

Evidence for the Management of Adolescent Depression

abstract

Adolescent depression is a prevalent and disabling condition resulting in emotional suffering and social and educational dysfunction. Care for adolescent depression is suboptimal and could be improved through the development and use of quality indicators (QIs). This article reports on the development of a care pathway and QIs for the primary and specialty care management of adolescent depression from case identification through symptom remission. It presents evidence from a review of adolescent clinical practice guidelines and research literature to support QIs at critical nodes in the pathway, and describes implications for practice based on existing evidence. Barriers to measure development are identified, including gaps in empirical evidence, and a research agenda is suggested. *Pediatrics* 2013;132:e996–e1009

AUTHORS: R. Eric Lewandowski, PhD, MSc,^a Mary C. Acri, PhD,^a Kimberly E. Hoagwood, PhD,^a Mark Olfson, MD, MPH,^{b,c} Greg Clarke, PhD,^d William Gardner, PhD,^{e,f} Sarah Hudson Scholle, DrPH,^g Sepheen Byron, MHS,^g Kelly Kelleher, MD,^{fh} Harold A. Pincus, MD,^{b,i,j,k} Samantha Frank, BA,^a and Sarah M. Horwitz, PhD^a

^aDepartment of Child and Adolescent Psychiatry, New York University School of Medicine New York, New York; ^bDepartment of Psychiatry, and ^cIrving Institute for Clinical and Translational Research, Columbia University, New York, New York; ^dNew York State Psychiatric Institute, New York, New York; ^eKaiser Permanente Center for Health Research, Portland, Oregon; ^fDepartment of Pediatrics, Dalhousie University, Halifax, Nova Scotia; ^gDepartment of Pediatrics, The Ohio State University, Columbus, Ohio; ^hNational Committee for Quality Assurance, Washington District of Columbia; ⁱNationwide Children's Hospital, Columbus, Ohio; ^jNew York-Presbyterian Hospital, New York, New York; and ^kRAND Corporation, New York, New York

KEY WORDS

adolescents, depression, quality measurement, primary care, health care policy

ABBREVIATIONS

AACAP—American Academy of Child and Adolescent Psychiatry
AAP—American Academy of Pediatrics
BEST—Best Evidence Statement
CBT—cognitive behavior therapy
CPG—Working Group of the Clinical Practice Group on the Management of Major Depression in Childhood and Adolescence
EHR—electronic health record
GAPS—Guidelines for Adolescent Preventive Services
GLAD-PC—Guideline for Adolescent Depression in Primary Care
IPT—interpersonal psychotherapy
NICE—National Institute for Health and Clinical Excellence
PHQ—patient health questionnaire
QI—quality indicator
RCT—randomized controlled trial
SSRI—selective serotonin reuptake inhibitor
USPSTF—US Preventive Services Task Force

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Depression is a debilitating and chronic disorder, affecting between 12% and 25% of adolescents.^{1–4} Lifetime prevalence of depression and dysthymia increases from 8.4% for ages 13 to 14 to 15.4% for ages 17 to 18.⁴ Phenomenologically, depression appears consistent across adolescence.⁵ Onset before age 12 has been linked to poor functioning, more lifetime depression episodes, suicide attempts, and psychiatric comorbidity, but a risk gradient within adolescence has not been defined.⁶ Adolescent depression is associated with negative academic, social, and health outcomes, including depression in adulthood, substance abuse, early pregnancy and parenthood, higher medical expenses, and increased suicide risk.^{2,7–15}

Despite the high burden of depression and the availability of effective treatments, up to 80% of affected adolescents do not receive appropriate care.^{2,16–19} The challenging task of identifying adolescents with depression falls disproportionately to pediatricians, as most depressed adolescents present

in primary rather than specialty care. Adolescent depression diagnoses, however, often may be missed in primary care.^{20–23} Pediatricians report high perceived responsibility for diagnosing depression, but low confidence in their ability to do so, and highlight time constraints as a key barrier to gathering adequate psychiatric history.²⁴ Mental health toolkits developed by the American Academy of Pediatrics (AAP) and Bright Futures are important steps to improve primary care response to mental health problems^{25,26}; although establishing clinically meaningful, evidence-based practice standards would contribute further to improving practice. The National Quality Strategy of the 2010 Patient Protection and Affordable Care Act has endorsed measuring and tracking quality indicators (QIs) as a strategy to improve health care quality,^{27–29} but despite recognition of child mental health care as a national priority,³⁰ few child mental health QIs have received widespread support.^{28,31,32} This report presents evidence to support a care pathway and QIs

for adolescent depression, a research agenda to strengthen the evidence base, and provides direction for clinical practice based on current evidence.

METHODS

The National Guidelines Clearing House and Guideline International Network were searched by using the term “depression”; all guidelines related to the identification, management, and treatment of adolescent depression were reviewed. Other relevant guidelines were also included. Guidelines were derived from systematic reviews of the literature, combinations of systematic review and expert consensus, and expert consensus alone. All guidelines were issued by national-level organizations in the United States and Europe. The guidelines were synthesized and used to guide the development of a care pathway that included essential practices for adolescent depression management from screening to symptom remission (Fig 1) and the specification of 11 QIs representing practices in the

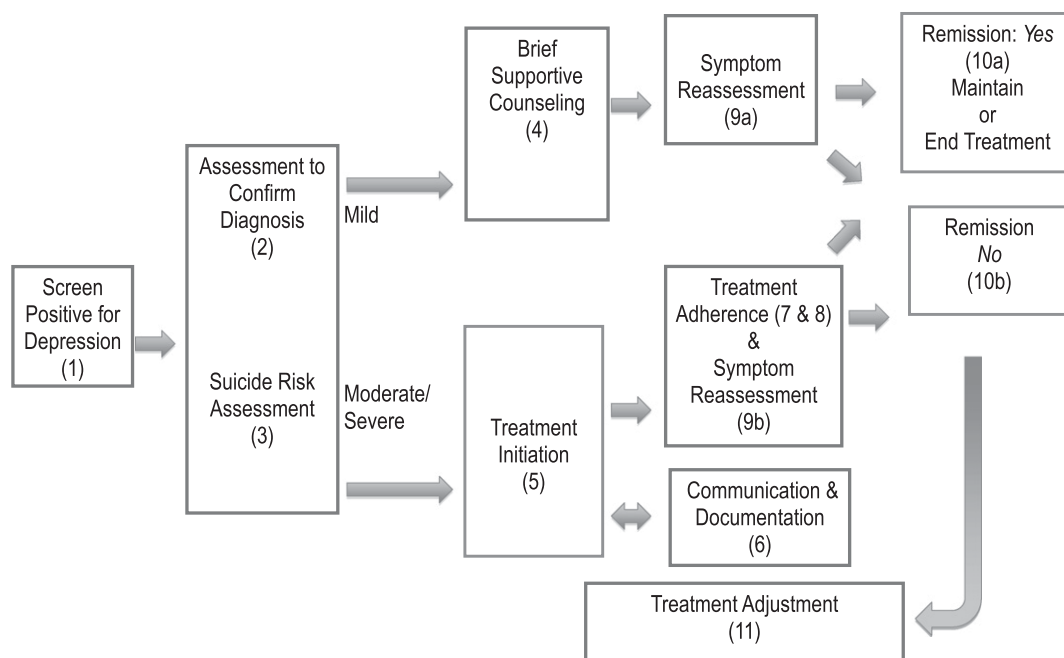


FIGURE 1

Depression management care pathway. Numerals in the figure correspond to numbered sections in the text.

pathway (Table 1). The care pathway and QIs were reviewed by stakeholder panels (mental health service consumers, primary care clinicians convened in collaboration with AAP, specialty mental health clinicians, and state Medicaid and mental health officials), and by an expert advisory panel from mental health, pediatrics, and quality measurement. The advisory panel recommended 8 of the 11 indicators for pilot testing to assess feasibility for use in state and federal accountability reporting (QIs 1, 2, 3, 5, 6, 9, 10 and 11). What follows however is a review of the complete set of indicators for managing adolescent depression.

Targeted searches of research literature were conducted by using PsycINFO and Medline databases, initially limited to the period of 1990 to 2012, to gather further

support for the practices synthesized from guideline review, and in particular for those judged by the advisory panel to be important but lacking strong guideline support. Literature from before 1990 or after 2012 was included on a case-by-case basis. If meta-analyses and systematic reviews were identified, the search was ended. If none were found, the search was expanded to include individual experimental, quasiexperimental, and non-experimental studies. In areas with a paucity of evidence in the child and adolescent literature, the adult mental health literature was searched. Adult literature searches were not intended to be exhaustive, and major studies relevant to the practices presented may not be included. For indicators supported by meta-analyses, important examples of individual studies were also listed.

RESULTS

This section describes guideline recommendations and research evidence supporting the practices in the adolescent depression care pathway, and the corresponding QI (Table 2). Each section, which corresponds with a numbered step in the care pathway (Fig 1), includes implications for current practice.

QI 1: Screening

Guideline Recommendations

The US Preventive Services Task Force (USPSTF), and the National Institute for Health and Clinical Excellence (NICE) recommend universal screening of 12- to 18-year-olds for depression in primary care.^{33,34} The American Academy of Child and Adolescent Psychiatry

TABLE 1 Potential Adolescent Depression Measure Concepts With Numerator and Denominator Descriptions

Measure Concept	Denominator	Numerator
QI 1: Screening for depression.	All adolescents.	Adolescents who were screened for depression using an approved standardized screening tool.
QI 2: Assessment to confirm diagnosis.	Adolescents who screened positive for depression or who present to specialty care with depressionlike symptoms or related behavioral complaint.	Adolescents who received an assessment to confirm diagnosis.
QI 3: Suicide risk assessment.	Adolescents with a depression diagnosis or who responded positively to self-harm items on screening tool.	Adolescents who received a suicide assessment.
QI 4: Brief supportive counseling.	Adolescents with a diagnosis of mild depression.	Adolescents with a diagnosis of mild depression who received at least 2 contacts consisting of brief supportive counseling (ie, problem-solving, education, active listening) within 8 wk of assessment.
QI 5: Treatment initiation (antidepressant medication or psychotherapy).	Adolescents with a diagnosis of moderate or severe depression or with persistent mild depression symptoms.	Adolescents with a diagnosis of moderate or severe depression or with persistent mild symptoms who are started on antidepressant medication or psychotherapy initiation or referred for treatment in specialty care for treatment; In specialty care: initiation of meds or psychotherapy.
QI 6: Communication and documentation.	Adolescents with a diagnosis of depression.	Adolescents with diagnosis of depression for whom communication about depression occurred between specialist and primary care provider.
QI 7: Adequacy of treatment course: antidepressant medication.	Adolescents with a diagnosis of depression who initiate antidepressant medication treatment.	Adolescents who received antidepressant treatment of duration of at least 60 d.
QI 8: Adequacy of treatment course: psychotherapy.	Adolescents with a diagnosis of depression who initiate psychotherapy treatment.	Adolescents who received at least 8 sessions of psychotherapy within 16 wk of referral.
QI 9: Symptom reassessment.	Adolescents with a diagnosis of depression at initial assessment.	Adolescents who received symptom reassessment with standardized tool within 8-12 wk of initial diagnosis.
QI 10: Remission.	Adolescents with a diagnosis of depression at initial assessment.	Adolescents with a score below clinical cutoff on screening tool or who are judged no longer to meet DSM criteria within 6 mo of initial diagnosis.
QI 11: Treatment adjustment.	Adolescents with a diagnosis of depression at initial assessment who do not have 50% score reduction and are above clinical cutoff on a standardized screening tool or still meet DSM-IV-TR diagnostic criteria after 12 wk of treatment.	Documentation of added or increased medication, added or increased psychotherapy. For primary care: referral to specialty care.

DSM, *Diagnostic and Statistical Manual*.

TABLE 2 Evidence to Support QIs

Measure Concept	Evidence From Studies in Adolescents	Evidence From Studies in Adults
Q1 1: Depression screening.	<ul style="list-style-type: none"> • Guideline^{33–36} • Meta-analysis/systematic review⁴⁴ • RCT^{45,46} 	<ul style="list-style-type: none"> • Not searched
Q1 2: Assessment to confirm diagnosis.	<ul style="list-style-type: none"> • Quasi/nonexperimental^{37–43} • Guideline^{34,35,47–50} 	<ul style="list-style-type: none"> • Not searched
Q1 3: Suicide risk assessment.	<ul style="list-style-type: none"> • Quasi/nonexperimental^{52–60} • Guideline^{35,36,48} 	<ul style="list-style-type: none"> • Quasi/nonexperimental^{61–63,65–67}
Q1 4: Brief supportive counseling.	<ul style="list-style-type: none"> • Quasi/nonexperimental^{64,68,69} • Guideline^{34,35,47–50} • RCT^{70,75,79–82,85–87} • Quasi/nonexperimental⁷⁴ 	<ul style="list-style-type: none"> • Meta-analysis/systematic review^{71–73,76–78,83,84}
Q1 5: Treatment initiation (antidepressant medication or psychotherapy).	<ul style="list-style-type: none"> • Guideline^{33–36,47–50} • Meta-analysis/systematic review^{88–92} • RCT^{85,93–96} 	<ul style="list-style-type: none"> • Not searched
Q1 6: Communication and documentation.	<ul style="list-style-type: none"> • Guideline⁵⁰ • RCT^{8,108,109} • Quasi/nonexperimental^{103–107} 	<ul style="list-style-type: none"> • Meta-analysis/systematic review¹¹¹ • RCT¹¹⁰
Q1 7: Adequacy of treatment course: antidepressant medication.	<ul style="list-style-type: none"> • Guideline^{35,48} • Meta-analysis/systematic review⁸⁹ • RCT^{80,95,96,120} 	<ul style="list-style-type: none"> • RCT¹¹⁹
Q1 8: Adequacy of treatment course: psychotherapy.	<ul style="list-style-type: none"> • Guideline⁴⁸ • RCT^{80,95,96,117,118} 	<ul style="list-style-type: none"> • Meta-analysis¹¹² • RCT^{113–116}
Q1 9: Symptom reassessment.	<ul style="list-style-type: none"> • Guideline^{34,35,48–50} • RCT¹²⁴ 	<ul style="list-style-type: none"> • Meta-analysis/systematic review^{125–127}
Q1 10: Remission.	<ul style="list-style-type: none"> • Guideline^{34,35,48,49} • RCT^{85,93,129–137} 	<ul style="list-style-type: none"> • Quasi/nonexperimental^{138–148}
Q1 11: Treatment adjustment.	<ul style="list-style-type: none"> • Guideline^{34,35,48–50} • RCT⁹⁶ 	<ul style="list-style-type: none"> • RCT^{151–153} • Quasi/nonexperimental¹⁴⁹

(AACAP) recommends routine depression screening as part of psychiatric assessment.³⁵ In the Guidelines for Adolescent Preventive Services (GAPS), the American Medical Association recommends that all children be asked annually about signs of recurrent or severe depression or suicide risk and depression screening for adolescents who demonstrate signs or risk factors.³⁶ NICE recommends the Mood and Feeling Questionnaire, but no other guidelines indicate a preferred tool.³⁴ USPSTF specifies that screening should occur only when appropriate follow-up and treatment are possible.

Rationale and Evidence

Screening for adolescent depression in primary care is infrequent,^{37,38} although tools developed for primary care, such as the Patient Health Questionnaire (PHQ-2, PHQ-9), the PHQ for Adolescents (PHQ-A), and the Beck Depression Inventory–Primary Care Version have been used successfully with adolescents.^{39–43}

Screening at well-care visits using a standardized measure could improve care but depression screening on its own has not been linked to improved clinical outcomes in children or adolescents.⁴⁴ One program pairing screening with a brief video on depression and suicidality led to fewer youth suicide attempts.^{45,46}

Practice Implications

Use of standardized depression screening tools may improve identification and triage of adolescents with depression; providers should consider their use when possible.

Q1 2: Assessment to Confirm Diagnosis

Guideline Recommendations

AACAP recommends that evaluations follow positive screens to determine the presence of depression and of family or environmental stressors.³⁵ NICE similarly advocates assessment of social and educational context and functioning.³⁴

The first Guideline for Adolescent Depression in Primary Care (GLAD-PC-I) and the Working Group of the Clinical Practice Group on the Management of Major Depression in Childhood and Adolescence (CPG) recommend that primary care clinicians use standardized tools to assess adolescents against *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria, but that these should not replace direct interview and should be augmented by interviews with family members.^{47,48} The Best Evidence Statement (BEST) specifies determination of symptom severity as an essential component of clinical assessment,⁴⁹ and CPG and GLAD-PC-II recommend different treatment courses based on symptom severity.^{48,50}

Rationale and Evidence

Determining diagnosis and symptom severity are the first steps in selecting appropriate empirically supported treatments.⁵¹ Standardized interviews have been developed in research

settings to diagnose child mental health problems and determine severity and functional impairment,^{52–57} and although some have been reliably administered by providers without mental health training,^{57,58} they are prohibitively long for routine primary care. In practice settings, providers generally must base diagnostic decisions on clinical judgment. Mental health and depression toolkits developed by AAP and Bright Futures provide directions for assessment, brief intervention, and referral, although they have not been empirically tested and are not intended as rigorous diagnostic or treatment tools.^{25,26} Item-response theory, adaptive computer-based technology, and decision-tree analyses of self-report questionnaires have recently been used to streamline administration and scoring burden of structured approaches but have not yet been evaluated in relation to child outcomes.^{59,60} Such brief standardized assessment approaches, delivered in the context of a trusting and supportive relationship with the patient, may support or augment diagnostic confidence.

Practice Implications

Whenever feasible, providers should use a structured approach to diagnostic assessment for adolescents who screen positive for depression.

QI 3: Suicide Assessment

Guideline Recommendations

AACAP recommends that evaluation of adolescents who screen positive for depression include assessment of potential for harm to self and others.³⁵ CPG recommends that providers ask patients with depression, or a suicide risk profile, about suicidal ideation or plan. CPG acknowledges that questionnaires are helpful in assessing suicide risk, but states that these cannot replace a clinical interview.⁴⁸ GAPS recommends that adolescents seen in primary care who are suspected to be at suicide risk

should be evaluated immediately and referred for specialty mental health care, or hospitalized.³⁶

Rationale and Evidence

Suicidal ideation is a key predictor of suicide attempts and suicide.^{61–63} The National Comorbidity Study found that 33.9% of adolescent suicide ideators made a suicide attempt.⁶⁴ Research in adults suggests that clinicians do not adequately identify suicidal behavior during routine clinical assessments.^{65,66} Semistructured interviews and suicide assessments captured almost 20% of patients clinically misidentified as not being past suicide attempters and close to 30% of patients clinically misidentified as not having suicidal ideation.⁶⁷ Standardized algorithms and screening tools to assess suicide risk in adolescents have been developed but their use is not widespread.^{68,69}

Practice Implications

Providers should assess suicide risk in adolescents with depression using structured screening and interview tools if feasible.

QI 4: Brief Supportive Counseling

Guideline Recommendations

GLAD-PC-II and BEST recommend up to 8 sessions of supportive therapy as initial treatment of adolescents with mild depression symptoms.^{49,50} AACAP indicates that education, support, and management should accompany all phases of treatment and may be sufficient for uncomplicated brief depression with mild functional impairment.³⁵ GLAD-PC-I also recommends providing families with education about depression and treatment.⁴⁷ NICE and CPG suggest adolescents be offered advice about nutrition and sleep, and NICE also includes exercise and anxiety management.^{34,48} CPG recommends that depression treatment uniformly include psychoeducation and

active support.⁴⁸ There is poor agreement among guidelines concerning essential components, timing, and duration of brief supportive counseling and no indication of when adolescents should be referred for additional services.

Rationale and Evidence

Mild depression in adolescents may remit after a few sessions of non-directive supportive counseling.⁷⁰ No meta-analyses of brief counseling treatments exist for adolescent populations, but meta-analyses of adult studies indicate that brief counseling interventions, including 6 to 8 sessions of cognitive behavior therapy (CBT) and problem-solving therapy, and 3 to 7 sessions of nonspecific psychotherapy in primary care are effective depression treatments.^{71–73} There is no definitive brief counseling protocol for youth, although problem solving and psychoeducation have been identified as key components.^{74,75} No meta-analyses of problem-solving interventions with youth were identified, but such work in adults indicates problem-solving interventions led to greater decreases in depression and hopelessness scores compared with controls⁷⁶ and had equivalent or stronger effects than other therapies.^{77,78} Individual studies in youth demonstrate that problem-solving interventions, including brief video and Internet-based programs, are more effective in reducing depression and suicidal ideation than supportive therapy, treatment as usual, or a preexisting depression treatment regimen.^{79–82}

No systematic reviews or meta-analyses of psychoeducation treatments for youth were identified, although meta-analyses of adult studies indicate significant benefits for depression prevention and treatment.^{83,84} Individual evaluations of psychoeducation treatments for depressed adolescents demonstrate positive effects.^{85–87}

Practice Implications

Providers should offer support, psychoeducation, advice, and problem solving to adolescents with depression symptoms; for mild depression, this may be adequate treatment.

QI 5: Treatment

Guideline Recommendations

Guidelines recommend treating adolescent depression with selective serotonin reuptake inhibitors (SSRIs) and psychotherapy, with symptom severity being the key determinant of treatment selection, but are inconsistent about the sequence and combination of medication and psychotherapy. USPSTF states that CBT, interpersonal psychotherapy (IPT), and SSRI medication are effective treatments for adolescent depression.³³ For mild depression, guidelines recommend brief supportive counseling before psychotherapy or medication. CPG suggests a 2-week observation period, and referral to specialty care if symptoms persist.⁴⁸ NICE recommends 2 weeks of watchful waiting, and supportive psychotherapy, group CBT, or guided self-help if symptoms continue after 4 weeks. NICE recommends against medication treatment of mild depression.³⁴ For mild major depressive disorder, CPG recommends against the use of SSRIs and identifies psychotherapy (8–12 weeks of CBT, family therapy, IPT) as the treatment of choice.⁴⁸

For adolescents with complicated depression or who do not respond to supportive treatment, AACAP, BEST, and GLAD-PC-II recommend psychotherapy or medication.^{35,49,50} GAPS recommends referring adolescents with severe or recurrent depression to specialty care.³⁶ For adolescents with moderate and severe depression, GLAD-PC-II recommends consultation with a mental health specialist and identifies CBT, IPT, or SSRI as the treatments of choice.^{47,50} NICE recommends 3 months of CBT or IPT as a first-line treatment of moderate and severe depression, with medication added

if there is no response in 4 to 6 sessions.³⁴ CPG recommends 8 to 12 weekly sessions of CBT or IPT treatment of moderate depression, with an SSRI, especially fluoxetine, added in severe cases or when there is a history of suicidal ideation.⁴⁸ NICE also recommends fluoxetine, but against paroxetine, other classes of antidepressants, and St John's wort.³⁴ Conversely, BEST recommends children with moderate and severe major depressive disorder begin with an SSRI with psychotherapy added as necessary.⁴⁹ NICE recommends initiating medication under close monitoring and after assessment by a child and adolescent psychiatrist and subsequent treatment by child and adolescent mental health specialists.³⁴

Rationale and Evidence

Systematic reviews and meta-analyses of antidepressant medication trials in youth indicate modest efficacy for reducing depressive symptoms, with fluoxetine demonstrating greater and more consistent effects than other antidepressants.^{88–92} Several studies indicate that psychotherapy, including CBT^{85,93} and IPT,⁹⁴ are effective in the treatment of adolescent depression. Major multi-site medication and psychotherapy trials indicate that the combination of medication and psychotherapy is most effective in reducing depression symptoms, including treatment-resistant adolescent depression.^{95,96}

Practice Implications

Whenever possible, adolescents requiring treatment of depression should receive evidence-based interventions, including CBT, IPT, or SSRIs, delivered in any clinical setting where such capability exists.

QI 6: Communication and Documentation

Guideline Recommendations

GLAD-PC-II recommends that primary care providers consider sharing care with

mental health professionals, communication among providers, and that providers agree on roles and responsibilities for ongoing depression management.⁵⁰

Rationale and Evidence

Care coordination depends on communication among providers,^{97–102} but lapses in chart documentation and communication between primary and specialty providers are common.^{103–106} Primary care pediatricians referring children for mental health services report contacting specialists in only 12% of cases.¹⁰⁷ There are no systematic reviews or meta-analyses evaluating provider communication per se, but care coordination interventions requiring interprovider communication have led to positive outcomes in pediatric and child mental health settings.^{8,108,109} Adult collaborative care intervention studies, including meta-analyses, provide similar evidence.^{110,111}

Practice Implications

Providers making and receiving referrals of depressed adolescents should communicate to coordinate care.

QI 7 and 8: Adequacy of Treatment of Medication and Psychotherapy

Guideline Recommendations

Only CPG prescribes a set course of psychotherapy: 8 to 12 weeks of CBT or IPT.⁴⁸ ACAAP and CPG highlight the importance of continuing antidepressant treatment of 6 to 12 months or longer after symptom remission.^{35,48}

Rationale and Evidence

Effective depression treatment with psychotherapy or medication depends on adequate dose and duration, but no systematic reviews, meta-analyses, or experimental studies in adolescents have determined optimal treatment length. A meta-analysis of treatment studies of various conditions in adults found that 75% of patients receiving psychotherapy

were improved by 26 sessions.¹¹² Experimental studies found no difference in symptom improvement for adults with 2 to 16 psychotherapy sessions.^{113–116}

Individual studies in adolescents with mild to moderate depression indicate the efficacy of 5- and 8-session CBT,^{117,118} whereas 43% of participants in the Treatment of Adolescent Depression Study treated with CBT, and 70% of those treated with CBT and an SSRI, improved significantly after 12 weeks.⁹⁵ Adolescents with treatment-resistant depression already receiving SSRIs were more likely to respond if they also had 9 or more CBT sessions.^{90,95,96}

Randomized controlled trials (RCTs) included in a systematic review of antidepressant medication treatment in adolescents ranged from 6 to 12 weeks, with a modal duration of 8 weeks, but the review made no conclusions about optimal treatment length.⁸⁹ Algorithms developed to guide duration and changes in medication treatment in adults were found to be effective compared with medication treatment as usual.¹¹⁹ Adolescents with treatment-resistant depression were more likely to improve when SSRI dose increased to an optimal level.¹²⁰

Practice Implications

Depressed adolescents should receive at minimum 8 weeks of psychotherapy or medication treatment at appropriate dose.

QI 9: Reassessment of Symptoms

Guideline Recommendations

GLAD-PC-II recommends systematic and regular tracking of treatment goals and outcomes, including assessment of depressive symptoms and functioning, monitoring for adverse events during antidepressant treatment, and reassessment of diagnosis and treatment if no improvement is noted after 6 to 8 weeks.⁵⁰ AACAP recommends that clinicians arrange frequent follow-up contacts

to monitor clinical status, environmental conditions, and medication side effects.³⁵ CPG recommends that during psychotherapy treatment, there must be regular follow-up on the patient's clinical evolution, but does not provide an empirical rationale.⁴⁸ NICE recommends that structured questionnaires be used as an adjunct to clinical judgment in symptom monitoring.³⁴ BEST recommends monitoring patients taking antidepressants for emergent suicidal behaviors and changes in behavior, especially early in treatment.⁴⁹ With the exception of GLAD-PC-II, none of the guidelines specify an interval for reassessment.

Rationale and Evidence

Feedback about treatment response is increasingly recognized as an important element of care.^{121–123} It involves holding providers accountable for frequent symptom monitoring with standardized approaches and incorporating results into treatment. No systematic reviews or meta-analyses of symptom reassessment and tracking interventions in children or adolescents were identified, although 1 study found that youth with a range of symptoms improve more quickly when clinicians received feedback from assessments every other week instead of every 3 months.¹²⁴ Meta-analyses of studies in adults indicate that formally monitoring patient progress improves the efficiency of psychotherapy compared with controls.^{125–127}

Practice Implications

Adolescents with depression should be reassessed at regular intervals during treatment using structured tools to track progress and inform treatment adjustments.

QI 10: Remission

Guideline Recommendations

Only AACAP specifies remission as the explicit goal of treatment. AACAP, BEST,

CPG, and NICE recommend that medication or psychotherapy treatment continue for between 6 and 12 months at full therapeutic dose once patients achieve symptom remission.^{48,49} AACAP and NICE advocate longer continuation treatment in cases of recurrent depression.^{34,35} BEST recommends that patients be seen at least every 3 months during continuation treatment to monitor relapse and suicidal ideation.⁴⁹

Rationale and Evidence

Few adolescent depression guidelines explicitly state remission as the goal of treatment, but all adult guidelines support this goal.¹²⁸ Many depressed youth and adults in medication trials do not reach symptom remission.^{129–132} Adolescent CBT studies report remission rates of 48% to 87%.^{85,93,133–137} In adult studies, patients who do not reach remission are more likely to have recurrent or chronic depression, suicidal ideation or behavior, and continuing impairment in work, relationships, and overall quality of life.^{138–148} Similar evidence on the impact of nonremission is not available for youth.

Practice Implications

Adolescents with depression should be treated until symptom remission is sustained and full role functioning restored.

QI 11: Treatment Adjustment

Guideline Recommendations

BEST, AACAP, and GLAD-PC-II recommend that medications be switched or added if a patient does not experience symptom remission.^{35,49,50} For children who show partial response to an SSRI, BEST recommends augmentation with medications of a different class or with evidence-based psychotherapy.⁴⁹ GLAD-PC-II recommends consultation with a mental health specialist for adolescents who show only partial response after primary care treatment.⁵⁰ CPG recommends that CBT be combined

with SSRIs for patients with moderate depression who are unresponsive to psychotherapy.⁴⁸ NICE recommends that adolescents not responding to combined treatment be offered different or additional psychotherapy modalities.³⁴ No guidelines specify at what point treatment should be adjusted nor do they provide guidance on symptom thresholds for treatment adjustment.

Rationale and Evidence

Research in adults indicates that clinical inertia, defined as a failure to appropriately modify treatment, may interfere with appropriate treatment adjustments.^{149,150} No studies documenting this phenomenon in adolescent treatment were identified; however, the Treatment of Resistant Depression in Adolescents study showed that depressed adolescents who were not improved after an 8-week treatment trial had improved outcomes after switching medication and adding CBT.⁹⁶ By comparison, the Sequenced Treatment Alternatives to Relieve Depression study in adults suggests that citalopram non-responders may benefit more from increased dose or augmentation with CBT compared with a switch to another medication, and that augmenting medication treatment with CBT may be no more effective than switching to CBT alone.^{151–153}

Practice Implications

Primary care and specialty providers should consider treatment adjustments for adolescents whose depression symptoms do not remit.

DISCUSSION

Implementing the adolescent depression care pathway and QIs has potential to improve adolescent depression outcomes, although current evidence limitations will likely hinder their widespread adoption. Specifying QIs requires developers to make precise statements based

on research evidence about what actions must be taken, by whom, using what tools, how often, and for how long. Currently, guideline statements and empirical evidence lack this degree of precision.

Researchers should be encouraged to design studies that will provide data specifically to support QI development. These efforts should strive to link clinical practices, including common processes such as interprovider communication, to improved clinical outcomes, which are the ultimate goal of quality measurement and improvement efforts. Such evidence may also improve clinical guidance available to pediatricians and other primary care providers for identifying and managing adolescent depression. Challenges and recommended research for each indicator are elaborated in Table 3.

Top research priorities, likely requiring significant long-term investment, include the following:

1. Establishing essential, brief, reliable, and valid components of standardized clinical and suicide assessments. These are complex and challenging tasks, even for specialist providers, and research in this area should include evaluations of provider education and service models required to adequately support such assessment. Adaptive computer-based assessment approaches hold particular promise for balancing feasibility and validity.
2. Developing triage algorithms based on severity to complement diagnostic and suicide assessment approaches used in primary care.
3. Establishing appropriate tools and optimal intervals for symptom reassessment and tracking.
4. Developing and standardizing brief counseling interventions for primary care. Brief supportive counseling interventions provide an opportunity to expand mental health treatment

capacity by making evidence-based practices more widely accessible.

The listed practice implications are not intended to be formal clinical recommendations, but rather to provide general guidance for practitioners in the context of evidence limitations, based on guidelines, research literature, and input from panels and consultants. Several key practice areas stand out, although they must be further substantiated through research. In general, providers should (1) use structured approaches to screening and diagnostic and suicide assessment when possible, (2) select brief counseling and evidence-based treatments based on diagnosis and symptom severity, (3) monitor symptoms during treatment by using standardized tools, and (4) adjust treatment if symptom remission is not reached.

The care pathway, indicators, practices, and research needs highlighted in this article are consistent with the principles of measurement-based care, which “strives to enhance precision and consistency in disease assessment, tracking, and treatment to achieve optimal outcomes.”¹⁵⁴

One important goal of establishing national health care QIs under the Affordable Care Act is to facilitate quality reporting by providers, health systems, and states. Linking this measurement approach to improved health care quality depends on the ability to report on indicators efficiently through electronic extraction of relevant data from electronic health records (EHRs). Thus, efforts by providers, clinics, health plans, states, and EHR vendors to implement health record interfaces that allow relevant information to be electronically extracted would complement the development of QIs by facilitating efficient reporting on care practices. The sea change in US health care can be observed in the recently completed effort by Department of Health and Human Services and the National Quality Forum to adapt 113 endorsed paper-based

TABLE 3 Challenges and Research Agenda for QI Development

Measure	Key Challenge for Measurement Development	Research Agenda
QI 1: Screening.	<ul style="list-style-type: none"> Guidelines do not list specific screening tools or essential attributes for tools to qualify for use. Guidelines and empirical literature do not define an adequate system to support screening. 	<ul style="list-style-type: none"> Establish feasibility and relative benefits of various screening tools administered in primary care. Develop empirical support for components that must be in place in practices and communities before screening.
QI 2: Assessment to confirm diagnosis.	<ul style="list-style-type: none"> Insufficient definition or specification of essential elements of clinical diagnostic assessment. 	<ul style="list-style-type: none"> Empirically validate clearly defined essential components of a structured, semistructured, or open-ended diagnostic interview that is feasible within primary care.
QI 3: Suicide assessment.	<ul style="list-style-type: none"> Lack of clear, widely endorsed evidence-based clinical threshold of suicide risk. Inadequate specification of essential components of suicide assessment for adolescents. Lack of explicit guidelines for action depending on the outcome of suicide assessment. 	<ul style="list-style-type: none"> Establish essential components of a structured, semistructured, or open-ended interview for adolescent suicide risk assessment that is feasible in primary care. Develop triage algorithm for adolescents assessed to be at high risk for suicide.
QI 4: Brief supportive counseling.	<ul style="list-style-type: none"> Lack of agreement on essential elements and optimal duration of brief supportive counseling. Difficulty tracking provider fidelity. Relatively few evaluation studies in youth. Lack of guidance on when to refer for more intensive treatment. 	<ul style="list-style-type: none"> Identify essential evidence-based components of a unified brief supportive counseling intervention for adolescent depression that is feasible in primary care. Develop a framework for triage and referral depending on outcome of counseling. Develop fidelity monitoring system.
QI 5: Treatment initiation.	<ul style="list-style-type: none"> Time limitations for providers. Lack of access to specialist expertise in primary care settings. 	<ul style="list-style-type: none"> Develop psychotherapy and medication treatment approaches that can be administered by nonspecialist providers in primary care settings. Develop and evaluate brief maintenance interventions to prevent relapse.
QI 6: Communication and documentation.	<ul style="list-style-type: none"> Intervention and outcome research for care coordination is not precise enough about the impact of communication in isolation or as a component of more extensive interventions. 	<ul style="list-style-type: none"> Establish impact of interventions to improve care coordination and communication between primary care and specialty mental health providers. Interventions must clearly define “communication and documentation” for purpose of precise evaluation.
QI 7 and 8: Adequacy of treatment course: antidepressant medication and psychotherapy.	<ul style="list-style-type: none"> Variable depression severity and rate of symptom response complicates the prescription of a number of psychotherapy sessions or duration of medication treatment. Determining the appropriate duration of medication treatment is further complicated by the need for dose tapering and possible trials with multiple medications. 	<ul style="list-style-type: none"> Determine incremental reduction of depression symptoms as a function of number of psychotherapy sessions and of initial depression severity. Develop and test antidepressant medication algorithms for adolescents with the capacity to accommodate varying symptom severity.
QI 9: Reassessment of symptoms.	<ul style="list-style-type: none"> The majority of practice guidelines do not explicitly state an appropriate interval for symptom reassessment. Experimental evidence supporting symptom reassessment must be drawn from adult literature. 	<ul style="list-style-type: none"> Conduct experimental studies in adolescent populations to evaluate symptom reassessment and clinician and family feedback interventions that employ standardized clinical assessment instruments. Establish optimal assessment interval in adolescents.
QI 10: Remission.	<ul style="list-style-type: none"> Lack of explicit recommendations in guidelines that remission be the target outcome for depression treatment. Absence of empirical evidence in adolescent populations demonstrating importance of treating to remission. 	<ul style="list-style-type: none"> Use symptom remission as standard outcome for treatment studies, and report incremental length of treatment required to achieve remission in study participants. Develop rigorous, structured approaches to assess symptom remission that are suitable to the natural treatment setting and course.
QI 11: Treatment adjustment.	<ul style="list-style-type: none"> Insufficient support in practice guidelines and empirical literature to specify the length of treatment trial before treatment should be adjusted, or the degree of symptom change that indicates the need to adjust treatment. 	<ul style="list-style-type: none"> Develop algorithms for medication adjustment for treatment nonresponders.

indicators to an electronic format for EHR in anticipation of Stage 2 Meaningful Use.¹⁵⁵

CONCLUSIONS

The care pathway and QIs for adolescent depression represent a high-leverage opportunity to improve care. Practice

guidelines, which serve as the criterion standard for QI development in other medical specialties, are currently not sufficiently precise to support specification of indicators at essential steps in the adolescent depression care pathway. Gaps between existing evidence and the evidence required to specify

and robustly support these indicators points the way for new policy-relevant clinical and services research. Research must quickly bridge this gap or risk missing opportunities to incorporate effective adolescent depression management into high-profile health care reform initiatives.

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Address correspondence to R. Eric Lewandowski, PhD, MSc, Department of Child and Adolescent Psychiatry, NYU School of Medicine, 1 Park Ave, New York, NY 10016. E-mail: eric.lewandowski@nyumc.org

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