Mental Health Screening Outcomes in a Pediatric Specialty Care Setting

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Objective To evaluate whether a psychosocial screening program that included free and flexible access to mental health (MH) consultation resulted in increased rate of consultations.

Study design This is a post hoc review of a clinical screening program in a pediatric food allergy clinic in New York City. Screening was limited to 2 days per week, providing an opportunity to compare screened and nonscreened cohorts. Previous results from more than 1000 other families were analyzed to create the 1-page screening questionnaire. Participants were children with allergies and their parents who sought care at the clinic between March and September 2013. Parents were screened for distress and quality of life burden related to their child’s allergy, and children were screened for anxiety, bullying, and quality of life. The predefined primary outcome was the percentage of families who received the free MH consultation after screening vs no-screening days in the allergy clinic.

Results The 3143 encounters during the study period included 1171 on screening days and 1972 on no-screening days. Most (86%) eligible families completed the screen. Almost one-half (44%) met the initial screening thresholds. A total of 71 families (6.1% of screening days encounters) were referred to a MH consultation after a secondary review, but only 11 (1% of screening days encounters) scheduled a MH appointment. Eighteen families from the no-screening days came to a MH evaluation (1% of no-screening days encounters).

Conclusion Screening did not lead to enhanced MH follow-up. Resources may be better used on ensuring the availability of MH care rather than on screening in pediatric specialty clinics. (J Pediatr 2015; : -).

Screening for mental health (MH) disorders (especially depression) has been recommended by societies such as the US Preventive Services Task Force (USPSTF).1 The USPSTF also recommends screening in adolescents,2 while acknowledging the lack of controlled studies showing that screening improves MH or other outcomes in children or adolescents; results in adults are mixed.3 In the absence of proof that screening improves outcomes, the justification for MH screening in children or adolescents relies on several factors. First, screening is relatively easy and noninvasive (typically answering a questionnaire or a few questions). Second, screening for MH disorders is expected to lead to identification of cases that would not have been known otherwise. Third, depression, anxiety, and other MH disorders have effective treatment options that presumably can be deployed in the appropriate setting.

A unique characteristic of MH disorders is that the notion of “normal” vs “disordered” feelings is strongly dependent on the context in which they are experienced. For example, the interpretation of the distress and hopelessness experienced by a patient after myocardial infarction should be different from the interpretation of the same symptoms in the absence of a stressor.4 Moreover, patients who do not self-identify as “MH patients” may be singularly unmotivated to seek follow-up MH care. Thus, patients who have been identified by screening may not require referral, may not self-identify as having an MH “issue,” and may not seek further care.

Here we report the results of a pediatric psychosocial screening effort in a controlled but naturalistic setting, which minimized selection bias. Screening was conducted in a pediatric food allergy clinic, under the aegis of the Enhancing, Managing, and Promoting Well-Being and Resiliency (EMPOWER) program, a philanthropically funded effort at the Jaffe Food Allergy Institute at the Mount Sinai Medical Center in New York.5 Screening was offered only on 2 clinic days in the week (because of funding constraints), creating a naturalistic “controlled” situation in which some of the patients received the screening and some did not. If a need was identified, then an MH consult was offered free of charge and with flexible scheduling to all referred patients regardless if they were seen on a screening day or not, thereby eliminating barriers to access. We sought to determine whether significantly more patients from the screening days than from the no-screening days came to the MH evaluation.
The Icahn School of Medicine’s Institutional Review Board approved as exempt the post hoc analyses for the purpose of this study. Patients and their parents who were seen in the clinic on Tuesdays and Thursdays from March through June and on Wednesdays and Thursdays from July through September were given the screening questionnaire. Those seen on other days were not screened. The same physicians participated in clinics on screening and no-screening days, and the staffing and place of service were identical on both types of days. This report presents the screening results for the period March 26, 2013, through September 19, 2013.

Screening consisted of 2 stages. All parents and all children aged ≥8 years were given the paper questionnaire on arrival at the clinic when the staff member (a psychology extern) was present. The completed questionnaire was immediately reviewed by the extern, who then approached all of the screen-positive families and some other families (see detailed criteria below) to discuss and review the results. This encounter was brief and did not include an actual MH intervention. Following this review, a referral was made if needed.

The extern approached patients and families under the following circumstances: (1) the parent or child had an “above threshold” score on any of the screen components (described below); (2) the parent or child wished to discuss the questionnaire results (regardless of the score); (3) the physician requested a review (regardless of the score); and (4) for any other clinical reason. If it appeared that further evaluation might be indicated, the parents were given the EMPOWER program coordinator’s phone number and asked to schedule a meeting for further evaluation (free of charge) with a child psychiatrist.

Physicians were free to separately refer patients or parents for an evaluation regardless of whether or not they were screened. Patients and parents also could “self-refer” (ie, contact the coordinator even if they were not referred) and schedule an appointment. The program was restricted to patients of the Jaffe Food Allergy Institute and their parents.

Families who were referred for evaluation after the screening but did not make an appointment to see the psychiatrist within 2 months were called once and reminded (either directly or through a phone message) that the evaluation was available free of charge. If the family was successfully contacted, a parent was asked about the reason for not scheduling the appointment.

Referral for the more extensive evaluation was facilitated by the program coordinator with a dedicated phone line and e-mail address. The evaluations were done on any weekday. Many of the patients scheduled a visit concurrent with a clinic visit with an allergist. Substantial efforts were made to accommodate patient and parent needs, and an interpreter was made available as needed. The evaluation was free to the patient/parent and was not billed to insurance carriers. The evaluation, which took approximately 1 hour, followed the recommendations of the American Academy of Child and Adolescent Psychiatry and resulted in a tentative diagnosis and action plan. The evaluation did not include any specific instruments or questionnaires. If further evaluation or treatment was recommended, patients were referred to another practitioner or were treated by EMPOWER program providers.

### Paper Screen

**Development of the Paper Screen.** The EMPOWER program is described elsewhere. The screen was developed in several stages. Findings from a “needs assessment” national study led to the development of a questionnaire packet. This packet included items evaluating quality of life (QoL) constructs, patient and parent anxiety (with parents reporting on their own anxiety and the child’s anxiety), self-care responsibilities, bullying/teasing, and demographic and illness severity parameters. This questionnaire packet was then administered to a sample of clinic patients/parents, as described elsewhere.

The results were analyzed as follows. First, constructs were identified that related to a substantial decrease in QoL. Those constructs were incorporated into the new screen. Second, QoL questionnaire results were analyzed by each factor to create a shorter version, which was incorporated as well. The resulting 1-page questionnaire was reviewed in 2 stages. A group of 2 parents, an allergist, a psychiatrist, a psychologist, and 2 research assistants reviewed the content and clarity and revised the questionnaire accordingly. The questionnaire then was sent to a group of 30 parent-leaders of a patient advocacy group, who also provided detailed comments. This process ensured substantial stakeholder involvement in the development of the tool, as previously recommended.

**Measures.** The paper screening questionnaire consisted of a parent form and a child form (Appendix; available at www.jpeds.com). The child form was completed only if the patient was aged ≥8 years; otherwise, only the parent form was used. The parent form included 2 questions inquiring about bullying and 5 questions (from the factor analysis of previous results) from the Food Allergy Quality of Life—Parental Burden, as well as the Impact of Event Scale 6. Thus, the constructs targeted in the parent form included responsibility for self-care, bullying, parents’ QoL, and the parents’ own distress as related to the child’s allergy.

The child form consisted of 3 comparable allocations of medical responsibility questions, 2 questions inquiring about bullying, 2 subsections of the Pediatric Quality of Life Inventory (the social and school domains), and 9 questions from the Screen for Child Anxiety-Related Emotional Disorders. Thus, the constructs targeted on the child’s form included responsibility for self-care, bullying, child health-related QoL, and child’s distress.

Analyses of data from previous cohorts of our target population were conducted to determine cutoff scores for the Screen for Child Anxiety-Related Emotional Disorders, pediatric and adult QoL measures, and Impact of Event Scale 6 that captured the top 10% of our patient population. Any above-threshold score on those items triggered a secondary
review and referral if the secondary review corroborated those findings. In addition to these thresholds based on previous findings, any endorsement of bullying on either the child or parent form constituted a positive screen that also triggered a secondary review. Two items were adapted specifically for the child’s form related to how food allergy impacts daily functioning: (1) “My food allergy makes me upset, nervous, or sad”; and (2) “I cannot succeed in my schoolwork because of my allergy.” A positive screen on those items was deemed an endorsement of a response of 3 (“often”) or 4 (“almost always”) on either item.

### Statistical Analysis

We report descriptive statistics related to the outcome of the screening process. We used the χ² or independent-samples 2-tailed t test as appropriate to compare frequencies or means. We predefined P < .05 as the level of significance in all but 1 case: evaluating the differences between referred patients who did or did not come to a consultation. For that comparison, we used a Bonferroni correction for multiple analyses, resulting in an enhanced threshold for significance (P < .0125).

### Results

Patients who come to the Jaffe Food Allergy Institute clinic hail from the tristate area (New York, New Jersey, and Connecticut) or beyond, and are mainly from white, highly educated, and middle- to upper-middle-class families. The demographic data of our clinic population are described elsewhere. Baseline characteristics of patients seen on the screening and no-screening days are presented in Table I; there were no significant differences between the cohorts.

Forty-four percent of the screened families met at least 1 of the paper screening question thresholds and had an immediate secondary encounter with the psychology extern (available at www.jpeds.com). Of those, 71 families (6.1% of all clinic encounters during the screening days) were referred for further evaluation. Another 3 families were referred even though they did not meet a screen threshold. Few referred patients in the screening group came to an MH evaluation (1% of the screened cohort). The percentage of patients who came to an MH evaluation in the no-screening cohort was identical.

Table II compares the screening results between the “screened and referred” and “screened but not referred” groups. As would be expected, compared with patients and families who were not referred, those who were referred for a more thorough MH evaluation based on screening results had significantly higher scores on all 4 main components of the screen. A comparison of families who were referred and came to an MH evaluation and those who were referred but did not come to an MH evaluation (Table II) showed a significantly higher (worse) score on the parent QoL measure in the latter group (t = 3.29; P < .01). We did not impute missing data, which occurred mainly because patients did not meet the age threshold for the child questionnaires.

Not all patients who were evaluated received an MH diagnosis as a result of the evaluation. Only 46% of the patients who were referred as the result of screening received a MH diagnosis, compared with 67% of patients who were referred by clinicians (the no-screening group); this difference was not statistically significant (χ² = 0.3429; P = .56).

The screening coordinator attempted to call all of the screened patients who were referred but did not come for MH evaluation. Only 2 families came to an appointment after this effort, and these families are included in the analyses. Figure 2 (available at www.jpeds.com) presents the results of the secondary phone call. Among parents who answered the phone, most stated that the reason for not following up was that the situation had resolved, or that the family deemed a follow-up unnecessary (even though it was recommended). None reported receiving care elsewhere.

### Discussion

We are not aware of any other controlled studies assessing the impact of MH screening on successful referral rates in...
children who are seen in pediatric specialty care settings in which financial barriers to care have been eliminated. A recent detailed review pointed to the need for a “deliberate follow-up step” (ie, review of the questionnaire) as an adjunct to screening, as a way to improve patient engagement and verify screening results before the referral is made. Indeed, our program incorporated this feature, as well as most “ideal” features called for by that review (ie, deliberate follow-up, close-to-ideal coordination of care, and no financial barriers); however, these efforts did not result in an increase in MH care. That review and others have acknowledged that there is little evidence to date indicating that MH or psychosocial screening efforts in pediatric settings result in clinical benefits, yet stop short of questioning the need for screening in the first place. Similarly, the USPSTF recommends that screening should be attempted “when systems are in place to ensure accurate diagnosis, psychotherapy (cognitive-behavioral or interpersonal), and follow-up.” Even though our program addressed these issues and was entirely free, and the visit was easily scheduled, screening did not lead to increased MH care.

We chose anxiety rather than depression as the focal MH construct in the screen, in addition to other constructs, based on our findings during the developmental phases as well as the prominence of anxiety as a relevant construct in our target population. Anxiety and depression are frequently comorbid, and even in populations in which depression is known to be associated with poor outcomes, the association might be mediated through anxiety symptoms. Therefore, we believe that our results are relevant to the general issue of MH screening, even though many of the recommendations to date have focused on depression. Previous results from our group progressively challenged the effectiveness of screening for MH constructs in several populations of medically ill patients. We found that clinicians’ suspicions that children with a medical illness might suffer from an MH disorder are largely justified and do not mandate a dedicated screening effort. We also reported that screening for MH constructs did not result in any actual MH follow-up in patients with cardiovascular illness. Follow-up increased only when an MH professional was on the premises of the cardiovascular clinic and available during screening times. When we evaluated the results of an effort that followed the American College of Cardiology (ACC) recommendations for depression screening, we found that a large number of patients (12% of screened) needed a secondary evaluation for suicidality, but only very few (<0.5%) patients were acutely suicidal. We concluded then that if the ACC recommendations for screening were implemented, substantial resources would need to be devoted to secondary evaluation of suicidality, and yet very few true cases would be detected. The ACC recommendation to screen for depression was later criticized on the grounds that screening was never shown to improve cardiovascular or MH outcomes.

Our present results, coupled with our cumulative experience, now suggest that the problem with MH screening is not only that barriers prevent further care. Rather, our interpretation of our results in the context of the substantial body of existing data is consistent with the recent conclusions of the Canadian Task Force on Preventive Health Care that screening for an MH construct (depression in this case) is not useful. “Cases” identified by screening are less likely to come to further care because they have not self-identified as needing such care. In contrast, cases identified by pediatric providers may be more likely to seek further care. Furthermore, the fact that referred parents who came to the evaluation reported better QoL than referred parents who did not come suggests that the screening process preferentially selected for more resilient families, who may have had less need for treatment than those who did not come.

We acknowledge the limitations inherent in this study of a specific group of patients (families of children with food allergy) in a single specialty care setting. Patients might have had an expectation that MH issues would be addressed in primary care settings but not specialty care settings, and might be more likely to follow a recommendation from a clinician whom they are seeing regularly over time than from a physician consulting because of food allergy. Given that food allergy is a chronic condition, the vast majority of encounters are in fact with patients who have repeated visits, but we did not exclude one-time consultations from screening. The direction of the expected bias of results from our sample of highly educated, affluent, and (presumably) highly motivated families makes our results even more striking. If this group of patients did not benefit from screening, it is likely that less-motivated patients with less access to care might benefit even less. The limitations of retrospective chart review studies include the lack of randomization; however, although not technically randomly selected, our screened/not screened situation was very close to a random selection. Our naturalistic clinical setting offers an important advantage over a prospective design. Given that a consent procedure was not implemented, because the program was a part of regular (clinical) care, the usual and expected selection bias in prospective randomized trials (ie, that patients who participate in the study are unusually motivated to begin with) was not present. The absence of such selection bias in our design is important, because in our view, motivation for treatment is a determinant of successful follow-up. Finally, the fact that the service was offered in and of itself, and the presence of the EMPOWER program in the clinic, might have “primed” clinicians to be more in tune with patients’ MH needs and refer more freely, even on no-screening days, thus skewing our “control” group in the direction of more referrals than would otherwise be expected in a typical clinic.

Although our present results clearly call into question the benefits of screening, several features of our effort might have contributed to the low response rates for evaluation and may be improved on in future studies or in clinical care. Our study intervention was facilitated by a psychology extern, who might not have engendered trust in the parents/patients. A physician or nurse may have been more trusted in this setting. An MH evaluation was our predefined outcome.
measure, but a wider range of options for parents (eg, written educational materials for parents, interventions in the school setting for bullying) could have been indicated and in fact may have been used by the physicians in our group for patients who were not ready for an MH evaluation. We did not track those types of ancillary interventions, and it could be that some interventions that do not include an MH consultation are preferred in some cases in our setting. Although the consultation was offered free of charge and scheduling was flexible, it is possible that travel to our tertiary care center was a limiting factor. Telemedicine interventions, if proven effective, might help increase patient engagement in efforts such as ours. Finally, our initial step (questionnaire) threshold for subsequent evaluation by the extern was deliberately set quite low (although final referral rates were not high). It is possible that a more targeted referral strategy would have resulted in a higher percentage of successful referrals, although this also likely would have resulted in a higher number of missed cases. Whether changing any of these circumstances would have been beneficial or would have altered our results is unknown.

Unless large controlled trials show a process and an outcome benefit from screening for MH disorders or psychosocial constructs, we believe that investments in screening may be misguided. Resources may be better spent on enhancing access to MH care for those already identified by self or clinician referral.

References


3143 appointments completed during study period

1972 appointments on no-screening days

18 patients completed free MH consultation (1% of families seen on no-screening days)

12 patients or parents received a MH diagnosis (67% of patients and parents seen for consult)

1171 appointments on screening days

799 eligible for the screen

692 families completed screening (97% of eligible)

107 eligible but did not respond (13% of eligible patients)

508 met screening threshold (44% of those screened)

134 did not meet threshold on screen (56% of those screened)

71 referred for MH consultation

3 referred for MH consultation

9 followed up and completed free consultation

0 families who were referred for consult and did not follow up were called

60 families who were unable to speak with 45 families
-15 phone number unknown or disconnected
-30 voicemail left

15 families contacted successfully

2 families followed up with consultation

- Rationale for not following up with Consult:
  - Situation improved: 6
  - Parent did not feel it was needed: 5
  - Geographic reasons: 3
  - Scheduling issues: 3
  - Other health priorities: 3
  - Did not want to speak with psychiatrist: 1
  - Followed up with allergist: 1
  - Needed more info: 1
  - Found other forms of support: 0
  - Other: 2

**Figure 1.** Screening process results.

**Figure 2.** Follow-up call results.
EMPOWER CHILD SCREEN ©

Date: ____________________________
Name of child (YOU): ____________________________

Please circle the best answer below:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Most of the time</th>
<th>Always</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am able to tell an adult when I am having an allergic reaction.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I can use an EPIPEN on my own if I need to</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I can avoid eating food I am allergic to on my own (do not need my parents to tell me)</td>
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</table>

Please circle the best answer is for each question below:

**HOW I GET ALONG WITH OTHERS (problems with...)**

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have trouble getting along with other kids</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Other kids do not want to be my friend</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Other kids tease me</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I cannot do things that other kids my age can do</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. It is hard to keep up with my peers</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**ABOUT SCHOOL (problems with...)**

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It is hard to pay attention in class</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I forget things in school</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I have trouble keeping up with my schoolwork</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I miss school because of not feeling well</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I miss school to go to the doctor or hospital</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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</tbody>
</table>

**How My Food Allergy Affects Me**

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<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My food allergy makes me upset, nervous, or sad</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I cannot succeed in my schoolwork because of my allergy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Were you ever bullied, teased, or harassed about your food allergy?

a. ☐ Yes  b. ☐ No

Have you ever been bullied, teased, or harassed for any reason OTHER THAN food allergy?

a. ☐ Yes  b. ☐ No

For each sentence below, check (X) the response that describes you for the LAST 3 MONTHS.

<table>
<thead>
<tr>
<th></th>
<th>Not True or Hardly Ever True</th>
<th>Somewhat True or Sometimes True</th>
<th>Very True or Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I worry about other people liking me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) I am nervous.</td>
<td></td>
<td></td>
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<tr>
<td>3) I worry about being as good as other kids.</td>
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<tr>
<td>4) I worry about things working out for me.</td>
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<tr>
<td>5) I am a worrier.</td>
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<tr>
<td>6) People tell me that I worry too much.</td>
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<tr>
<td>7) I worry about what is going to happen in the future.</td>
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<tr>
<td>8) I worry about how well I do things.</td>
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<tr>
<td>9) I worry about things that have already happened.</td>
<td></td>
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Appendix. EMPOWER program screening questionnaires. (Continues)
EMPOWER PARENT SCREEN © DATE: Name of child: __________________________  Child’s Date of Birth: _________________.

I am the child’s a. ☐ mother  b. ☐ father  c. ☐ OTHER_____________

Has your child ever received epinephrine for an allergic reaction?  ☐Yes ☐No ☐Unsure
Has the child ever had anaphylaxis (a reaction that included more than hives)?  ☐Yes ☐No ☐Unsure
Was your child ever bullied because of the food allergy?  ☐Yes ☐No ☐Unsure
Was your child ever bullied for reasons that are NOT related to food allergy?  ☐Yes ☐No ☐Unsure

Please circle the best answer to the following:

<table>
<thead>
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<th>Always</th>
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<tr>
<td>My child is able to tell an adult when he / she is having an allergic reaction.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>My child can use an EPIPEN on his own if he needs to</td>
<td></td>
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</tr>
<tr>
<td>My child can be trusted to avoid the foods he or she is allergic to on his / her own</td>
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</tbody>
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