



Position paper

Position Paper of the Society for Adolescent Health and Medicine: Medical Management of Restrictive Eating Disorders in Adolescents and Young Adults



The Society for Adolescent Health and Medicine

The medical provider plays an important role in the management of adolescents and young adults with restrictive eating disorders including anorexia nervosa. This position paper clarifies the role of the medical provider in diagnosing and treating eating disorders, proposes an evidence-based method for determining degree of malnutrition, and advocates for standardization of terminology and consistency in the use of terms referring to ideal, expected, or median body weight. The need for medical monitoring at each level of care is underscored. Scientific evidence supports more aggressive approaches to refeeding and the use of family-based therapy as a first-line psychological treatment for adolescents with anorexia nervosa.

Summary of Positions

1. The medical provider, an important member of the multidisciplinary team, plays a critical role in recognizing and diagnosing the spectrum of eating disorders in adolescents and young adults (AYA) and monitoring for medical complications at each level of care (grade IVC).
2. Standardization of terminology and consistency in the use of terms such as ideal body weight, expected body weight, median body weight and mild, moderate, and severe malnutrition are recommended for clinical and research purposes (grade IVC).
3. Weight restoration and resumption of spontaneous menses are important goals of treatment (grade IIIB). Treatment goal weight should take into account premorbid trajectories for height, weight, and body mass index; age at pubertal onset; and current pubertal stage.
4. Most AYA can be managed as outpatients. Family-based therapy is a first-line psychological treatment for adolescents with anorexia nervosa (grade 1A).
5. Inpatient refeeding protocols for AYA with anorexia nervosa can be more aggressive than previously recommended (grade IIIB).
6. Multicenter studies and prospective registries will facilitate research to improve medical and psychological outcomes (grade IVC).

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Eating disorders are complex biopsychosocial disorders with significant medical sequelae and a high mortality rate. Onset is usually during adolescence or young adulthood. Adolescents and young adults with eating disorders (EDs) are best managed by a multidisciplinary team, with the medical provider an essential member. The medical provider should be aware of the changing epidemiology of EDs; revised diagnostic criteria; and advances in psychological, nutritional and medical interventions.

Modifications to diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) include relaxation of the criteria for anorexia nervosa (AN) and bulimia nervosa (BN); introduction of new categories such as atypical AN, binge eating disorder, and avoidant/restrictive food intake disorder; and elimination of the eating disorder not otherwise specified category [1]. Eating disorders are increasingly identified in ethnic/racial minorities and males. The Society for Adolescent Health and Medicine (SAHM) recognizes that restrictive EDs may result in significant health problems in AYA and that it is critical to address the medical, nutritional, and psychological needs of these young people and support their families [2]. Restrictive EDs are marked by energy restriction and/or over-exercising and can lead to malnutrition and cardiovascular instability. These behaviors may be present in various EDs including AN, BN, atypical AN, or avoidant/restrictive food intake disorder. SAHM proposes the following positions, outlines the evidence that supports these positions, and makes specific recommendations to improve the health of AYA with restrictive EDs. Where available, positions are evidence based, and the quality and strength of the evidence is rated using the 2004 National Institute for Clinical Excellence Guidelines [3].

Methods

A MEDLINE search was conducted for articles published between 1990 and 2014 on EDs in AYA using the keywords *anorexia nervosa*, *bulimia nervosa*, *eating disorder not otherwise specified*, *medical management*, *refeeding*, *hypophosphatemia*, and *osteoporosis*. Recommendations from randomized controlled trials or systematic meta-analyses were rated as grade A. Data from nonrandomized trials and observational studies (retrospective studies, quasiexperimental studies, case series, and case reports)

were rated as grade B. Statements based on consensus of expert opinion were rated as grade C (Table 1).

Statement of the problem

Over the past few years, significant scientific advances have been made that inform the role of the medical provider in managing AYA with restrictive EDs. This position paper clarifies the role of the medical provider in managing these patients.

Positions and recommendations

The medical provider, an important member of the multidisciplinary team, plays a critical role in recognizing and diagnosing the spectrum of eating disorders in adolescents and young adults and monitoring for medical complications at each level of care (grade IVC)

AYA with a suspected ED often first present to the medical provider, whose role in early identification and management is therefore crucial. Timely intervention is important because shorter duration of illness is associated with improved outcome [4]. Initial evaluation involves making the diagnosis and excluding other causes of weight loss or vomiting; performing a comprehensive nutritional and psychosocial assessment; determining the severity of malnutrition; and evaluating medical complications. The medical provider should be able to identify the spectrum of EDs in AYA; recognize restrictive and disordered eating behaviors (including dieting, fasting, excessive exercising, bingeing, vomiting, and using laxatives, diuretics, and over-the-counter or prescription 'diet' pills); and identify changes in weight (weight loss, fluctuation in weight, or failure to gain weight during a period of growth), growth retardation, and interruption of sexual development. Once a diagnosis is made, the medical provider helps establish a multidisciplinary team, determines the appropriate level of care, and manages acute and chronic medical complications. The medical provider should regularly monitor health status at each level of care (inpatient, outpatient including partial hospitalization/day treatment programs, intensive outpatient programs, and residential treatment) and coordinate care with mental health and other providers.

Recommendations

- (1) The medical provider should be able to recognize and diagnose the spectrum of EDs in AYA.
- (2) The medical provider should regularly monitor the health status of AYA at each level of care.

Standardization of terminology and consistency in the use of terms such as ideal body weight, expected body weight, median body weight, and mild, moderate, and severe malnutrition is recommended

Although restrictive behaviors contribute to weight loss and malnutrition, approaches to recognizing, diagnosing, and defining malnutrition in AYA are controversial. The literature is replete with confusion about the meaning and determination of terms such as ideal, expected, or median body weight (IBW, EBW, and MBW, respectively), which are often used interchangeably. Different methodologies to determine IBW and EBW (i.e., weight-for-stature vs. percent median body mass index (BMI)) can give widely divergent results, particularly at the extremes of height [5].

In the United States, the Centers for Disease Control and Prevention (CDC) recommend using the 2000 CDC growth charts (www.cdc.gov/growthcharts) to compare anthropometric variables to the reference population. The American Society for Parenteral and Enteral Nutrition recommends that for 2- to 20-year-old children and adolescents, CDC growth charts should be used rather than World Health Organization charts [6]. The CDC charts provide graphs and tables of weight for age, height for age, and BMI for age but not weight for height and age. Percent median BMI can be calculated (current BMI/50th percentile BMI for age and sex \times 100) to compare the patient's BMI to the reference population. Although MBW can be obtained from the weight-for-age charts (50th percentile weight for age and sex), it does not take height into account and is not necessarily the same as the weight associated with median BMI. Body mass index percentiles, although helpful, do not describe how far an individual's BMI deviates from the norm. For example, a BMI less than fifth percentile could be -2 standard deviation (SD) from the median but could also be -4.0 SD from the median. An international survey proposed using BMI z scores to assess the degree of deviation from the median and recommended using

Table 1
Hierarchy of evidence and recommendations grading scheme

Level	Type of evidence	Grade	Evidence
I	Evidence obtained from one or more randomized controlled trials or a meta-analysis of randomized controlled trials	A	At least one randomized controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation (evidence level I) without extrapolation
IIa	Evidence obtained from at least one well-designed controlled study without randomization	B	Well-conducted clinical studies but no randomized controlled trials on the topic of recommendation (evidence levels II or III); or extrapolated from level I evidence
IIb	Evidence obtained from at least one other well-designed quasiexperimental study		
III	Evidence obtained from well-designed nonexperimental descriptive studies, such as comparative studies, correlation studies, and case-control studies		
IV	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities	C	Consensus of expert opinions (evidence level IV) or extrapolated from level I or II evidence. This grading indicates that directly applicable clinical studies of good quality are absent or not readily available

NHS Executive (1996) Clinical guidelines: using clinical guidelines to improve patient care within the NHS. London: DH. Adapted from Eccles M. and Mason J. (2001). How to develop cost-conscious guidelines. Health Technology Assessment. 5:16.

this information to categorize the degree of malnutrition into mild, moderate, or severe categories [7]. Many centers use percent median BMI (%mBMI, Table 2) to compare an individual's BMI to the reference population. The American Academy of Pediatrics, American Society for Parenteral and Enteral Nutrition, and Academy of Nutrition and Dietetics propose using a combination of percent median BMI, z scores, percent weight loss, and rate of weight loss to classify the degree of malnutrition [6,8,9]. There is a need to standardize the terminology and methodology around assessment of severity of malnutrition, both for clinical and research purposes. This position paper recommends avoiding the terms IBW, EBW, and MBW. Increasing proportions of adolescents admitted with life-threatening complications of EDs can be of normal weight if they have rapidly lost weight [10,11]. A suggested adaptation of existing classifications for use in AYA with EDs is shown in Table 3. This classification takes into account the degree of deviation from the norm and both the amount and rate of weight loss. Using this classification, a patient can be severely malnourished, even at a normal weight.

Recommendations

- (1) Terms such as IBW, EBW, and MBW should be avoided.
- (2) Use of percent median BMI, z scores, and amount and rate of weight loss are recommended to classify a patient with mild, moderate, or severe malnutrition.

Weight restoration and resumption of spontaneous menses is an important goal of treatment (grade IIIB). Treatment goal weight should take into account premorbid trajectories for height, weight, and body mass index; age at pubertal onset; and current pubertal stage

A healthy weight supports the normal physiology of adolescence, including puberty, growth and development, physical activity, and improved psychological functioning. In girls with AN, weight restoration is associated with resumption of spontaneous menses (ROM) and improved bone mineral density (BMD). Weight gain without ROM is not accompanied by significant increases in BMD [12]. Therefore in AN, weight gain with ROM is an important treatment goal. For adolescents, determining an individual's healthy weight (herein called treatment goal weight) should take into account premorbid trajectory for height, weight, and BMI; age at pubertal onset; and current pubertal stage.

Treatment goal weight for a particular patient cannot simply be taken from charts on the basis of normative population data, that is, treatment goal weight is not necessarily the same as the weight associated with median BMI.

Recommendations

- (1) A two-step process is recommended: (1) determination of the degree of malnutrition compared with the reference

Table 2

Definitions of BMI, median BMI, and percent median BMI

Term	Abbreviation	Data required and/or calculation
Body mass index	BMI	Weight (kg)/[height (m)] ²
Median BMI ^a	mBMI	50 Percentile BMI for age and sex ^a
Percent mBMI	%mBMI	(Current BMI/mBMI) ^a × 100

BMI = body mass index.

^a Derived from "BMIAGE" percentile data file with LMS parameters, mBMI is "P50." Available at: http://www.cdc.gov/growthcharts/percentile_data_files.htm.

Table 3

A proposed classification of degree of malnutrition for adolescents and young adults with eating disorders

	Mild	Moderate	Severe
%mBMI ^a	80%–90%	70%–79%	<70%
BMI z score	–1 to –1.9	–2 to –2.9	–3 or Greater
Weight loss	>10% Body mass loss	>15% Body mass loss	>20% Body mass loss in 1 year or >10% body mass loss in 6 months

One or more of the terms would suggest mild, moderate, or severe malnutrition. BMI = body mass index.

^a Percent median BMI.

- population using percent median BMI, z scores, and amount and rate of weight loss as described previously and then (2) determination of a healthy weight range for that individual, on the basis of previous height, weight, and BMI percentiles, pubertal stage, and growth trajectory (grade IVC).
- (2) During a period of growth, the individual's treatment goal weight should be reassessed every 3–6 months (grade IVC).

Most AYA can be managed as outpatients. Family-based therapy is a first-line psychological treatment for adolescents with anorexia nervosa (grade IA)

Most AYA can be managed as outpatients, with ongoing medical assessment and monitoring. Family-based therapy (FBT) is an outpatient intervention with the strongest evidence of effect in adolescents with AN [13]. It can also be an effective option for some young adults with AN living at home and some adolescents with BN. FBT is based on the principle that parental involvement in treatment is vital to therapeutic success and that mobilizing and empowering parental strengths are central to change the behaviors of adolescents with EDs. It is structured into three phases with distinct goals: (1) phase 1 focuses on restoring the patient's weight; (2) phase 2 returns control over eating back to the adolescent; and (3) phase 3 addresses adolescent development and treatment termination. Over the course of FBT, the provider's role is primarily to monitor and manage the medical status of the AYA and to take a lead role in communicating with the patient, family, and primary therapist about the physical findings [14]. As the AYA moves through the three phases of FBT, less-frequent medical monitoring is required.

Recommendations

- (1) The medical provider requires knowledge of the evidence-based psychological treatments for AYA with EDs.
- (2) The medical provider should know that FBT is a first-line outpatient, psychological treatment for adolescents with AN.
- (3) The medical provider should understand his/her role in FBT.

Inpatient refeeding protocols for AYA with anorexia nervosa can be more aggressive than previously recommended (grade IIIB)

Indications for hospitalization of AYA with EDs are summarized in Table 4 [2,15,16], which have been updated from the earlier SAHM position paper [2] to better reflect blood pressure cutoffs in older AYA as opposed to younger patients, to be consistent with recommendation from other organizations

Table 4

Indications supporting hospitalization in an adolescent with an eating disorder

<p>One or more of the following justify hospitalization</p> <ol style="list-style-type: none"> 1. $\leq 75\%$ Median body mass index for age and sex 2. Dehydration 3. Electrolyte disturbance (hypokalemia, hyponatremia, hypophosphatemia) 4. EKG abnormalities (e.g., prolonged QTc or severe bradycardia) 5. Physiological instability <ul style="list-style-type: none"> Severe bradycardia (heart rate < 50 beats/min daytime; < 45 beats/min at night) Hypotension ($< 90/45$ mm Hg) Hypothermia (body temperature $< 96^\circ\text{F}$, 35.6°C) Orthostatic increase in pulse (> 20 beats/min) or decrease in blood pressure (> 20 mm Hg systolic or > 10 mm Hg diastolic) 6. Arrested growth and development 7. Failure of outpatient treatment 8. Acute food refusal 9. Uncontrollable bingeing and purging 10. Acute medical complications of malnutrition (e.g., syncope, seizures, cardiac failure, pancreatitis, and so forth) 11. Comorbid psychiatric or medical condition that prohibits or limits appropriate outpatient treatment (e.g., severe depression, suicidal ideation, obsessive compulsive disorder, type 1 diabetes mellitus)
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EKG = Electrocardiogram; QTc = Corrected QT interval.

[15,16] and to incorporate updated definitions of orthostatic hypotension [17]. Decisions about admission are based on a comprehensive clinical assessment that takes into account the seriousness of the patient's physical and emotional health, rapidity of weight loss, available outpatient resources, and family circumstances. Some AYA with EDs who require admission for medical instability may actually be of normal weight or even overweight [11], reinforcing the importance of careful medical monitoring.

Hospitalization of AYA with EDs requires access to an experienced medical, nutrition, mental health, and nursing team, standardized refeeding protocols and cardiac monitoring. Effective inpatient treatment of AYA with AN always starts with nutritional rehabilitation. Concerns about the refeeding syndrome have led to conservative refeeding protocols, often starting at 1,000–1,200 kcals/day. Refeeding hypophosphatemia, the hallmark biochemical feature of refeeding syndrome, is correlated with the degree of malnutrition on admission rather than the initial calories prescribed in hospitalized adolescents with AN [18]. Research supports initiating higher caloric prescription with close medical monitoring. Studies indicate that such practices shorten hospital stay and increase the rate of weight gain without increasing rates of refeeding syndrome [18]. Variability of refeeding practices and phosphorus supplementation protocols reflects the lack of evidence, especially around protocols for the most severely malnourished. Weight gain of 1–2 kg/week normalizes cardiovascular instability, but the time required for all physiological parameters to normalize is highly variable. Admission for medical stabilization followed by FBT has similar treatment outcomes to a more prolonged admission for weight restoration [19].

Recommendations

- (1) Inpatient refeeding protocols for AYA with AN can be more aggressive than previously recommended (grade IIIB).

- (2) Prospective clinical trials are required to better understand the safety and efficacy of refeeding approaches in AYA with AN (grade IVC).

Multicenter studies and the development of prospective registries will facilitate research to improve medical and psychological outcomes (grade IVC)

Prospective clinical trials are required in AYA with EDs to better understand the safety and efficacy of different refeeding approaches and the short- and long-term outcomes of different treatments for physical health (e.g., low BMD) and emotional well-being. Research, including multicenter trials, would be facilitated by developing patient registries (grade IVC).

Recommendation

- (1) Increased funding from government agencies and the private sector is needed to support research in AYA with EDs.

Summary

Eating disorders continue to be significant health problems for AYA. Recent research on EDs in AYA has yielded important new knowledge with respect to diagnosis, weight restoration, resumption of menses, determination of treatment goal weight, FBT, and refeeding patients with AN. As the medical provider plays a critical role in managing AYA with restrictive EDs, being informed about these advances will promote delivery of state-of-the-art evidence-based treatments to these young people.

Prepared by:

Neville H. Golden, M.D.
 Department of Pediatrics
 Division of Adolescent Medicine
 Lucile Packard Children's Hospital
 Stanford University School of Medicine
 Palo Alto, California

Debra K. Katzman, M.D., FRCPC
 Division of Adolescent Medicine
 Department of Pediatrics
 Hospital for Sick Children and University of Toronto
 Toronto, Ontario, Canada

Susan M. Sawyer, M.B.B.S., M.D., FRACP
 Department of Paediatrics
 The University of Melbourne
 Parkville, Victoria, Australia
 Centre for Adolescent Health
 Royal Children's Hospital
 Murdoch Children's Research Institute
 Parkville, Victoria, Australia

Rollyn M. Ornstein, M.D.
 Division of Adolescent Medicine and Eating Disorders
 Penn State Hershey Children's Hospital
 Hershey, Pennsylvania

Ellen S. Rome, M.D., M.P.H.
Center for Adolescent Medicine
Cleveland Clinic Children's Hospital
Cleveland Clinic Lerner College of Medicine
Cleveland, Ohio

Andrea K. Garber, Ph.D., RD
Division of Adolescent Medicine
University of California San Francisco
Benioff Children's Hospital
San Francisco, California

Michael Kohn, FRACP, FACPM
Department of Adolescent Medicine
Faculty of Medicine Sydney University
The Sydney Children's Hospital Network
Westmead, New South Wales, Australia

Richard E. Kreipe, M.D.
Division of Adolescent Medicine
Department of Pediatrics
Golisano Children's Hospital
University of Rochester Medical Center
Rochester, New York
New York State ACT for Youth Center of Excellence
Western New York Comprehensive Care Center for Eating Disorders
Rochester, New York

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