aces aware
SCREEN. TREAT. HEAL.

ACE Screening, Clinical Assessment, and Treatment Planning for Toxic Stress

Determining your clinical team's process for assessing and treating patients for toxic stress

Screening for Adverse Childhood Experiences (ACEs) in primary care can help identify the likelihood that a patient may be experiencing toxic stress physiology -- now or in the future. This is important to prevent the onset of and/or treat current ACE-Associated Health Conditions (AAHCs). However, like other screening tools, ACE screening is not diagnostic; it indicates a need for further investigation to determine the clinical response and treatment.

The ACEs Aware Clinical Team Toolkit provides an overview and tools for conducting an ACE screening. This article describes in more depth the process of screening during the patient visit, with a focus on how clinicians may gather and use the information to make an assessment and plan.

Clinical assessment to determine treatment for toxic stress

A complete ACE screening involves understanding a patient's: 1) exposure to adversity (i.e., ACE score); 2) clinical manifestations of toxic stress (i.e., ACE-Associated Health Conditions); and 3) protective factors. The first two components are used in determining clinical risk for toxic stress and all three help to guide effective responses.[1] As with any clinical assessment, the information used to determine a patient's treatment plan is gathered

from multiple sources; in this case, the ACE screening, as well as results from other screens that may be conducted, medical history, family history, and the physical exam.

Gathering information

Use a trauma-informed care approach when talking with patients/caregivers. This could include asking patients if there is anything you should know to make the visit more comfortable and obtaining permission to perform the exam, among other actions (see How ACE Screening, Toxic Stress Treatment, and Trauma-Informed Care Work Together for more ideas).

Key elements of gathering patient information include:

Review:

- Review patient medical history, taking note of any conditions that may be ACE-Associated Health Conditions.
- Review family history to identify health risks based on the history of disease within the patient's family.
- Review clinic screeners. This includes the Pediatric and Early Life-events Screener (PEARLS) for children and adolescents or the ACE Questionnaire for Adults, as well as any additional screening tools that may already be part of standard practice (e.g. PHQ-9, unmet basic needs screener, etc.)

Ask:

- Ask about the patient's concerns, including physical, mental, and behavioral health.
- Ask about protective factors, including toxic stress-mitigation strategies, which include relationships, sleep, nutrition, physical activity, mindfulness practices, nature experiences, and mental health support. **Tip:** If time is limited, you may continue asking about protective factors across multiple visits.

Examine:

- Conduct the physical exam. Take note of any neurologic, endocrine, metabolic, or immune findings that could be related to ACE-Associated Health Conditions (for example, acanthosis nigricans is a physical finding common in insulin resistance which is associated with the toxic stress response).

Document:

- Document consistently and clearly. Make sure that all components of the information gathering are documented in the patient's medical record in a manner that supports retrieval of this information by those caring for the patient in the future.

Table 1. Patient Case Example: Age 13, male[2]

Screen	Document
Patient Information	13 year-old male with history of mild to moderate persistent asthma presents for well-child exam and wanting refill on albuterol.
Patient's Current Reported Health Concerns	Coughing at night 3 times per week, requiring more albuterol lately – about 2 to 4 times a day. Feels short of breath, starts wheezing, and has chest pain within about 10 minutes of trying to play basketball. Patient has pillow and mattress covers, unknown trigger.
Current Medications	albuterol 50mcg/puff 2 puffs q4 PRN cough/wheeze

Screen	Document
Review of Patient's Past Medical History	Patient has had mild to moderate persistent asthma since his diagnosis at age 5. He had one ED visit at age 5 for his asthma, but it had been well-controlled until age 11. For the past 2 years he has had 4 ED visits and has needed multiple courses of prednisone. He and his mom deny any other past medical history.
Review of Clinic Screeners	PHQ 9: 9 GAD-7: 8
ACE Score	3
Review of Protective and Risk Factors	**HEADS:** Lives at home with mom, dad, and younger sister. Patient reports that his mom and dad have been fighting a lot since dad got a new job two years ago. In 8th grade and getting Bs and Cs. No IEP or 504 plan. Denies smoking or drug use. Denies romantic relationship. Denies suicide ideation. **Physical Activity:** Used to engage in frequent physical activity (30 min/day) – enjoys basketball but says he hasn't been able to play because he gets short of breath and wheezes. **Sleep:** 7-9 hours of sleep, falls asleep easily. **Nutrition:** Eats a lot of fruit, some vegetables every day, drinks sodas and water, gets a lot of protein.

Screen	Document
Review of Protective and Risk Factors *(continued)*	**Mindfulness:** None **Relationships:** Patient lacks supportive relationships. He is getting into verbal arguments with caregivers on a regular basis, is not connecting with friends, and is not in any group activities. No current unmet basic needs.
Review of Family History and other Risk Factors	Family history of depression, mom with depression and asthma. Mom presents with a flat affect during the visit.
Physical Exam	Normal respiratory rate, no retractions, mild wheezing heard at bilateral bases, 02 sat > 96% in supine position

Finding balance: ACEs and risk and protective factors

ACEs are not destiny. Not everyone with ACEs will develop a toxic stress physiology. The interaction between our environment, how we experience stressors, the strategies we use to manage and mitigate stress (such as sleep, exercise, and turning to a trusted friend vs. drugs and alcohol use), and our underlying and inherited biology all play a role in whether a person ultimately develops toxic stress physiology.

This short video by the Center for the Developing Child provides an overview of how negative (e.g., ACEs) and positive experiences can affect people differently, describing the interaction as a scale.

Negative outcomes Fulcrum Positive outcomes

Negative outcomes Fulcrum Positive outcomes

The position of the "fulcrum" of that scale is what gives more or less "weight" to positive or negative experiences or factors. The position of the fulcrum represents the risk and protective factors. However, the fulcrum is not static — illustrating the potential opportunity to impact outcomes through treatment of toxic stress.

What risk and protective factors influence health outcomes?

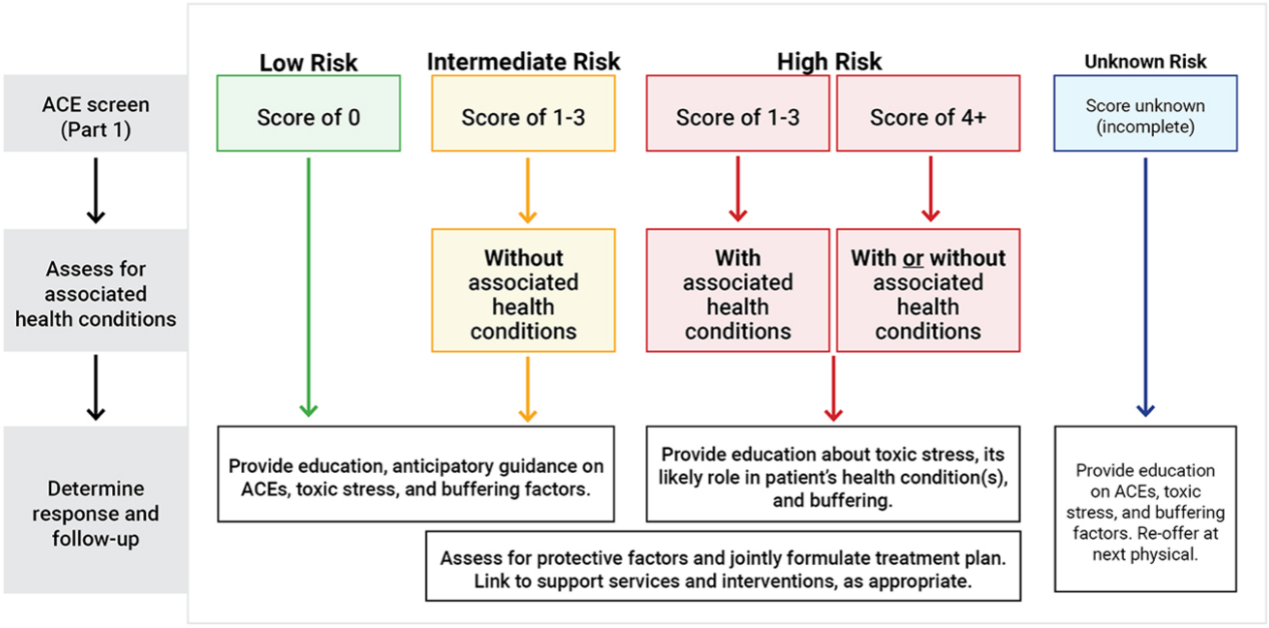
Various models seek to define what risk and protective factors influence health outcomes (e.g., Social Determinants of Health, Strengthening Families Protective Factors Framework, Developmental Assets Framework, Healthy Outcomes from Positive Experiences [HOPE]). The work to define exactly what risk and protective factors influence toxic stress physiology is ongoing. As that work evolves, clinicians are encouraged to consider the breadth of documented risk and protective factors that may influence their patient's health, from their living conditions and their individual attributes to their social networks and access to community resources.

The evidence-based toxic stress mitigation strategies may also serve as guidance for identifying a patient's protective factors (supportive relationships, high-quality, sufficient sleep, balanced nutrition, regular physical activity, mindfulness and meditation, experiencing nature, and mental health care).

Making a clinical assessment

Using the information gathered, including the ACE score and ACE-Associated Health Conditions (AAHCs), review the ACEs Aware ACEs and Toxic Stress Risk Assessment Algorithm to assess the patient's risk for toxic stress (Figures 1 & 2). Taken together, the ACE score and AAHCs indicate if a patient is likely to be at low, intermediate, or high risk for toxic stress physiology. Protective factors are an important tool in guiding clinical response, however they are not included in the risk assessment algorithm because more research from large, heterogenous samples is necessary to reliably incorporate protective factors into assessment of risk.

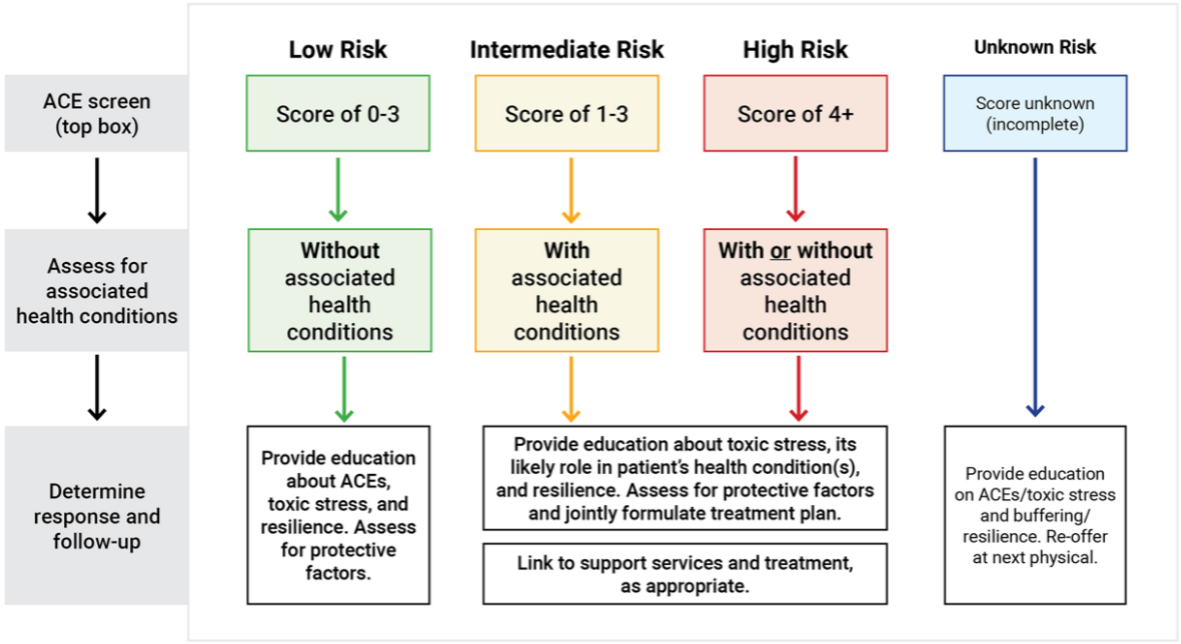
Figure 1. ACEs and Toxic Stress Risk Assessment Algorithm – Pediatrics



This algorithm pertains to the ACE score (Part 1 of PEARLS), whose associations with health conditions are most precisely known. Social determinants of health (Part 2 of PEARLS) may also increase risk for a toxic stress response and should be addressed with appropriate services, but should NOT be added to the ACE score for this algorithm. Partial completion may indicate discomfort or lack of understanding. If partial response indicates patient is at intermediate or high risk, follow the guidelines for that category.

If the ACE score is 0, the patient is at "low risk" for toxic stress. The provider should offer education on the impact of ACEs and other adversities on health and development as well as on buffering factors and interventions. If the ACE score is 1-3 without ACE-Associated Health Conditions, the patient is at "intermediate risk" for toxic stress. If the ACE score is 1-3 and the patient has at least one ACE-associated condition, or if the ACE score is 4 or higher, the patient is at "high risk" for toxic stress. In both cases, the provider should offer education on how ACEs may lead to toxic stress and associated health conditions, as well as practices and interventions demonstrated to buffer the toxic stress response, such as sleep, exercise, nutrition, mindfulness, mental health, and healthy relationships. The provider should also assess for protective factors, jointly formulate a treatment plan, and link to supportive services and interventions, as appropriate.

Figure 2. ACEs and Toxic Stress Risk Assessment Algorithm – Adults



Partial completion may indicate discomfort or lack of understanding. If partial response indicates patient is at intermediate or high risk, follow the guidelines for that category.

If the ACE score is 0-3 without ACE-Associated Health Conditions, the patient is at "low risk" for toxic stress physiology. The provider should offer education on the impact of ACEs and other adversities on health (including reviewing patient's self-assessment of ACEs' impact on health), buffering/protective factors, and interventions that can mitigate health risks. If the ACE score is 1-3 with ACE-Associated Health Conditions, the patient is at "intermediate risk." If the ACE score is 4 or higher, even without ACE-Associated Health Conditions, the patient is at "high risk" for toxic stress physiology. In both cases, the provider should offer education on how ACEs may lead to a toxic stress response and associated health conditions, as well as practices and interventions demonstrated to buffer the toxic stress response, such as sleep, exercise, nutrition, mindfulness, mental health, and healthy relationships. The provider should also assess for protective factors, jointly formulate a treatment plan and link to supportive services and interventions, as appropriate.

Interpreting the Patient Information

Reviewing the age-appropriate, pediatric ACEs Aware ACE Screening Algorithm, we can see that our patient - with an ACE score of 3 and the AAHCs of asthma and mild anxiety and depressive symptoms - falls in the category of high risk for toxic stress. Below is an example of how you might document your clinical assessment in your note.

Table 2. Patient Case Example: Age 13, male (continued)[3]

Screen	Document
Clinical Assessment	13-year-old male who presents for a well-child exam. Moderate persistent asthma - poorly controlled. Mild anxiety symptoms (GAD-7 score of 8). Mild depressive symptoms (PHQ-9 score of 9). High risk of toxic stress (ACE score of 3, + ACE-Associated Health Conditions – asthma, mild anxiety and mild depressive symptoms). Strengths: Sleep is adequate and he is motivated to play basketball again. No mindfulness practice at this time. Little-no time in greenspace. Lack of supportive relationships. Nutrition – fair.

Connecting the dots: ACE-Associated Health Conditions

ACEs are demonstrated to be associated with higher risk for poor child and adult physical, mental and behavioral health. However, in practice the association between ACEs and non-neuropsychiatric health conditions (e.g., asthma, eczema, diabetes, frequent infection, menstrual abnormalities) is often missed. Identifying the likelihood of an underlying toxic stress physiology may reveal a potential underlying biological driver for what may seem like unrelated health conditions involving the neurological, endocrine/metabolic, and/or immune systems, such as asthma, obesity, and chronic pain syndromes. Understanding that a dysregulated stress response (overactive or underactive) may be part of the physiologic mechanism of the patient's presenting symptom can help inform differential diagnosis and clinical decision-making for more effective treatment.

Interpreting an ACE score of 0 with health conditions that are found on the list of AAHCs

When there is an ACE score of 0 or the patient has not disclosed ACEs, but there are health conditions that are found on the list of ACE-Associated Health Conditions, the following explanations can be explored:

- The health condition(s) may be from a mechanistic pathway other than toxic stress;
- The patient could have other stressors that may be contributing to the health condition; or
- The patient is not ready to disclose ACEs.

In the absence of information on ACEs, the condition should be considered unrelated to a toxic stress physiology. It is possible that as patient comfort/trust increases, ACE screening may lead to disclosure of ACEs at a future date and therefore continued monitoring should be considered.

Clinical response to a patient's risk of toxic stress

Because there currently exists no conclusive diagnostic test for toxic stress, a clinician must use the likelihood or risk that toxic stress is at play to guide the clinical response. Where a clinician assesses that a patient is at intermediate or high risk for having a toxic stress response, the clinician may presumptively treat for toxic stress by supplementing usual care for AAHCs with interventions to regulate the stress response. Presumptive treatment should be followed up to assess for clinical improvement.

The clinical response may include: 1) patient education about toxic stress and its likely role in AAHCs, 2) intervention and support services, and 3) follow up. The treatment and follow-up plan to address toxic stress should be developed with the patient and, when necessary, be informed by other members of a multidisciplinary care team such as mental/behavioral health, medical subspecialties (such as pulmonology or endocrinology), and/or social services. Follow up should be conducted using the presenting symptom as the indicator of interest and adding to the treatment plan over time based on subsequent follow-up visits. Keep in mind that addressing toxic stress physiology is typically a long-term intervention with patients and that plans may be modified over time. The following clinical response activities can be done over multiple visits.

Developing a treatment and follow-up plan

- ☐ Utilize the age-appropriate ACEs Aware ACEs and Toxic Stress Risk Assessment Algorithm, which provides recommendations for response and follow-up, as a guide as you develop a plan with your patient.
- ☐ Review evidence-based toxic stress-mitigation strategies. See Part II of the Roadmap to Resilience, published by the Office of the California Surgeon General, for interventions that can be employed at varying degrees of intensity to address a patient's toxic stress physiology.[4]
- ☐ Begin treatment planning by explaining to the patient what the toxic stress response is, the likely or potential role toxic stress may have in the patient's health condition(s), and how certain interventions can help to regulate the stress response system.
- ☐ Assess how the patient is doing with each of the evidence-based stress-mitigation strategies (e.g., sleep, nutrition, physical activity, etc.) to help guide patient education and intervention planning.
- ☐ Build off of existing protective factors (e.g., supportive family or community members) and identify areas for potential growth.

- [ ] Build your plan in partnership with the patient, assessing the patient's willingness and readiness to adopt new or different strategies, which can help you tailor your approach to supporting the patient to take action when they are ready. Motivational interviewing, which involves asking open-ended questions, can be a helpful technique to encourage patients to voice their own reasons for change and support self-motivation.
- [ ] Refer to your clinic's policies and procedures if the patient identifies active ACEs (e.g., current child maltreatment, intimate partner violence, substance misuse or dependence, serious mental illness, or suicidality) or current safety concerns.
- [ ] Document your findings (challenges, strengths, etc.) in the medical record in a manner that ensures access to this information for clinicians caring for your patient in the future. Include appropriate diagnoses in billing and coding.
- [ ] Schedule follow-up based on the treatment plan and to monitor progress with AAHCs by reviewing the clinical data and considerations as outlined in Table 1. More frequent follow-up may be indicated for patients with intermediate or high risk of toxic stress and/or areas of concern related to risk and protective factors.

Supporting immediate basic needs

As you build your plan for addressing the patient's AAHCs and probable toxic stress physiology, also identify whether there are current ongoing stressors, such as unmet basic needs like food or housing insecurity, that are affecting your patient's ability to focus on their health issues and that may affect their ability to adopt recommended strategies.

Table 3. Patient Case Example: Age 13, male (continued)[5]

Step	Details
1. Patient education	a. Explanation given for patient and caregivers about the toxic stress response – how stress hormones can lead to increased asthma risk and severity, and poorer asthma control as well as anxiety and depressive symptoms. Patient counseled that toxic stress physiology may make them more susceptible to environmental exposures such as pollution,[6] and increase risk for albuterol and steroid resistance.[7] b. Explored with mother whether family tension could be associated with patient's worsening asthma and mood. Anticipatory guidance given to help the patient and caregivers recognize traumatic triggers or other stressors.

Step	Details
2. Asthma	Per asthma guidelines, added an inhaled steroid for moderate persistent asthma, addressed environmental triggers, including sources of adversity, and will be alert for signs of medication resistance, or need for referral to pulmonology. a. Flovent 44mcg BID b. Counseled on using albuterol 20 minutes prior to starting physical activity. c. Asthma action plan supplemented with toxic stress mitigation interventions.
3. Toxic Stress	Buffering interventions and supports a. ACEs Aware Self-Care Tool for Pediatrics completed. b. Relationships: i. Patient identified joining the basketball team as an intervention he would like to try. Coach is a teacher he looks up to and feels safe with. (+positive relationships/exercise). ii. Mother of patient informed about the importance of receiving treatment for her depression. Also discussed options of couples counseling and family therapy to support her and her family's health and well-being. iii. Mom agreed to seek a mental health referral from her PCP and is considering family therapy.

Step	Details
3. Toxic Stress (continued)	c. Physical activity: i. Increase physical activity to 60 min a day.
4. Mild anxiety and depressive symptoms:	These are most likely related to family tension. Will focus on increasing relationship support for patient and family, and repeat GAD-7 and PHQ-9 at next visit.
5. Follow-up	a. In 1 month to: i. Assess whether patient has engaged with sources of supportive relationships. ii. See whether mom has followed up on recommendation to seek care for her depression. If she has not, consider social work referral to help her connect with appropriate resources. iii. See whether mom is interested in referral for family therapy. iv. Assess whether patient has increased exercise to 1 hr daily and whether flovent is helping. v. Check on nighttime cough and albuterol use. If symptoms continue to worsen, consider increasing flovent dose (possible steroid resistance) and/or referral to pulmonology for additional asthma medication options. vi. Repeat GAD-7 and PHQ-9 to assess mood symptoms. If no improvement, consider referral for CBT.

The Follow-Up Visit

Adding to the treatment plan

- Before the follow-up visit, review your notes about the ACE score, clinical assessment including any AAHCs, the education that you shared, and the jointly created intervention and treatment plan. Review the notes of (or, if possible, talk with) team members such as the community health worker, social worker, or mental health clinician, if applicable.
- During the visit, ask how the patient is doing with the plan to help guide additional patient education and intervention planning.
- Use the presenting AAHC(s) as indicator(s) of treatment progress (e.g., as the patient implements the evidence-based toxic stress mitigation strategies, monitor whether symptoms improve, such as their asthma, if that was the presenting AAHC).

Table 4. Patient Case Example: Age 13, male (continued)[8]

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Patient Information	13 year-old male with history of mild to moderate persistent asthma presents for well-child exam and wanting refill on albuterol.	13 year-old male with moderate persistent asthma, mild anxiety and mild depressive symptoms at last visit presenting for follow-up.
Patient's Reported Current Health Concerns	Coughing at night 3 times per week, requiring more albuterol lately – about 2 to 4 times a day. Feels short of breath, starts wheezing, and has chest pain within about 10 minutes of trying to play basketball. Patient has pillow and mattress covers, unknown trigger.	Coughing at night has stopped and albuterol need has decreased. He is only using his albuterol inhaler 20 minutes before exercising and says that has helped a lot. Denies shortness of breath, chest tightness, or difficulty breathing.
Current Medications	albuterol 50mcg/puff 2 puffs q4 PRN cough/ wheeze	albuterol 50mcg/puff 2 puffs q4 PRN cough/wheeze and flovent 44mcg, 2 puffs BID
Review of Patient Medical History	Patient has had mild to moderate persistent asthma since his diagnosis at age 5. He had one ED visit at age 5 for his asthma, but it had been well-controlled until age 11. For the past 2 years he has had 4 ED visits and has needed multiple courses of prednisone. He and his mom deny any other past medical history.	See initial assessment

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Review of Clinic Screeners	PHQ-9: 9 GAD-7: 8	PHQ-9: 7 GAD-7: 4
ACE Score	3	3
Review of Protective/ Risk Factors	HEADS: Lives at home with mom, dad, and younger sister. Patient reports that his mom and dad have been fighting a lot since dad got a new job two years ago. In 8th grade and getting Bs and Cs. No IEP or 504 plan. Denies smoking or drug use. Denies romantic relationship. Denies suicide ideation. Physical Activity: Used to engage in frequent physical activity (30 min/day) – enjoys basketball but says he hasn't been able to play because he gets short of breath and wheezes. Sleep: 7-9 hours of sleep, falls asleep easily. Nutrition: eats a lot of fruit, some vegetables every day, drinks sodas and water, gets a lot of protein.	Patient has been meeting with friends to play basketball at the local park. He has been doing this about 3 - 4 times a week and plays for about 1 - 2 hours. He is excited about trying out for the basketball team in a few weeks. He reports that his parents are still fighting, but that he and his mom have been doing a bit better and fighting less. Still sleeping well. Nutrition – discussed in more detail. Eating fruits, but limited vegetables and also a lot of chips, hot dogs, and soda. Patient and family often eat dinner on the couch in front of the TV.

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Review of Protective/ Risk Factors (continued)	Mindfulness: None. Relationships: Patient lacks supportive relationships. He is getting into verbal arguments with caregivers on a regular basis, is not connecting with friends, and is not in any group activities. No current unmet basic needs.	
Review of Family History and Other Risk Factors	Family history of depression, mom with depression and asthma. Mom presents with a flat affect during the visit.	Mom has started counseling for her depression. Mom is working with her therapist to explore couples or family therapy in the future.
Physical Exam	Normal respiratory rate, no retractions, mild wheezing heard at bilateral bases, 02 sat > 96% in supine position.	BMI 21 (75%) Normal respiratory rate, no retractions, no wheeze, 02 sat > 96% in supine position.
Clinical Assessment	13-year-old male who presents for a well-child exam. Mild anxiety symptoms (GAD-7 score of 9). Mild depression symptoms (PHQ-9 score of 9). High risk of toxic stress (ACE score of 3, + ACE-Associated Health Conditions – asthma, mild	13-year-old male who presents for a follow-up visit. Moderate persistent asthma – controlled on flovent 44 mcg 2 puffs BID and albuterol prior to exercise. Mild anxiety symptoms have improved (GAD-7 score of 4). Still has mild depressive symptoms but slightly improved. High risk

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Clinical Assessment (continued)	depressive symptoms). Strengths: sleep is adequate, and he is motivated to play basketball again. No mindfulness practice at this time. Little-no time in greenspace. Lack of supportive relationships. Nutrition – fair.	of toxic stress (ACE score of 3, + ACE-Associated Health Conditions – asthma and depressive symptoms). Strengths: sleep and physical activity are good. Going to the park and meeting with friends to play basketball. Fighting less with mom. No mindfulness practice at this time. Nutrition – eating primarily the Standard American Diet (SAD) with a lot of processed foods and added sugar.
Plan	**1. Patient education** a. Explanation given for patient and caregivers about the toxic stress response – how stress hormones can lead to increased asthma risk and severity, and poorer asthma control as well as anxiety and depressive symptoms. Patient counseled that toxic stress physiology may make them more susceptible to environmental exposures such as	**1. Patient education** a. Reinforced education on ACEs, toxic stress, and asthma and depressive symptoms. b. Highlighted strengths - getting connected with friends, exercising, mom taking care of herself. c. Discussed link between processed foods and increased inflammation and how this could be contributing to asthma and depressive symptoms.

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Plan (continued)	pollution,[9] and increase risk for albuterol and steroid resistance.[10] b. Explored with mother whether family tension could be associated with patient's worsening asthma and mood. Anticipatory guidance given to help the patient and caregivers recognize traumatic triggers or other stressors. 2. **Asthma:** Per asthma guidelines, added an inhaled steroid for moderate persistent asthma, addressed environmental triggers, including sources of adversity, and will be alert for signs of medication resistance, or need for referral to pulmonology. a. Flovent 44mcg BID b. Counseled on using albuterol 20 minutes activity.	2. **Asthma:** continue flovent 44mcg BID and albuterol 20 minutes prior to exercise. 3. **Toxic Stress: Buffering interventions and supports** a. ACEs Aware Self-Care Tool for Pediatrics completed. b. Relationships: i. Mom started counseling and is exploring couples and family therapy with her therapist. ii. Patient connecting with friends to play basketball at the park (+ relationships/exercise/ nature) iii. Discussed "time-in" where each parent spends time with their son (at separate times) for 30 minutes to an hour once a week doing a fun activity led by their son (not the time for teaching or lecturing, just enjoying being with each other).

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Plan (continued)	c. Asthma action plan supplemented with toxic stress mitigation interventions. 3. **Toxic Stress: Buffering interventions and supports** a. ACEs Aware Self-Care Tool for Pediatrics completed. b. Relationships: i. Patient identified joining the basketball team as an intervention he would like to try. Coach is a teacher he looks up to and feels safe with. (+positive relationships/exercise). ii. Mother of patient informed about the importance of receiving treatment for her depression. Also discussed options of couples counseling and family therapy to support her and her families' health and well-being.	c. Physical activity: i. Try to increase time playing basketball to 60 minutes a day. (Almost there!) ii. Continue albuterol 20 minutes prior. d. Nutrition: i. Patient identified decreasing soda to once a week as one of his main goals. ii. Recommended Mediterranean diet for the family - especially increasing vegetables and whole grains as well as decreasing processed foods. iii. Will get lipid profile and Vitamin D level. iv. Recommended nutritional supplements - Vitamin C and E.[11] v. Recommended family dinners at the table without TV.

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Plan (continued)	iii. Mom agreed to seek a mental health referral from her PCP and is considering family therapy. c. Physical activity: i. Increase physical activity to 60 min a day. 4. **Mild anxiety and depressive symptoms:** These are most likely related to family tension. Will focus on increasing relationship support for patient and family, and repeat GAD-7 and PHQ-9 at next visit. 5. **Follow-up in 1 month to**: a. Assess whether patient has engaged with sources of supportive relationships. b. See whether mom has followed up on recommendation to seek care for her depression. If she has not, consider social work referral to help her connect with appropriate resources.	4. **Mental health** - GAD-7 and PHQ 9 both improved, however still in mild depressive symptoms category for PHQ9. Continue toxic stress-mitigation strategies – physical activity, relationships, and now added nutrition. 5. **Follow-up in 1 month to:** a. Review lipid profile and Vitamin D level results. b. Assess whether patient has made dietary changes including decreasing soda to once a week. c. Assess whether family has been able to adhere to Mediterranean diet and have family dinners together without TV. d. Will consider referral to nutritionist based on labs and progress with dietary recommendations. e. Repeat GAD-7 and PHQ-9, if continues to have depressive symptoms consider referral for CBT.

Data Type	Initial Assessment & Plan	Follow-Up Assessment & Plan
Plan (continued)	c. See whether mom is interested in referral for family therapy. d. Assess whether patient has increased exercise to 1 hr daily and whether flovent is helping. e. Check on nighttime cough and albuterol use. If symptoms continue to worsen, consider increasing flovent dose (possible steroid resistance) and/or referral to pulmonology for additional asthma medication options. f. Repeat GAD-7 and PHQ-9 to assess mood symptoms. If no improvement, consider referral for CBT.	f. If asthma and mood symptoms remain improved with education, flovent and interventions focused on improving supportive relationships, exercise and nutrition, longer interval for follow-up such as three months.

Treating toxic stress takes time

Treating toxic stress is an ongoing process that clinicians will need to address and revisit with patients over time. Effective clinical response may require periodic modifications to treatment plans as patients' needs and situations change. However, you can think of this long-term process as an opportunity. Working with patients to address toxic stress can facilitate building stronger relationships that help patients feel more comfortable sharing information that can be used to provide them with better health care.

Endnotes

1. Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N, Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: 10.48019/PEAM8812.

2. ACEs Aware. Fundamentals of ACE Screening & Response in Pediatrics Webinar, June 24, 2020. https://www.acesaware.org/events/2020-june-24-webinar/.

3. ACEs Aware. Fundamentals of ACE Screening & Response in Pediatrics Webinar, June 24, 2020. https://www.acesaware.org/events/2020-june-24-webinar/.

4. Bhushan D, Kotz K, McCall J, Wirtz S, Gilgoff R, Dube SR, Powers C, Olson-Morgan J, Galeste M, Patterson K, Harris L, Mills A, Bethell C, Burke Harris N, Office of the California Surgeon General. Roadmap for Resilience: The California Surgeon General's Report on Adverse Childhood Experiences, Toxic Stress, and Health. Office of the California Surgeon General, 2020. DOI: 10.48019/PEAM8812. p96-125.

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