commercial performance rate was 55.2% in 2015, roughly a 2% change from 2017 results.

Health care disparities

Research using the Medical Expenditure Panel Survey shows that Black and Latino youths 5–21 years of age were significantly less likely to access outpatient mental health care (LeCook et al., 2013). This finding is consistent with over a decade of research suggesting that minority youths may have both higher unmet needs for mental health care and receive lower-quality care than White youths (Alegria et al., 2010). Data also suggest that youths involved in the child welfare system, particularly those 10 years and younger, may have significant unmet mental health needs (Burns et al., 2004).

Analysis of Medicaid data shows that youths in foster care are more likely to be prescribed antipsychotic medications than those not in foster care (Zito et al., 2008). Taken together, these trends suggest that access to psychosocial interventions for minority and foster care youths prescribed antipsychotics may be of particular importance.

Research also demonstrates that children without health insurance have higher rates of unmet needs for mental health care than those with public insurance, suggesting that Medicaid and the Children's Health Insurance Program (CHIP) may play an important role in promoting access to care (Kataoka et al., 2001). In addition, the rate of increase in use of antipsychotics is higher for children and adolescents with public insurance than commercial insurance, suggesting this measure may help improve the quality of mental health care for children with public insurance particularly. It is unclear what factors are associated with lack of access to psychotherapy for this population.

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Specific Guideline Recommendations

Recommendations Supporting Use of Psychosocial Interventions for Children and Adolescents

Guideline (Date)	Population	Recommendation or Statement	Type/Grade
AACAP-AAA (2011) Practice parameter for the use of atypical antipsychotic medications in children and adolescents[1]	5-18 years	"Prior to the initiation of and during treatment with an AAA, the general guidelines that pertain to the prescription of psychotropic medications should be followed… *including education and psychotherapeutic interventions for the treatment and monitoring of improvement*" (Recommendation1)	Clinical Standard
		"*In the absence of specific FDA indications or substantial evidence for effectiveness, physicians should consider other medication or psychosocial treatments before initiating antipsychotic treatment*." (under Recommendation 2)	Clinical Standard
AACAP-BP (2007) Practice parameter for the assessment and treatment of children and adolescents with bipolar disorder[2]	≤18 years	"Psychotherapeutic interventions are an important component of a comprehensive treatment plan for early-onset bipolar disorder". (Recommendation 10)	Minimal Standard
AACAP-ODD (2007) Practice parameter for the assessment and treatment of children and adolescents with oppositional defiant disorder[3]	≤18 years	"The clinician should develop an individualized treatment plan based on the specific clinical situation…. *The two types of evidence-based treatments for youth with ODD are individual approaches in the form of problem solving skills and family interventions in the form of parent management training*" (Recommendation 7)	Minimal Standard
		"The clinician should consider parent intervention based on one of the empirically tested interventions" (Recommendation 8)	Minimal Standard
		"Medications may be helpful as adjuncts to treatment packages, for symptomatic treatment and to treat comorbid conditions" (Recommendation 9) Supporting notes recommend that if medications are initiated, it should be after psychosocial interventions are in place, and that medications should not be the only treatment. *"Several open and double-blind placebo-controlled studies show that typical and atypical antipsychotics are helpful in treating aggression after appropriate psychosocial interventions have been applied in the context of mental retardation and PDD"* (under Recommendation 9)	Clinical Guideline

Guideline (Date)	Population	Recommendation or Statement	Type/Grade
AACAP-SZ (2001) Practice parameter for the assessment and treatment of children and adolescents with schizophrenia[4]	≤18 years	"Adequate treatment requires the combination of psychopharmacological agents plus psychosocial interventions" (Recommendations—Treatment)	Minimal Standard
		"The following psychosocial interventions are recommended: 1) Psychoeducational therapy for the patient, including ongoing education about the illness, treatment options, social skills training, relapse prevention, basic life skills training, and problem-solving skills and strategies, 2) Psychoeducational therapy for the family to increase their understanding of the illness, treatment options, and prognosis and for developing strategies to cope with the patient's symptoms." (Recommendations—Psychosocial Interventions)	Minimal Standard
		"Specialized educational programs and/or vocational training programs may be indicated for some children or adolescents to address the cognitive and functional deficits with the illness" (Recommendations—Psychosocial Interventions.	Clinical Guidelines
PPWG (2007) The AACAP-sponsored Preschool Psychopharmacology Working Group - Psychopharmacological treatment for very young children: Contexts and guidelines[5]	<6 years	"Universal guidelines are provided to encourage careful and planful clinical practice: • Avoid medications when therapy is likely to produce good results • Generally, an adequate trial of psychotherapy precedes consideration of medication, and psychotherapy continues if medications are used…"	(see diagnostic specific ratings)
		ADHD: Parent Management Training or other behavioral intervention x 8 weeks minimum, is first line for preschoolers	A (preschool)
		Disruptive behavioral disorders: Psychotherapy (e.g. Parent management training, parent child interaction therapy) x 10-20 weeks	A (preschool)
		MDD: Psychotherapy is first line (e.g. dyadic psychotherapy, target emotional regulation) x 3-6 months	C (preschool) A (6-18yrs)
		BP: Psychotherapy is first line (e.g. dyadic psychotherapy, target emotional regulation) x 8-12 sessions	C (preschool) A (6-18yrs)
		Anxiety (GAD, SAD, SM, SP): CBT is first line, x 12 weeks	C (preschool) A (6-18yrs)
		PTSD: Psychotherapy is first line (Child Parent Psychotherapy x 6 months minimum; or CBT x 12 weeks minimum, or if unavailable then Play therapy x months	A (Preschool CPP, CBT) B (Preschool; Play therapy) A (6-18yrs, CBT)
		OCD: CBT with parent involvement, behavioral therapy x 12 weeks minimum	C (Preschool) A (6-18yrs)
		PPD: Behavioral, developmental, psychoeducational intervention is first line	A (Preschool and 0-18yrs)
		Sleep: Parent education and sleep hygiene	C (Preschool) A (6-18yrs)

Guideline (Date)	Population	Recommendation or Statement	Type/Grade
TMAY (2012) Center for Education and Research on Mental Health Therapeutics - Treatment of maladaptive aggression in youth[6]	≤18 years	"Provide or assist the family in obtaining evidence-based parent and child skills training during all phases of care" (Recommendation 10)	Grade of evidence = A Strength of recommendation = Very Strong
		"Engage the child and family in taking an active role in implementing psychosocial strategies and help them to maintain consistency" (Recommendation 11)	Grade of evidence = B Strength of recommendation = Very Strong
		"Recommendations 10 and 11 pertain to psychosocial interventions, which should be the first line of treatment because of its lower risk, preceding the use of medication to address aggression except in emergency circumstances…" (Under Treatment Recommendations—unrated explanatory comment)	Not specified
TRAAY (2003) Center for the Advancement of Children's Mental Health: Treatment recommendations for the use of antipsychotics for aggressive youth[7]	≤18 years	Psychosocial and educational interventions should continue after medication treatment begins.	Not specified*

*TX (2010) did not specify the use of any rating system.

Grading System Key

Guideline Developer	Definition
AACAP	**Minimal Standard/ Clinical Standard:** Rigorous/ substantial empirical evidence (meta-analyses, systematic reviews, RCTs) and/or overwhelming clinical consensus; expected to apply more than 95% of the time
	Clinical guidelines: strong Empirical evidence (non-randomized controlled trials, cohort or case-control studies), and/or strong clinical consensus; expect to apply in most cases (75% of the time)
	Options: Acceptable but not required; there may be insufficient evidence to support higher recommendation (uncontrolled trials, case/series reports).
	Not endorsed: Ineffective or contraindicated.
AACAP endorsed best practice principles	**Best practice principles** that underlie medication prescribing, to promote the appropriate and safe use of psychotropic medications
PPWG	**A:** Well controlled RCTs, large meta-analyses, or overwhelming clinical consensus
	B: Empirical evidence (open trials, case series) or strong clinical consensus
	C: Single case reports or no published reports, recommendation developed by expert consensus (informal)
TMAY Ratings	Oxford Centre for Evidence-Based Medicine grade of evidence (A–D)[8]
	Strength of Recommendation: Very strong (≥90% agreement)
	Strength of Recommendation: Very strong (70%-89% agreement)
	Strength of Recommendation: Very strong (50%-69% agreement)
	Strength of Recommendation: Very strong (<50% agreement)

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HEDIS Health Plan Performance Rates: Metabolic Monitoring for Children and Adolescents on Antipsychotics (APM)

Table 3. HEDIS APM Measure Performance by Year—Medicaid Plans

Measurement Year	Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2017*	275	166 (60.4)	34.6	12.6	22.0	25.9	31.8	41.0	50.8
2016	282	164 (58.2)	33.3	10.9	22.0	24.9	31.8	39.1	48.1
2015	278	157 (56.5)	29.8	8.5	18.6	23.9	29.6	34.9	42.3

*For 2017, the average denominator across plans was 1,035 individuals

Table 4. HEDIS APM Measure Performance by Year—Commercial Plans

Measurement Year	Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2017*	406	272 (67.0)	34.6	10.7	22.2	26.8	33.8	40.8	47.7
2016	420	279 (66.4)	33.9	10.0	22.4	27.3	32.9	39.4	46.7
2015	428	287 (67.1)	32.1	9.9	20.0	25.7	32.0	38.8	43.3

*For 2017, the average denominator across plans was 242 individuals

HEDIS Health Plan Performance Rates: Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

Table 1. HEDIS APP Measure Performance by Year—Medicaid Plans

Measurement Year	Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2017*	275	137 (49.8)	59.6	13.4	45.9	53.0	61.4	67.7	72.7
2016	282	134 (47.5)	60.2	13.3	43.9	53.8	61.8	68.2	74.2
2015	278	112 (40.3)	57.4	15.9	36.7	48.8	60.4	68.6	74.3

*For 2017, the average denominator across plans was 440 individuals

Table 2. HEDIS APP Measure Performance by Year—Commercial Plans

Measurement Year	Number of Plans (N)	Number of Plans Reporting (N (%))	Performance Rates (%)						
			Mean	Standard Deviation	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
2017*	406	187 (46.1)	53.6	11.2	40.5	46.2	53.6	61.0	67.6
2016	420	160 (38.1)	57.7	10.7	43.3	51.9	58.0	64.3	71.1
2015	428	182 (42.5)	55.2	11.9	39.2	49.1	55.4	63.1	69.2

*For 2017, the average denominator across plans was 139 individuals