




## Article

# Clinicians' Perspectives on Managing Medical Emergencies in Eating Disorders (MEED) in Adolescence—A Reflexive Thematic Analysis

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## Highlights

- Our findings support the MEED guidance as a helpful and widely used clinical resource.
- The MEED guidance was most helpful as a tool to clearly communicate acuity of medical risks between services to aid multi-agency working required to manage both physical and mental health risks of young people with eating disorders.
- Risk stratification of parameters within the guidance and streamlining of refeeding guidance across the age range were highlighted as areas that future research should focus on.



Academic Editor: Ana Adan

Received: 17 December 2024

Revised: 16 January 2025

Accepted: 19 February 2025

Published: 25 February 2025

**Citation:** Brennan, C.; Illingworth, S.; Cini, E.; Simic, M.; Baudinet, J.; McAdams, E.; Bhakta, D. Clinicians' Perspectives on Managing Medical Emergencies in Eating Disorders (MEED) in Adolescence—A Reflexive Thematic Analysis. *Psychiatry Int.* **2025**, *6*, 23. <https://doi.org/10.3390/psychiatryint6010023>

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**Abstract:** *Objective:* Despite the UK national guidance for Managing Emergencies in Eating Disorders (MEED) being widely used, little is known about how the guidance has been embedded into clinical practice or implemented across services. *Methods:* Clinicians ( $n = 13$ ) working in community child and adolescent eating disorder services and medical wards were interviewed about their experience of using the MEED guidance in their clinical practice. Open-ended questions were used. Reflexive thematic analysis was used to analyse interview data. *Results:* Reflexive thematic analysis of responses identified three main themes. These were the following: (1) a common language, (2) looking beneath the surface, and (3) refeeding syndrome—a rare event in youth. These themes evidenced the important role of the MEED guidance in child and adolescent eating disorders and highlighted both the benefits and limitations of the current guidance. *Conclusions:* This study demonstrated that MEED was most helpful as a tool to clearly communicate acuity of medical risks between services, aiding multi-agency working required to manage both physical and mental health risks of young people with AN. The absence of parameter risk stratification and the lack of consistency on refeeding guidance across adolescent and adult guidance were highlighted as areas that future research should focus on.

**Keywords:** eating disorders; national guidance; anorexia nervosa; hospital admission

## 1. Introduction

National guidance for eating disorders in the United Kingdom (UK) has recently been updated [1]. The new Managing Emergencies in Eating Disorders (MEED) guidance, launched in 2022, replaced the former Management of Really Sick Patients with Anorexia Nervosa (MARSIPAN, CR 162, 2010) and Management of Really Sick Patients under 18 with Anorexia nervosa (Junior MARSIPAN, 2012) national guidance [2,3]. The MEED provides guidance on the assessment and management of risks arising in those suffering from eating disorders (EDs) across all ages. Clinical guidelines for the management of EDs also exist across Europe and internationally. Comparisons of these guidelines have been conducted in recent years and can be found in the other published literature on this topic [4,5]. One core feature of the MEED guidance is the risk assessment framework tool, widely used in the UK to inform decisions around location of care and urgency of medical admissions in this patient group [1]. The updated guidance is based on the advice and recommendations of an expert working group and aims to provide a comprehensive overview of the latest evidence associated with EDs. Given the dramatic rise in rates of hospital admissions in young people with eating disorders over the last six years (from 3524 to 6713 admissions), creators of the guidance report have emphasised the need for medical ward staff, and paediatricians in particular, to familiarise themselves with it to ensure children and young people can obtain the urgent care they need without delay [6].

Eating disorders often develop during adolescence, with peak age of onset being between ages 15 and 19 [7]. Anorexia nervosa (AN), in particular, has the highest mortality rate of all EDs and is associated with medical consequences ranging from delayed growth to life-threatening effects of starvation [8]. Due to the complexities of this illness [9,10], specialist treatment from an experienced multidisciplinary team (MDT) that comprises a wide range of professionals is advised by national guidance in the treatment of AN [11]. The complications of AN in children and adolescents are well documented [12–14]. Bradycardia, hypotension, hypothermia, refeeding hypophosphataemia, electrolyte disturbances, and dehydration are consequences of these illnesses most commonly reported as causes for medical instability in this group [15–17] and decisions regarding treatment and location of care (e.g., outpatient or inpatient) are typically based on clinical opinion and guidance reports such as the MEED [2,18].

For a small number of young people presenting with AN, an initial period of medical stabilisation on an acute paediatric ward is required to reduce physical risk to a level that can be safely managed in the community during outpatient treatment [19]. The paediatric admission involves medical stabilisation and the initiation of refeeding for patients who are severely unwell and at high risk of medical instability and/or complications associated with refeeding syndrome [20,21]. These admissions can be beneficial for secondary reasons, such as containing anxiety of the family, and improving engagement of the family and young person with treatment plans and with services [22].

The recent updates to UK national guidance on ED support improved the recognition and management of emergencies in AN; however, there remains a lack of high-quality research studies exploring these areas [2]. Similarly, despite the rise in admissions in adolescent eating disorders, little is known about these admissions or their outcomes. Inconsistencies in admission practices internationally have been highlighted as cause for concern and warrant further research in this area [2,23].

Although important gaps in our evidence base are apparent, there have been strides forward in the research related to the assessment and treatment of AN in young people. Over the past decade, the landscape of treatment approaches recommended for young people with AN has evolved [11]. Recognition of non-underweight AN, often termed atypical AN (AAN), has improved our understanding of medical and psychological risks

arising in the absence of underweight [24,25], which may lead to medical or psychiatric admissions [14,26]. High-quality randomised controlled trials (RCTs) investigating the management of refeeding syndrome risk in young people with AN have been a catalyst to advancements in clinical practice in this area [27,28]. Safety has been demonstrated in less cautious refeeding practices [29], and more rapid refeeding has been advocated to enable greater early weight gain in treatment [30], which has been evidenced as an independent marker of improved treatment outcomes [31]. In addition, the risks associated with underfeeding already malnourished patients with AN and AAN, such as worsened markers of medical instability and further weight loss [32], are better understood and information related to underfeeding syndrome has been incorporated into national guidance [2].

In light of these developments, a dynamic approach to the management of AN is required, whereby clinical judgement and MDT working is paramount to balance the complex and competing priorities of the medical and psychiatric management of the illness. Clinicians spanning community and inpatient, mental health, and physical health services must be familiar with the MEED national guidance to enable them to assess and manage risks of young people with AN safely across all settings. However, little is known about how the guidance has been embedded into clinical practice, and how clinicians have implemented it across services. The aim of this study was to gather the perspectives and experiences of clinicians, working with young people with AN, to understand how the MEED guidance is being implemented in clinical practice. Core objectives of the study were to define the role of the MEED guidance in decisions about medical admissions in this patient group and to determine the core elements of the guidance that influence these admissions.

## 2. Methods

### 2.1. Study Design

A professional's perception and experience of using the MEED guidance in clinical practice were explored through the use of semi-structured interviews. Various methods for sample size calculation in qualitative research exist [33]. Data saturation is one method that has been proposed to calculate sample size [34]; however, this method has been disputed by some authors [35]. Alternative proposed guidelines for thematic analysis, proposed by Braun and Clarke, categorise sample size suggestions by the type of data collection and the size of the project. For small projects, 6–10 participants are recommended for individual interviews [36]. Sample size in this study was calculated using the guidelines suggested above by Braun and Clarke (i.e., ideal sample size estimate of 10).

The study was advertised via publicly accessed platforms used by professionals working within the field of eating disorders in the UK. Clinicians expressing interest in the study were sent information regarding the study procedure and participant involvement. Those interested in taking part were recruited to the study and assigned a study ID. Individual interviews were intentionally used, rather than focus groups, as this was thought to encourage openness and reduce the possibility of demand characteristics.

### 2.2. Sample

The British Eating Disorder Society (BrEDS) is an online platform, publicly accessible and widely used by clinicians working within the field of eating disorders. The study was advertised via this platform, as this supported us to invite participation from clinicians across the UK, and without biases or subjectivity in sample selection. Clinicians expressed interest by contacting the lead researcher, via contact information listed in the advert. No duress was placed on any participants to take part in the study at any stage of recruitment. All participants provided informed consent. Inclusion criteria were professional registration

as a health care provider, experience working within child and adolescent eating disorders services in the National Health Service (NHS), and experience (i.e., at least 1 year of experience) of using the MEED guidance in clinical practice. Participation from clinicians without professional registration was excluded due to their roles not typically involving the assessment and management of risk, while clinicians working solely in private care (i.e., not working in the NHS) were excluded due to protocols and policies around admission and risk management typically differing from those in NHS services (i.e., not being obligated to adhere strictly to national guidance and policies).

All recruited clinicians were qualified psychiatrists, nurse therapists, clinical psychologists, eating disorder dietitians, doctors, or paediatricians with training and experience in working with young people with eating disorders in the NHS. Clinicians were based in acute medical wards and community ED teams for young people. All clinicians were working in the UK.

### 2.3. Procedure

Interviews were conducted via the Microsoft Teams platform and were automatically audio-recorded and transcribed verbatim, with identifiable information removed. A semi-structured interview format was used, with each participant being asked the same set of open-ended questions. Each interview lasted a maximum of 45 min and were scheduled at a time that was convenient for each participant. Interview questions were informed by consultation with the supervisory team, and by previous findings from relevant research studies.

The topic guide was designed by authors CB and DB and used open-ended questions to explore participants' views and experiences of using the MEED guidance in clinical practice. Core components covered by questions included the use of the MEED tool in decisions around medical admissions in young people with AN and atypical AN (AAN), the impact of diagnosis (i.e., underweight AN or non-underweight AAN) on risk assessment and management plans, and the rates and management of refeeding syndrome in this population. Data were collected between the years of 2023 and 2024. Interviews were conducted with clinicians ( $n = 13$ ). Profession of respondent and work setting were recorded in addition to the dialogue from the interviews.

### 2.4. Analysis Plan

Qualitative data were analysed using reflexive thematic analysis for identifying, analysing, and interpreting data-driven themes, following the six phases outlined by Braun and Clarke. Analysis was carried out within a critical realist framework, which views meaning and experience as subjective and influenced by social and cultural context. Transcripts were read and reread to ensure data familiarisation. Transcripts were then coded by two researchers (CB and EMC) to help interrogate the data. Through collaborative discussions, initial codes were sorted into preliminary themes. Themes were developed through reflexive engagement with the data. Themes were cross checked with participants, and comments or feedback were used to adapt the themes to accurately reflect the views of participants.

### 2.5. Reflexivity Statement

(CB) is a cis-white female working as a dietitian within community services for child and adolescent Eds; she understands and is aware of the roles and responsibilities that surround being a dietitian in this service and using the MEED tool in clinical practice. The questions asked within the interviews and the themes drawn from responses will inherently contain biases due to their role in their team. The results and conclusions come from their perspective and their awareness of these biases has been taken into account.

(EMC) is a cis-white female assistant psychologist working in a community outreach service for child and adolescent EDs. The results and conclusions drawn reflect their perspective and experience working within a multidisciplinary team that regularly uses the MEED guidance in clinical practice. They have considered and accounted for how these experiences could introduce potential biases in any results and conclusions.

### 3. Results

#### 3.1. Sample

Sixteen clinicians expressed interest in taking part and were recruited to the study. Thirteen clinicians attended their scheduled individual interview with a researcher via the online platform, Microsoft Teams. The remaining three clinicians passively declined. They did not attend their interview and were unable to reschedule their interviews to take part in the study.

Clinicians were mostly female ( $n = 11$ ) and from a range of professional backgrounds and had varying levels of experience in EDs. The sample represented the MDTs that are involved in the care of young people with EDs. The sample consisted of consultant psychiatrists ( $n = 2$ ), consultant paediatricians ( $n = 2$ ), clinical psychologists ( $n = 1$ ), specialist eating disorder dietitians ( $n = 3$ ), junior doctors ( $n = 1$ ), and senior eating disorder nurses ( $n = 4$ ). The three participants who passively declined were junior doctors ( $n = 1$ ) and psychiatrists ( $n = 2$ ). All clinicians were working within the NHS in specialist child and adolescent community ED teams, or medical paediatric inpatient wards that accepted young people with EDs for admissions.

#### 3.2. Qualitative Data

Analysis of interview data generated three main themes and nine sub-themes that applied to all clinicians (see Table 1). Themes were (1) a common language, (2) looking beneath the surface, and (3) refeeding syndrome—a rare event in youth. Sub-themes were (1a) communication, (1b) collaboration, and (1c) co-ordination, (2a) differentiating risks, (2b) rapid weight loss, and (2c) ‘Management of Underweight versus Non-Underweight’, (3a) there’s always one, (3b) avoiding underfeeding, and (3c) from adolescent to adult. Each are described further below with relevant illustrative quotations.

**Table 1.** Themes and sub-themes of interview data.

Themes	Sub-Themes
1. A common language	1a. Communication 1b. Collaboration 1c. Co-ordination
2. Looking beneath the surface	2a. Differentiating risks 2b. Rapid weight loss 2c. ‘Management of Underweight versus Non-Underweight’
3. Refeeding syndrome—a rare event in youth	3a. There’s always one 3b. Avoiding underfeeding 3c. From adolescent to adult

#### 1. A Common Language

##### 1a. Communication

The MEED guidance was discussed by all participants as a tool that aided communication between services. The risk assessment tool within the guidance was referenced as particularly important in drawing together information that focused on holistic assessments, encompassing both physical health and mental health domains. Participants felt

that this created a common language, by which clinicians across different services and with varying levels of experience in eating disorder treatment could communicate. All participants described experiences of using the MEED risk assessment tool to communicate the specific risks concerning them about a patient and being able to stratify this risk using the traffic light system advised by the MEED. This was perceived to reduce potential delays in medical admissions.

*'I'll often use that if the doctors are unsure about it, we send it, I send them that chapter of the MEED. . . I get them to see why I'm referring the patient in for admission.'*

*'We did a GP letter based on the kind of the red flags, the key points of like significant weight loss weight for height, bradycardia, hypophosphatemia and all that kind of stuff too for GP's and a letter that said if you encounter a patient with this you need to refer them directly to paediatrician for admission and not to us.'* (Clinician A)

*'We look at the red and greens to assess physical health instability and we use the terminology in in those criteria to discuss with paediatricians because it's medically driven.'* (Clinician B)

Improved communication between paediatric medical wards and community eating disorder services supported the development of an alliance between these teams and increased dialogue about admissions. It was felt that through these strong working relationships, the provision of patient-centred and individualised care was more likely and that triage of patients to the most appropriate location of care was possible. Although all participants perceived the MEED tool to be helpful in communicating risks with professionals, there were also concerns raised regarding the danger of miscommunicating these risk assessments with families and patients. There was particular concern that, if not discussed with families in a sensitive manner, families or patients may perceive themselves as not unwell enough to access certain interventions or levels of care if their risk was described as low or moderate.

*'If one parameter was red but other were all green and we were able to feel pretty confident as a team that the right decision was that that patient not be admitted at that time and we felt safe and competent in that.'* (Clinician C)

*'But I do think you have to be really careful, especially when you're communicating with the young person and the family that just because they're weight isn't really low, that their case isn't, you know, as important. So, it can just be a bit dangerous. So, you do have to be kind of mindful of that.'* (Clinician D)

#### 1b. Collaboration

The MEED guidance was used as a tool to aid collaboration and joint working between both mental and physical health services and the MDT within each service.

*'I think the MEED guidelines, and the launch of them in in 2022, has been absolutely instrumental in supporting us to pull everything in together and coalescing around the patient.'* (Clinician E)

Several clinicians reported that the guidance helped to increase accountability and engagement between physical and mental health teams in patient care that had not been established prior to the MEED guidance.

*'...there had been a massive strain to get Liaison's Psychiatry to come down and review the patient because their view was that "it's not for us or this is incorrect. . . so now we can hold people in account—which does appear to be happening compared to how things were two years ago.'* (Clinician F)

*'MEED has formalised our relationships in many ways. . .we have a tool that we can pull on that allows us to work together and mandates that we all work together.'* (Clinician E)

Most participants reported that the guidance facilitated bi-directional learning, i.e., through collaborating with their physical health colleagues, participants more experienced in mental health felt that their awareness of medical risk and parameters that would warrant admission improved, and similarly, those trained more so in assessing physical risk felt that they had developed a greater understanding and appreciation of psychological aspects of illness and how this could increase physical risk. Senior clinicians that participated in the study highlighted the training that had been developed as a result of MEED, to help teams to collaborate in the risk assessment of young people with eating disorders, and how this led to further improved care pathways.

*' . . .As an authorised well thought out document that has been collaborated on by experts, including paediatricians, and so some of the difficulties that we've experienced in the past with admission have been smoothed out by the fact that our paediatricians have read the MEED documents and will have a good understanding of risk.'* (Clinician G)

Through collaboration, clinicians generally felt that there were greater opportunities to consider creative ways to manage risks that could avoid medical admission for those patients shown to have poorer outcomes in inpatient settings (e.g., neurodiverse patients and very young patients). The creation of dynamic pathways, through the collaboration of physical and mental health teams, supported the system to manage higher levels of risk safely in the community where family engagement was perceived to be strong, and parental resources were plentiful.

*'So if someone's highly distressed autistic or suspected of neurodivergence, and we're thinking sticking you on the ward its not going to help. However, if we can do a full kind of MEED assessment with bloods, ECG etc in the community then that can be enough. But we're still getting the medical monitoring and we're still saying you're really ill, but they can be managed in the community'*

*'If someone's got a couple of red flags but are very engaged family who are able to manage, we might say lets give you a few more days to start turning the direction and if the trajectory is positive, we'll go right. Awesome. We've got it. If the trajectory is negative and we've got cluster of red flags, we can plan an admission.'* (Clinician H)

Clinicians felt that the guidance could be strengthened in certain areas that can impact upon decisions around location of care and medical admissions. Further guidance was perceived to be required relating to diagnosis, co-morbidities, and engagement.

*'I wonder whether we could strengthen that in the aspect of the engagement insights.and comorbidity information perhaps? for example. . .is this a young person with ASC? So we don't have diagnosis in there at the moment, but actually maybe that is that is an important thing to consider.'* (Clinician I)

*'MEED talks about the patient not being engaged in the plan. But it doesn't talk about the parents. And the resources that parents have. . .'* (Clinician H)

#### 1c. Co-ordination

There were mixed views on the MEED guidance in its ability to support/determine co-ordinated care and improve treatment planning. Some clinicians highlighted their use of the MEED as a guide to co-ordinating patient care, rather than a strict, manualised approach for clinicians to adhere to in light of NHS resource constraints and the fast-paced hospital environment.

*'You cannot manualise everything because we are humans and hospitals are chaotic places.'* (Clinician H)

The majority of participants perceived the guidance as helpful in facilitating planned, rather than emergency, medical admissions. All clinicians felt that the guidance advocated for a low threshold for medical admission, which aided rapidly deteriorating young people being admitted to medical wards prior to becoming medically unstable (i.e., needing an emergency admission). However, other participants felt that this low threshold for medical admission was problematic and could lead to too many young people being admitted to medical wards, when medical stabilisation was not required.

*'So, I think it would admit far more people than we would clinically if we went solely on the MEED criteria.'* (Clinician J)

*'I actually wouldn't say it was that helpful for knowing when to admit someone. Just because someone's red in like 1 section doesn't mean they need an admission, so it really is about looking at the clinical picture as a whole and like the actual individual in front of you.'* (Clinician D)

*'You know, people get anxious about. You know instantly need to be admitted or because the guideline is saying they're red risk factors, extremely vulnerable for refeeding complications and... Sometimes they don't need to be admitted. It is a case by case.'* (Clinician G)

Co-ordination of services was considered an important factor to be considered as part of the risk assessment and management plan. Concerns were raised regarding the admission of patients to medical wards where admission reason was predominantly related to psychological factors. The limited availability of specialist eating disorder unit beds (SEDU) was perceived as a causal factor in the misplacement of patients to a potentially inappropriate location of care. Clinicians called for an improved recognition of the role of paediatric medical admissions and the differentiation of this role to that of an SEDU in managing significant albeit different risks. Co-ordination between services was perceived as central in ensuring that all risks, medical and psychological, were managed appropriately.

*'Inpatient beds are very, very hard to access with long waits, so it might be that we've applied for a bed, but we still have 6–8 weeks where the child needs treating on the paediatric ward, so we can't shy away from the fact that some occasional severe cases might need that level of intense treatment to be administered on a medical ward. It is not their preferred intervention'* (Clinician B)

*'the key bit really then is having really good relationships with your CAMHS team to be able to have those conversations and work out what the right pathway is with a bit of flexibility, because actually you can't really have set rules for this cohort of patients because they are all different'* (Clinician J)

## 2. Looking Beneath the Surface

### 2a. Differentiating Risks

There was agreement amongst all clinicians regarding certain parameters within the MEED being indicative of highest risk, but no one parameter alone warranting admission. Parameters that would alert clinicians to the need for escalation included rapid weight loss, low weight, low heart rate, and abnormal blood results (i.e., blood results that were outside of the clinical reference ranges). Additional markers of illness severity and increasing risk, such as confusion, slow speech, and delirium, were identified as parameters that were absent from the risk assessment tool. Degree of underweight, for all clinicians, remained a core marker of risk. Adolescents that were underweight and displaying other high-risk parameters were perceived as at higher physical risk than those that were not underweight (but also presenting with other high-risk parameters).

*'Where they're confused and they're speech is definitely slowed down. Their thought processes are low. Those have been like immediate prompts for admission, but they*



*(the MEED guidelines) don't capture confusion. They don't talk about slow speech or delirium. It's your clinical judgement is so important, I suppose'. (Clinician A)*

*'I think low blood pressure or like it's flagging red on blood pressure. I would take into context of their like baseline, so I'd probably more be thinking if they've had a sudden drop and in baseline and so I wouldn't necessarily act just on blood pressure. And I think as well sometimes temperature, abnormal bloods. . . But if those three are in red, I'm probably gonna want to get them admitted.' (Clinician K)*

One limitation that clinicians experienced was the lack of stratification of risk parameters, as this created opportunities for inconsistent risk prioritisation and interpretation, although clinicians also saw this as a strength, in that it allowed for a more holistic approach in which further patient context could be taken into account.

*'So, one of the limitations is that it's not scored, it's not weighted. That may be a strength or a limitation, but it therefore leads to different perspectives on what the different domains mean in terms of strength, and they might have very different meanings for different young people along different parts of their pathway or with different diagnosis.'*

*'I think the value that you might put on one particular parameter might shift and depending on the context. I couldn't say to you one parameter is more important than all the others, but I suppose in terms of mortality risk, we know that the malnutrition element of it is probably the most important, along with how far you're falling and how fast you're, you know, physically and stable. Low weight and BMI you are is probably the biggest indicator'. (Clinician I)*

## 2b. Rapid Weight Loss

Rapid weight loss was referenced by all clinicians as a marker of increasing risk in all young people with eating disorders. The rate of weight loss was seen as paramount to the overall risk score; a greater rate of weight loss was perceived as more concerning than total weight loss. Young people presenting with rapid weight loss over a short period of time were described as vulnerable to becoming medically unstable, even if their weight was not low or the physical observations were stable. Risk assessing all young people was important to all clinicians, as the presence or absence of low weight solely was perceived as inadequate to define risk level. Although medical compromise and admissions were reported in non-underweight young people, this was perceived as a less frequent occurrence than in the underweight.

*'But because of the way that she had lost so much weight so quickly, I think she was very vulnerable. So I think you'd try not to forget that those patients could also be physically compromised, even though they don't look like it.' (Clinician C)*

*'Yeah, we have had some who've been physically unstable, who've been in the normal weight, but have had rapid weight loss. I think the physical risks are less when they're not underweight. The risks are much higher when they are significantly underweight and malnourished, and I'm not talking 90%. I'm meaning when you're in your kind of 70s percentage median BMI.' (Clinician J)*

*'I don't think that's the best indicator (low weight). I'm much more interested in cardiovascular, like what the pulse is doing. I'm more interested in the rate of weight loss. You know someone lost 10 kilos in three weeks. That feels very uncomfortable versus 10 kilos over the whole summer.' (Clinician H)*

## 2c. Management of Underweight versus Non-Underweight

There was a consensus among clinicians that medical admissions for non-underweight young people with eating disorders were more challenging to access than for severely underweight young people. This was related to a number of factors, including the aim

of medical admissions being less clear for young people not needing to restore weight, the misperception that non-underweight young people are not at risk of being medically compromised, and ambiguity around the purpose of the medical admission if stabilisation and refeeding were not primary goals.

*'It's harder to make a case for a longer stay because in the non-underweight adolescents. (the paediatric wards response is...) What? What do you want us to do? What do you want from us? Whereas there would be less the case if someone was significantly underweight because then they could objectively see. Or you want us to build them up to 75 or 79 before discharge.'*

*'You know, have been able to arrange a paediatric admission. However, then it's a quick, OK, we've checked them out. They're all fine. They're OK now. Back ready to go.'*

*'It is a work in progress among CAMHS colleagues, definitely again with paediatrics. To convince them of the physical health risks being compatible in those who are 105% but have come down from 130 and we have some of those patients, however inpatient paediatrics are all overwhelmed at this time. So, when they see somebody who's under 95%, they're not as alarmed as they would be if they've seen someone 65%.'* (Clinician B)

### 3. Refeeding Syndrome—A Rare Event in Youth

#### 3a. There's Always One

Rates of refeeding syndrome in adolescent eating disorders were discussed, with all clinicians reporting limited experience of this occurring in young people in their own clinical practice. Minor biochemical changes (e.g., reduction in serum phosphorus levels), ECG abnormalities, and oedema were widely reported and perceived to be relatively common symptoms observed in this patient group. However, clinicians perceived severe clinical manifestations of refeeding syndrome to be rare. A common theme amongst clinicians was the presentation of clinical refeeding syndrome, albeit rare, to be associated with complex complications requiring high levels of care. Symptoms that clinicians observed patients to experience were atypical, and not discussed in detail in the MEED guidance, making them difficult to assess and manage.

*'I haven't experienced a young person have refeeding syndrome. I have experienced the MDT being very concerned about certain young people and I think over the years the response to that concern has changed. Now it is really, really rare that they would start maybe on a refeeding plan.'* (Clinician K)

*'We saw one case. And they needed HDU care. They also had significant... What can I say? Neurological deficit. So, it was like a combination of neurological and psychological deficits. They became doubly incontinent. They were immobile. They were almost unresponsive. Bloods became deranged. Creatinine kinase was in the thousands.'* (Clinician B)

*'... maybe 2 cases a year. We had 1 patient who this year who really was extremely unwell with the refeeding syndrome... She was my most unwell patient I've ever had in my career.'* (Clinician G, Consultant Psychiatrist)

*'I can't remember the last time I saw anybody was severely biochemical changes and next to never with clinical refeeding syndrome, which hopefully is a reflection of our monitoring and management as well.'* (Clinician J)

#### 3b. Avoiding Underfeeding

Given the rarity of clinical refeeding syndrome experienced in this patient group, clinicians perceived there to be a greater need to be vigilant in the avoidance of underfeeding syndrome. Most clinicians felt that, although underfeeding was discussed in the MEED

guidance, greater emphasis should be placed on this to highlight this risk to clinicians, who are typically anxious to prevent refeeding syndrome, and thus may be more likely to underfeed a patient.

*'But in our majority experience we find, actually that you can refeed a lot quicker than what literature suggests and nothing happens as long as you're having daily bloods in your in in an inpatient setting and you're under constant monitoring.'* (Clinician B)

*'On the MEED... that's missed out (the low rates of refeeding syndrome in this group)... and sometimes to encourage us to worry a little less about refeeding risk to contextualize that better so I'm aware of the underfeeding risk and to manage that.'*

*'I think more we see more underfeeding than refeeding and that's a problem on our ward here.'* (Clinician I)

### 3c. From Adolescent to Adult

Inconsistencies in refeeding syndrome guidance, related to the gaps in current research that informs national guidance, were raised as a concern. Clinicians perceived there to be significant differences between adult and adolescent populations in their relative risk of developing refeeding syndrome and, therefore, differing assessment and management protocols for these two age groups. However, due to these differences, clinicians experienced challenges during the transition period from adolescent to adult in terms of the management of refeeding syndrome risk. Clinicians experienced variance in how older adolescents' refeeding syndrome risk was managed, and that often the protocol implemented was largely based on the ward that they were placed on (i.e., placed on an adult ward whereby adult protocols are in place or on an adolescent ward using adolescent protocols).

*'What I don't like is they is we use a separate language about calories per kilo. For the adult patients now, depending on what trust you are, you might be 15 and on an adult ward, or you might be 18 on a paediatric ward and so you've got.'*

*'you'd be on a completely different refeeding plan. If you're a 17-year-old on an adult ward versus a 17 year old on a paediatric ward.'* (Clinician H)

## 4. Discussion

EDs are highly complex illnesses, compromising both physical and mental ill health [37]. They often develop during adolescence, presenting a significant threat to health, including medical consequences ranging from delayed growth to life-threatening effects of starvation [8]. AN is the third most common chronic illness among adolescent females and has the highest mortality rate amongst all psychiatric conditions [38] with most deaths occurring between the ages of 16 and 29 years [39]. Recognition of non-underweight AAN in adolescence has highlighted that risks, both psychiatric and medical, are not limited to underweight young people with AN [39,40].

Whilst rapid weight loss, hypothermia, bradycardia, hypotension, electrolyte disturbances, and refeeding hypophosphataemia are recommended indicators for hospitalisation in adolescents with AN [2], the thresholds for these parameters are mostly based on expert opinion and recommended guidelines (which vary in different countries) in the absence of clear evidence for the threshold values [18]. Medical complications that have been shown to occur as a result of rapid weight loss include electrolyte abnormalities, dehydration, cardiovascular complications (such as bradycardia), and endocrine disturbances [39–42].

In this study, exploration of the MDT perspectives on the role of the MEED guidance in assessing and managing risk in young people with AN supported it as an important and useful tool. Clinicians working with children and adolescents with AN found the guidance particularly helpful in promoting accountability and facilitating communication between mental health and physical health services needing to work collaboratively to manage the

complex risks arising as part of the illness. There was a strong narrative from all clinicians regarding the use of clinical judgement in co-ordinating care in addition to the guidance, and the necessity to think creatively about how risks and constraints could be managed safely and in an individualised manner to best suit each patient's needs.

There was a consensus that parameters specified in the MEED would benefit from stratification to highlight markers that were more indicative of a medical admission being required, although this could not replace clinical judgement and contextualisation depending on each patient's holistic presentation. Rapid weight loss was viewed as a core marker of increased risk of medical instability across both underweight and non-underweight young people, which reflects recent research on this topic. A greater weight loss rate has been identified as an independent indicator of risk [43], and is an important marker in guiding the level of concern regarding risk when assessing patients with AN and AAN [9,39,42]. Whitelaw et al. investigated predictors of medical complications in adolescents with AN and AAN and found that a greater amount and velocity of weight loss were better predictors than admission weight of many physical complications [44]. Similarly, Garber et al. examined weight history and illness severity in young people with AN and AAN and concluded that weight history was independently associated with markers of malnutrition in inpatients with AN and AAN across a range of body weights [40].

However, clinicians in this study attributed greatest physical risk to those that were significantly underweight. Although weight history, including rate of weight loss and total weight loss, have gained much attention recently as a marker of risk, independent of underweight, degree of underweight is widely accepted as increasing the risks of certain medical complications in AN [20,30]. Risk of refeeding syndrome and mortality in particular have been shown to increase with decreasing weight [14,43,45,46]. Although being significantly underweight was perceived to be a definitive marker of illness severity, clinicians felt that treatment plans and decisions regarding the location of care could not be based on one parameter alone and required consideration of resources available in each setting and what would be in the best interest of the patient and family. Future research and updates on the guidance may benefit from focusing on how best to synthesise this information into an individualised management plan, as per a formulation in the outpatient treatment context [47].

Decisions to admit patients to hospital encompass a range of factors relating to physical, as well as mental, health. Factors such as motivation, readiness to change, and engagement could not be assessed by this study, and may have played a key role, in addition to rapid weight loss, in the admissions recorded within this sample [18,47,48]. Hospital admissions can serve secondary purposes in improving therapeutic engagement [49]. Research studies that have explored the role of hospital admission in therapeutic engagement have found that admissions, which included elements of therapeutic support, had positive effects on clinical outcomes [22,49,50].

There was limited experience of refeeding syndrome occurring in young people with AN or AAN in clinical practice. Clinicians perceived this to be a rare event, albeit with complex symptoms that were difficult to assess and manage when observed. Ornstein et al. investigated the rates of refeeding syndrome in adolescents with AN, identifying moderate hypophosphataemia in only a small minority of patients (6%). Low rates of moderate hypophosphataemia and very low rates of severe complications of refeeding syndrome are reported widely in the research [30,51,52]. Concerns were raised in relation to inconsistencies that arise when using the guidance for older adolescents who may be on adult wards. The disparity in refeeding rates and practices has been discussed in the literature [53,54] and highlights the challenges that arise when managing patients at high risk of developing complications in clinical practice, especially at periods of transition

between services. The recent study by Staab et al. [55] highlighted that the lack of clear and consistent RS guidance leads to confusion, and ultimately, to large variation in the management of RS.

National guidance is limited by the research that informs it, and this study reinforces the need for more consistent guidance on refeeding syndrome, and underfeeding syndrome, recognition and management for patients at highest risk.

Limitations of the current study include the relatively small sample size with only a few representatives from each discipline. Although the current sample size follows recommendations for qualitative research, a larger sample size may have generated additional themes. This study investigates the UK national guidance only, thus limiting the findings to UK-based clinicians using the MEED guidance, rather than those in international settings. Additionally, individual interviews were used rather than focus groups in this study. Focus groups may have allowed for richer discussion between clinicians about the MEED guidelines in practice.

## 5. Conclusions

This study aimed to define the role of the MEED guidance in decisions about medical admissions in patients with AN and AAN, and to determine which elements of the guidance are most helpful in making these decisions. The overall consensus from clinicians was that the MEED was most helpful as a tool to clearly communicate acuity of medical risks between services, aiding multi-agency working required to manage both physical and mental health risks of young people with AN. Despite the guidance being highly regarded and praised, the absence of a parameter risk stratification (i.e., which parameters rather than ranges within parameters) to accentuate markers most likely to warrant medical admission and the lack of consistency (due to disparities in current research) on refeeding guidance across adolescents and adult guidance were highlighted as limitations of the guidance. Further research should support improvements on these domains.

The following recommendations are suggested to enhance the utility of the MEED in clinical practice when managing medical emergencies in young people with EDs across settings.

1. The purpose of the medical admission should be made clear upon referral for hospitalisation.
2. The stratification of parameters in the risk assessment framework should be considered to accentuate parameters that are more likely to warrant medical admission in young people. (For example, rapid rate of weight loss, significant underweight, and cardiac dysfunction may predict a medical admission being required for stabilisation, whereas poor engagement with the treatment plan, significant self-harm, and suicidality may be more likely to predict a psychiatric admission.)
3. The MEED guidance should consider specifying risks that are most likely to occur dependent upon diagnosis of the young person, to aid clinicians' awareness of risks that may be more likely in the presence/absence of underweight.

**Author Contributions:** Conceptualization, D.B. and C.B.; methodology, E.C., D.B. and C.B.; software, C.B. and E.M.; formal analysis, C.B. and E.M.; investigation, C.B., E.M. and D.B.; data curation, C.B., E.M. and D.B.; writing—original draft preparation, C.B.; writing—review and editing, C.B., E.M., D.B., E.C., S.I., J.B. and M.S.; supervision, D.B., E.C., S.I., J.B. and M.S.; project administration, C.B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** The study was conducted in accordance with the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board of London Metropolitan University Ethics Review Board protocol code 14005052 and approval date 20 October 2023.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data available on request due to restrictions (privacy and ethical). The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

**Conflicts of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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