HEALTHY BEGINNINGS 2024 An ACHIA Trauma Informed Care and Resiliency QI Collaborative

November 1, 2023

Dear TICR participants,

Welcome to our Trauma Informed Care and Resiliency collaborative (TICR)! In this packet you will find items to get you started and apply throughout the Quality Improvement (QI) collaborative, including:

- Checklist: Essential tasks and educational activities to complete by 12/1/23
- Administrative: Selecting a Core Team, Core Team and Provider Expectations, Practice Readiness Survey
- Quality Improvement: Key Driver, Action Period Timeline, Measure Definitions, Model for Improvement, PDSA worksheets, sFMEA, Sticky Notes
- TICR Content Education:
    - *Preventing Childhood Toxic Stress: Partnering with Families and Communities to Promote Relational Health*
    - *Trauma Informed Care AAP Clinical Report*
    - Childhood Trauma & Resilience: A Practical Guide

Keep this packet handy for webinars. We are looking forward to working and learning with you in this new collaborative!

Best regards,

Rachel Latham

rlatham@alaap.org

Core Team Pre-Work
Complete before **December 1, 2023**

Review Emailed Information

- ❒ *Selecting a Core Team*
- ❒ *Core Team and Physician Expectations*
- ❒ *Practice Readiness Assessment Survey*
- ❒ *Timeline and Important Dates*

Establish a Core Team

- ❒ Establish Core Team based on *Selecting a QI Core Team* job descriptions

Core Team and Provider Expectations

- ❒ Review *Core Team and Physician Expectations* with core team and physicians seeking MOC Part 4
- ❒ Collect signatures
- ❒ Email signed and scanned copy to Rachel Latham at rlatham@alaap.org

Complete Practice Readiness Pre-Survey

- ❑ Complete one REDCap Pre-Survey for each practice. Practices with multiple sites, complete one per site.
- ❑ Attached Pre-Survey PDF provided to facilitate completion **(do NOT return PDF):**
  - Meet with practice core team meeting to discuss current clinical practice
  - Collect of number of patients seen annually and by payor %
- ❑ REDCap Pre-Survey link will be emailed from Rachel Latham

Schedule protected time for collaborative work (see Timeline and Important Dates)

- ❒ Place TICR QI webinars on the core team member calendars
- ❒ Place task due dates on team members' calendar responsible for task(s)
- ❒ Establish data entry back up plans that accommodate vacations/illnesses
- ❒ Schedule core team meetings at least bi-weekly (consider using huddles)

Complete or schedule online training modules

- ❑ All core team and physicians seeking MOC complete by *December 7, 2023*
  - Promoting Relational Health: Dr. Gardner Webinar (~1 hour). Link is HERE.
- ❑ Physicians seeking MOC complete by *December 7, 2023*
  - NICHQ Quality Improvement (~1 hour) https://static.nichq.org/quality-improvement-101
  - NICHQ Quality Improvement 102: (The PDSA Story – 30 min.) https://static.nichq.org/quality-improvement-102/story_html5.html
- ❑ All physicians seeking MOC complete by *December 31, 2023*
  - AAP Pedialink: TIC and Resilience (~3 hours CME available). Free for AAP members and $87 for others. Follow link HERE.

Explore materials on TICR Website

- ❑ QI Teamspace (HERE

Test communication streaming/camera/audio prior to Kick-Off Webinar

- ❒ Download the ZOOM app to your computer desktop
- ❒ Test ZOOM access, audio, and ability to mute audio source (landline or computer microphone) https://learning.zoom.us/learn
- ❒ Update ZOOM each month prior to webinar to ensure full functionality

HEALTHY BEGINNINGS 2024 An ACHIA Trauma Informed Care and Resiliency QI Collaborative

Selecting a QI Core Team

Establish a practice core team to spearhead efforts to implement evidence-based standards for teen mental wellness.
Leadership buy-in: Obtain buy-in from practice leadership for making improvements including providing time needed to complete QI activities.
Protected time to schedule: *Daily/weekly huddles <= 15 minutes *Monthly practice core team-meetings *Monthly TICR webinar participation *Monthly meetings with staff and providers for updates and feedback
Align QI work with routine responsibilities: Historically practices with the greatest improvements have administrative staff abstract and enter data as assessing and improving quality are increasingly integral to practice management. Team roles include:

Team Member	Major roles and responsibilities

QI Lead Physician (MD/DO) Lead may be NP if supervised by MD/DO	• Coordinate team effort to institute change processes
	• Encourage & facilitate the practice's involvement in the project
	• Provide provider's perspective/ insight on early relational health completion
	• Data Oversight
	  • Participate in December Data call
	  • Double abstract 2 – 4 charts to establish data integrity
	  • Review monthly data
	• Attest to practice provider participation in MOC activities

Practice Data Manager	• Participate in December data webinars • Double abstract 2 – 4 charts with lead physician to ensure data integrity • Abstract and enter project data into REDCap • Have back up to enter data in case of abscences
Clinical support staff (RN, LPN, MA)	• Facilitate clinical support staff perspective and involvement in promoting early relational health; screening for barriers and tracking referrals and follow up
Office Administrator/Manager	• Serve as the point person to receive and distribute communication from the project manager • Identify other key staff to support QI work (front desk, scheduler, care coordinator, etc.) • Communicate importance of teen wellness and collaborative work to staff • Ensure core team has protected time to complete assignments • Ensure evaluation data/reports/surveys are submitted on time • Communicate practice collaborative work to patients • Facilitate front-office level perspective and involvement in implementation • Ensure any coding updates capture care delivered • Ensure improvements are incorporated into workflow including updating job descriptions to sustain progress

HEALTHY BEGINNINGS 2024 An ACHIA Trauma Informed Care and Resiliency QI Collaborative

Core Team and Physician Expectations

December 2023

Welcome to the Collaborative!

This collaborative is for practices who want to apply Quality Improvement (QI) to improve childhood resiliency.

The Healthy Beginnings Trauma Informed Care and Resiliency Collaborative (TICR) is a good fit for practices who want to:

- measurably improve strengths-based messaging and add, or enhance, screening and follow-up for perinatal depression, food insecurity, and social-emotional wellness at selected early childhood health supervision visits,
- Improve QI skills,
- Learn from Alabama Content Experts and Peers across the state.

This document outlines collaborative expectations for the practice Core Team and American Board of Pediatrics (ABP) expectations for physicians seeking Maintenance of Certification (MOC) Part 4.

Prior to December 1, 2023, the Lead Physician is responsible for reviewing this document, obtaining signatures, and emailing a scanned copy to Rachel Latham at rlatham@alaap.org

Enrollment in this collaborative is limited and there is a waiting list of interested practices. Please review expectations carefully for your ability to participate. Practices anticipating significant staffing disruptions or major changes, such as introducing a new electronic health record, should discuss participating in the collaborative with Dr. Benton (ebenton@uabmc.edu) prior to signing this document.

Core Team Expectation for Participation in a Quality Improvement (QI) Learning Collaborative

Collaborative Aims, Key Drivers, and Interventions
Review collaborative scope outlined in Key Driver (Attached)

Pre-Work Requirements
Complete before December 1, 2023 (Pre-work attached)

Who May Participate?
Practices providing primary care for Alabama children and youth.

Practice QI Core Team
The QI Core Team is active and engaged in improving practice processes and patient outcomes. At a minimum, the Core Team includes a lead physician, a clinical staff member and an administrator. The team should include those involved in all aspects of depression screening and follow-up. Depending on practice workflow, this may include front desk or referral staff. See *Selecting a QI Core Team* for more information.

The QI Core Team Responsibilities:

- Communicates importance of improving strengths-based messaging and screening and follow-up for perinatal depression, food insecurity, and social-emotional wellness to staff and physicians
- Routinely solicits change ideas and shares intervention results with the practice
- Tests ideas to improve completion
- Actively engages in monthly TICR QI webinars
- Complete online learning modules and webinars related to specific relational health screen
- Completes data entry and monthly survey into REDCap by the due date
- Has buy-in from practice leaders to allocate an average of 3-5 hours/month Dec 2023- August 2024 to improve practice strengths-based messaging and screening.

Data
Data collection and entry guidance is detailed in the TICR Data Webinar (December 14, 2023).
Important TICR Data Webinar participants include:

- Lead Physician
- Staff abstracting and entering data
- Staff maintaining the registry for patients with positive screens

Quantitative Data:

Measures include:

Strengths Based Approaches utilization

Screening for a potential barrier to relational health (practice selects screen)

Postpartum Depression

Social Determinants of Health

Social-Emotional Health

Baseline data due Jan 31 2024

Intervention data due monthly February – July 2023 on the last day of each month

Qualitative Data:

- Practice Readiness Assessment (Complete by December 1, 2023.) Link emailed from Rachel Latham)
- Monthly Webinar Feedback (Complete at end of each TICR ZOOM webinar)

- Monthly Practice Plan-Do-Study-Act (PDSA) Report (Complete monthly online. Link emailed monthly by Rachel Latham)
- Post-Collaborative Evaluation (Complete online at end of collaborative. Link emailed by Rachel Latham)
- Post-Collaborative Phone evaluation (if contacted by evaluator)

Technology
Practices need access to the internet as well as camera and audio streaming capabilities to participate in monthly TICR ZOOM webinars.
Practices must have a point person to readily review and respond to email communication.

Costs to participate
The collaborative is an included benefit for members of the Alabama-Chapter AAP or Alabama Academy of Family Physicians. The Pedialink course required for providers seeking MOC Part 4 is free for AAP members and $87 for non-members.

Benefits
- Aligns practice with Bright Futures Recommendations for Preventive Pediatric Health Care
- Peer-to-peer networking
- Learn quality improvement techniques
- Improved practice efficiencies
- 25 points American Board of Pediatrics MOC Part 4
- QI work aligns with many NCQA PCMH (re)certification requirements
- Potential for increased revenue
- Award Certificate of Completion suitable to display to clients

Confidentiality
Only practice level data are entered into REDCap. No personal health information data are entered. Practices will be identified as participating in the final collaborative report, which is publicly available on the ACHIA website. No practice level data are in the final report.

Practices are recognized at state meetings.

For journal publications resulting from this work, neither individual practitioners nor practices will be linked with data. Only de-identified; aggregated practice level data and de-identified survey responses will be reported. No patients or practice staff will be identified in any publication about this study.

Participation-Termination
Participation in this collaborative is voluntary. Any provider may refuse to participate or may stop participating at any time and for any reason without penalty. Providers may also be withdrawn from the collaborative if unable to meet expectation timelines. If a pediatrician withdraws early, before meeting the minimum duration established for them to be eligible for ABP Part 4 MOC credit, the physician may no longer qualify for that credit. For any questions, concerns or complaints about the project, contact Cason Benton, MD, FAAP at ebenton@uabmc.edu or 205-638-6776 during the regular business hours of 8:00 a.m. to 5:00 pm CT, Monday through Friday.

****

Lead Physician MOC Attestation Responsibilities

To confidentially complete MOC attestation, the lead physician should:

- Ensure core team expectations are met
- Ensure physician participation in monthly practice QI meetings
- Complete all asynchronous learning modules
- Return all provider signed MOC attestations to Rachel Latham at end of collaborative
- Resolve any disputes about practice members meeting MOC expectations

By signing below, the Lead Physician affirms the practice Core Team can meet participation expectations and can attest to colleague completion of ABP MOC Part 4 credits.

_____ _____

Signature Date

_____

Printed Name

_____ _____

****

Participating Physicians Seeking MOC Part 4 Expectations

This quality improvement project anticipates approval by the American Board of Pediatrics (ABP) Maintenance of Certification Part 4 for 25 points to be awarded in 2024. ACHIA staff can work with Family Physicians seeking MOC.

Each participating physician must meet the following requirement to receive MOC:

- Be intellectually engaged in planning and executing the project
- Participate in implementing the project's intervention (the changes designed to improve care)
- Review data in keeping with the project's measurement plan
- Collaborate in the activity by attending team meetings

Physicians must:

- Complete all asynchronous learning modules
- Participate in a minimum of 6/9 monthly practice meetings to
    - review data
    - contribute to change ideas
    - confirm with core team that your name is included in monthly practice report for practice meetings where you participate
- Submit ABP attestation of above activities to Lead Physician at end of collaborative

Core Team must meet all due dates for data a survey entry and complete its expectations for individual providers to receive MOC.

By signing below the participating physicians are aware of the expectations for MOC attestation.

Participating Physician Signatures

By signing below the participating physicians are aware of the expectations for MOC attestation.

Participating Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Participating Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Participating Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Participating Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Participating Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

****

Supportive Physicians' Signatures

Supportive physicians are members of the participating practice but not seeking MOC credit or CME credit associated with the project.

I am aware that members of my practice are participating in the 2024 Healthy Beginnings: An ACHIA Trauma Informed Care and Resiliency QI Collaborative. I support their decision to participate in this project and the practice system changes that are determined by the Practice QI Core team.

Supportive Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Supportive Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

Supportive Physician Practice Member

_____ _____

Signature Date

_____

Printed Name

HEALTHY BEGINNINGS 2024
An ACHIA Trauma Informed Care and Resiliency QI Collaborative

Important Dates

TICR QI Webinar: Monthly on Thursday

Who Participates: Core Team Members

Dec 2023 - Aug 2024 @ 12 – 1 PM Zoom meeting link emailed monthly

2023: 12/7 (Kick-Off), 12/14, (Data Orientation)
2024: 1/18, 2/15, 3/21, 4/25, 5/16, 6/20, 7/18, 8/15

Online QI/Learning Modules:

QI: Core Team and Physicians seeking MOC Part 4 who have not completed these modules within the previous two years

Before December 7, 2023:

- ❒ NICHQ Quality Improvement (1 hour approx.) https://static.nichq.org/quality-improvement-101
- ❒ NICHQ Quality Improvement 102: (The PDSA Story – 30 min.) https://static.nichq.org/quality-improvement-102/story_html5.html

Learning Modules: Core Team clinical members and Physicians seeking MOC Part 4

Before December 7:

- ❒ Promoting Relational Health: Dr. Gardner Webinar (^1 hour- no CME.) Link is HERE.

Before December 31:

- ❒ AAP Pedialink: TIC and Resilience (^3 hours- CME available). Free for AAP members and $87 for others. Follow link HERE.

- ❒ *By end of February*, core team members complete the webinar relevant to practice selected screen:
  - Maternal Depression Screening: Dr Earls (45 min) link is HERE
  - Social Emotional Screening: Dr Gleason (~ 1 hour) link is HERE
  - Screening for Food Insecurity: (~ 1 hour) link is HERE

REDCap Data Due the Last Day of the Month

Baseline data due: 1/31
Intervention data and PDSA reports due: 2/29, 3/31, 4/30, 5/31, 6/30, 7/31
REDCap database opens the 22nd of each month for intervention data entry

If you have any questions, please feel free to contact me at rlatham@alaap.org

TICR: An ACHIA QI Learning Collaborative
December 2023 to August 2024

HEALTHY BEGINNINGS 2024 An ACHIA Trauma Informed Care and Resiliency QI Collaborative

Action Period 1

Nov/Dec 2023

- TICR Webinar: Orientation 12/7/2023
- TICR Webinar: Data 12/14/2023
- Practice Meeting
- Complete Practice Readiness Assessment Survey 12/1/2023
- Physicians seeking MOC complete Orientation and NICHQ QI by 12/7/23
- Physicians seeking MOC complete AAP Pedialink: TIC and Resilience by 12/31/23

Jan 2024

- TICR Webinar: 1/18/2024 Selecting a Screen
- Practice Meeting
- Baseline Data Due 1/31/2024

Feb 2024

- TICR Webinar: 2/15/2024 Using Strengths-Based and TICR Resources
- Practice Meeting
- Baseline Data And Monthly Survey Due 2/28/2024

Action Period 2

March 2024

- TICR Webinar: 3/21/2024 SDoH
- Practice Meeting
- Data and Monthly Survey Due 3/31/2024

April 2024

- TICR Webinar: 4/25/2024 SE Screening
- Practice Meeting
- Data and Monthly Survey Due 4/30/2024

May 2024

- TICR Webinar: 5/16/2024 Postpartum Depression
- Practice Meeting
- Data and Monthly Survey Due 5/31/2024

Action Period 3

June 2024

- TICR Webinar: 6/20/2024 Parent Perspective
- Practice Meeting
- Data and Monthly Survey Due 6/30/2024

July 2024

- TICR Webinar: 7/18/2024 Community Connections
- Practice Meeting
- Data and Monthly Survey Due 7/31/2024

Aug 2024

- TICR Webinar: 8/15/2024 Celebration
- Practice Meeting
- Post Survey Due: 9/15/2024
- Attestations Due: 9/15/2024

Action Period 4

-Sustain and Spread-

ALABAMA SHIP NETWORK
SUSTAINABLE HEALTH IMPROVEMENT IN PEDIATRICS

HEALTHY BEGINNINGS 2024
An ACHIA Trauma Informed Care and Resiliency QI Collaborative

2024 TICR Key Driver Diagram

SMART AIM

By August 2024, we will complete the following:

- Increase the percentage of patients with documentation of a strengths based approach at targeted WCC to 80 percent
- Increase the percentage of patient visits with documentation that an early relational health screen was appropriately completed at the targeted age to 80 percent
  - o Postpartum Depression
  - o Social Determinants of Health
  - o Social-Emotional Health
- Increase the percentage of patients with positive screens with intervention documented for the targeted ages to 80 percent
- Innovative Measure: Track recommended interventions to learn which are most actionable

Global AIM

All children have positive childhood outcomes

Primary Drivers	Change Ideas/Innovations
Prepare practice	• Develop shared knowledge of role of pediatrician and pediatric office in promoting positive childhood experiences and providing trauma-informed care • Message rationale for supporting Positive Childhood Experiences
Utilize a strengths-based approach	• Establish standards for communication • Utilize AAP recommended communication approaches • Standardize documentation for practice
Screen for potential barriers to early relational health	• Select screen • Standardize management for positive screens • Standardize documentation for positive screens • Establish Intervention Tracking for Completion • Define billing and coding pathway • Explore Perinatal Depression Screening Resources • Explore Social Determinants of Health Resources • Explore Social Emotional Screening Resources
Foster and continually expand referral networks and resources	• Resource Directories • Cross-Cutting Resources

HEALTHY BEGINNINGS 2024 An ACHIA Trauma Informed Care and Resiliency QI Collaborative

Measure Definitions

Name	Definition	Measure Source/ Type	Calculation	Exclusion	Data Source	Goal	Collection Frequency	Associated Questions
Data Set #1								
Measure 1 **Strengths Based Approaches Utilized**	% of patients with documentation of strengths based approach a targeted WCC	AAP Best Practices Process	**Target Population:** All patient WCC visits for the targeted ages **Numerator:** # WCC visits with one or more strengths based approaches documented **Denominator:** # of target patients	None	Patient Chart RedCAP data collection tool	80%	**Baseline:** Abstract all targeted ages June- November 20 random visits Generate visit list by end of December Data entry due in January --- **Intervention:** Abstract practice selected targeted ages Monthly 10 random charts (or all available) February – July 2024	**Targeted ages:** PPD: 1, 2, 4, 6 month visit SDoH: 6, 15, 24, 48 month visit SE: 6, 15, 24, 48 month visit Examples: • Bright Futures Previsit Questionnaire • Promoting First Relationships • Reach Out and Read • HOPE • NM 3 Questions
Measure 2a **Screen for Barriers to Early Relational Health Completed**	% of patient visits with documentation that screen was appropriately completed at the targeted age	AAP Best Practices Process	**Target Population:** All patient WCC visits for the targeted ages **Numerator:** # with an appropriately completed screen **Denominator:** # of target patients	Postpartum Depression (PPD): mother is not present for WCC SDoH (Social Determinants of Health): None	Patient Chart RedCAP data collection tool	80%	**Baseline:** Abstracted all targeted ages June- November 20 random charts Due in January **Intervention:** Abstract practice selected targeted ages	Targeted Ages and Example Tools PPD: 1, 2, 4, 6 month visit • PHQ9 • Edinburgh • PHQ2 SDoH: 6, 15, 24, 48 month visit • SWYC • AAFP • SEEK

Name	Definition	Measure Source/ Type	Calculation	Exclusion	Data Source	Goal	Collection Frequency	Associated Questions
				Social-Emotional Health (SE): None			Monthly 10 random charts (or all available) February – July 2024	• Healthy Steps Family Needs Questionnaire • Hunger Vital signs SE: 6, 15, 24, 48 month visit • SWYC • Pediatric Symptom Checklist ≥ 4YO • Baby Pediatric Symptom Checklist < 4YO • Strengths and Difficulties ≥ 2YO • ASQSE For a comprehensive list of screening tools, see the ACHIA website --- **Appropriately completed:** □ screen completed by caregiver □ scored accurately for selected screen □ score documented □ screen interpretation documented --- **Of completed screens, was the screen positive?** Positive screen criteria will be reviewed after screens selected
Measure 2b **Interventions Documented for Positive Screens for Barriers to Early Relational Health**	% patients with positive screens with intervention documented for the targeted ages	AAP Best Practices Process	**Target Population:** All patient WCC visits for the targeted ages with a positive screen **Numerator:** # patients who have intervention plan(s) documented **Denominator:** # of patients with positive screen	None	Patient chart Data Collection Tool for REDCap	80%	**Baseline:** Abstract all targeted ages June- November 20 random charts Due in January **Intervention:** Abstract practice selected targeted ages Monthly 10 random charts (or all available) February – July 2024	Were interventions for a positive screen based on the practice defined standard of care documented appropriately in the EHR? Were the recommended interventions placed on the practice's referral tracking tool for follow up?

Name	Definition	Measure Source/ Type	Calculation	Exclusion	Data Source	Goal	Collection Frequency	Associated Questions
Dataset #2								
Measure 3 **Recommended Interventions Assessed or Completed within 30 days**	% of patients with positive screens and the recommended intervention(s) assessed or completed within 30 days	AAP Best Practices Outcome	**Target Population:** All patient WCC visits for the targeted ages with an intervention plan for positive screen **Numerator:** # interventions completed within 30 days or assessed within 30 days as having a future appointment **Denominator:** cumulative # of interventions recommended	None	Practice Tracking Tool	No goal: This is an Innovative Measure for practices to learn which interventions are most actionable	**Baseline data:** None **Intervention** Monthly All patients with a positive screen and recommended interventions. March – July 2024	Was recommended intervention completed within 30 days or assessed as having known appointment /intervention scheduled for beyond 30 days? Yes Comment if any Note: Continue to track future appointments /interventions through scheduled date. No (choose one): o Intervention not scheduled o Intervention scheduled but appointment missed o Provider unable to reach family for more information o Other, please specify: _____

Ramp Plan: Adding Screen for Depression and Suicide to 12-18YO WCC

August 2020 version

Screening For Depression and Suicide	**Test Cycle 1**	**Test Cycle 2**	**Test Cycle 3**	**Test Cycle 4**
Test Cycle Description, including changes in scale/time:	Dr Walker: March 1 1 Day / 1 Doctor Give Depression and Suicide Screen to teens @ 12-18YO WCC	Drs Walker and Abbott: March 3 1 Day / 2 Doctors Teen roomed without caregiver and given screen at that time	Drs. Walker and Abbott: Week March 6 All Week/ 2 Doctors	

PDSA Worksheet

Project Title:	**Screening Effectively & Empowering Now (SEEN): An ACHIA Teen Mental Wellness QI Collaborative**
Intervention Name:	**Screening for Depression and Suicide at all Teen WCC**
What key driver does this test impact?	❑ **Universal Screening for Depression and Suicide** ❑ **Standardized Management for Concerning Screens** ❑ **Practice Follow Up Visits**

Test Cycle #:	1	**Test Cycle Start Date:**	March 1, 2023	**Test Cycle Completion Date:**	March 1, 2023

Describe the intent and structure of the test cycle:

To complete the PHQ-A with the Ask Suicide Questions Screen. Will start with all of Dr. Walker's patients 12-18 yo here for WCC on March 1, 2023. Front desk will give the form for teen to complete prior to seeing Dr Walker. Dr. Walker will review the replies and discuss with the patient and caregiver.

What would the successful test look like? Include how you will measure success for this test cycle:

Success= all of Dr Walker's teens screened. We will measure by reviewing all 12-18 yo patients here for WCC on March 1

What do you predict will happen? This should be your realistic prediction.

We will complete screens.

Action steps to carry out the test cycle (who, what, where & when):

Front desk will give the form for teen to complete prior to seeing Dr Walker.
Dr. Walker will review the replies and discuss with the patient and caregiver.

Describe your observations and data. Was there anything that occurred that was not part of the plan?

Dr . Walker had 6 patients on March 1. Four completed the screens. .
Missed the first patient because front desk forgot about giving out the form.
Missed the second patient because the family was too late and didn't have time to complete the form.

Also, found out that while four screens were completed, one was completed by the parent.

STUDY:

How did the results compare to your prediction? What did you learn?

Results: We did not screen all patients.
Learned:
- Need to improve communication with front desk
- Parents are completing screens
- When patients are lat,e hard to do screen as well

ACT: *(to be completed after the test cycle)*

Adapt ☒

Adopt ☐

Abandon ☐

What will you change in the next test if "adapt". *(Modify intervention to reflect learning and/or increase scale)*

- Bring Front Desk onto Core Team
- Room patients >= 14 years of age initially without caregiver. Go over screen w 12 & 13YO after parent leaves room
- Will need to continue to think about how to screen late patients
- Test on Friday March 3 with Drs Walker's and Abbott's Patients .

PDSA Worksheet

Project Title:	**Screening Effectively & Empowering Now (SEEN): An ACHIA Teen Mental Wellness QI Collaborative**
Intervention Name:	
What key driver does this test impact?	❑ **Universal Screening for Depression and Suicide** ❑ **Standardized Management for Concerning Screens** ❑ **Practice Follow Up Visits**

Test Cycle #:	2	**Test Cycle Start Date:**	March 3,2023	**Test Cycle Completion Date:**	March 3, 2023

Describe the intent and structure of the test cycle:

To complete the PHQ-A with the Ask Suicide Questions Screen. Will start with all of Dr. Walker's patients 12-18 yo here for WCC on March 3, 2023. Front desk will put screen on chart. CMA will room >=14 yo alone and give screen then. For 12 & 13YO, leave screen on chart for Dr walker to review with patient when parent leaves room.. Dr. Walker will review the replies and discuss with the patient and caregiver.

What would the successful test look like? Include how you will measure success for this test cycle:

Success= all of Dr Walker's teens screened. We will measure by reviewing all 12-18 yo patients here for WCC on March

What do you predict will happen? This should be your realistic prediction.

We will complete screens. But some caregivers will not be ok with leaving teen in room.

Action steps to carry out the test cycle (who, what, where & when):

Describe your observations and data. Was there anything that occurred that was not part of the plan?

STUDY:

How did the results compare to your prediction? What did you learn?

ACT: *(to be completed after the test cycle)*

Adapt ☐

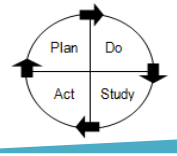
Adopt ☐

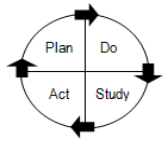
Abandon ☐

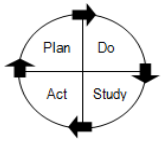
What will you change in the next test if "adapt". *(Modify intervention to reflect learning and/or increase scale)*

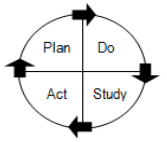
Ramp Summary: Screening for Depression and Suicide

August 2020 version





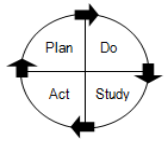


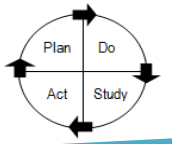


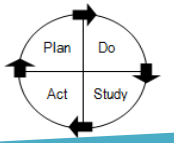
	Screening for Depression and Suicide Ages at 12-18 year WCC	Test Cycle 1	Test Cycle 2	Test Cycle 3	Test Cycle 4
Plan	**Describe the intent and structure of the test cycle.**	Reliably Screen for Depression and Suicide on small scale (1 Day with Dr Walker) to test workflow	Reliably Screen for Depression and Suicide on small scale (1 Day with Dr Walker) to test workflow Include adaptions from Test 1		
Do	**What changed from the previous test cycle?**		▪ Front desk part of QI Team ▪ Patients roomed without parent		
Study	**Results: Data and Observations**	4/6 patients screened Late patient, forgot one screen and parent completing screen			
Act	**Action (Adapt, Adopt or Abandon):**				

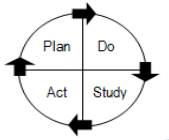
Ramp Plan

August 2020 version



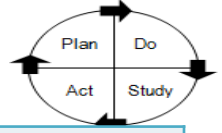






<Enter Intervention>	**Test Cycle 1**	**Test Cycle 2**	**Test Cycle 3**	**Test Cycle 4**
Test Cycle Description, including changes in scale/time:				

PDSA Worksheet



Project Title:	**Screening Effectively & Empowering Now (SEEN): An ACHIA Teen Mental Wellness QI Collaborative**
Intervention Name:	
What key driver does this test impact?	❑ Universal Screening for Depression and Suicide ❑ Standardized Management for Concerning Screens ❑ Practice Follow Up Visits

Test Cycle #:		**Test Cycle Start Date:**		**Test Cycle Completion Date:**	

Describe the intent and structure of the test cycle:

What would the successful test look like? Include how you will measure success for this test cycle:

What do you predict will happen? This should be your realistic prediction.

Action steps to carry out the test cycle (who, what, where & when):

Describe your observations and data. Was there anything that occurred that was not part of the plan?

STUDY:

How did the results compare to your prediction? What did you learn?

ACT: *(to be completed after the test cycle)*

Adapt ☐

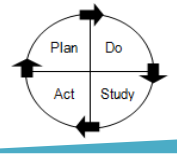
Adopt ☐

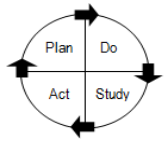
Abandon ☐

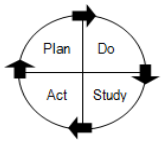
What will you change in the next test if "adapt". *(Modify intervention to reflect learning and/or increase scale)*

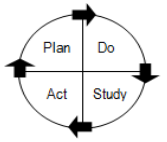
Ramp Summary

August 2020 version





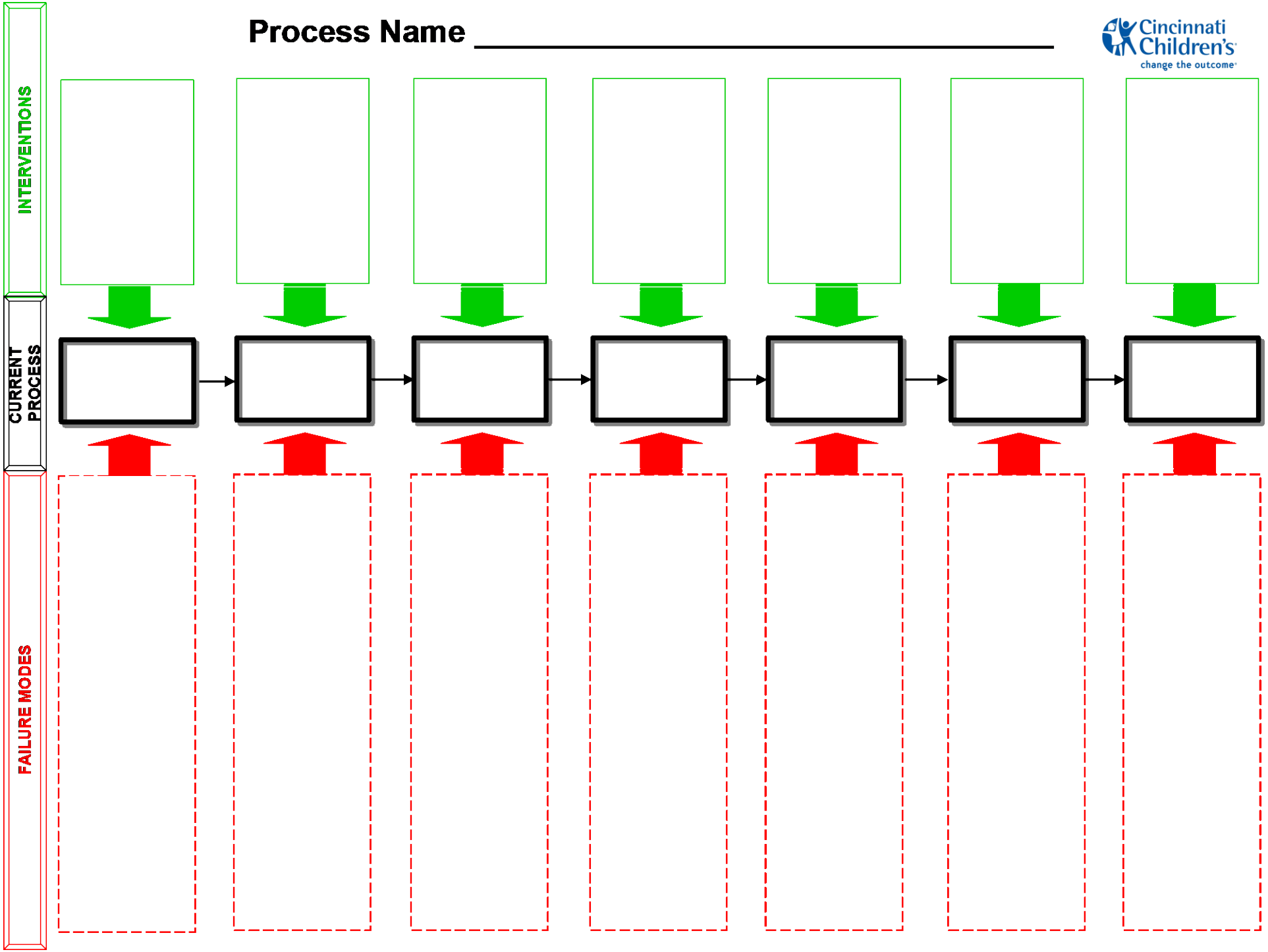




	<Enter Intervention>	Test Cycle 1	Test Cycle 2	Test Cycle 3	Test Cycle 4
Plan	**Describe the intent and structure of the test cycle.**				
Do	**What changed from the previous test cycle?**				
Study	**Results: Data and Observations**				
Act	**Action (Adapt, Adopt or Abandon):**				

Process Name _____

Cincinnati Children's
change the outcome



POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Preventing Childhood Toxic Stress: Partnering With Families and Communities to Promote Relational Health

Andrew Garner, MD, PhD, FAAP,[a,b] Michael Yogman, MD, FAAP[c,d]
COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS, COUNCIL ON EARLY CHILDHOOD

By focusing on the safe, stable, and nurturing relationships (SSNRs) that buffer adversity and build resilience, pediatric care is on the cusp of a paradigm shift that could reprioritize clinical activities, rewrite research agendas, and realign our collective advocacy. Driving this transformation are advances in developmental sciences as they inform a deeper understanding of how early life experiences, both nurturing and adverse, are biologically embedded and influence outcomes in health, education, and economic stability across the life span. This revised policy statement on childhood toxic stress acknowledges a spectrum of potential adversities and reaffirms the benefits of an ecobiodevelopmental model for understanding the childhood origins of adult-manifested disease and wellness. It also endorses a paradigm shift toward relational health because SSNRs not only buffer childhood adversity when it occurs but also promote the capacities needed to be resilient in the future. To translate this relational health framework into clinical practice, generative research, and public policy, the entire pediatric community needs to adopt a public health approach that builds relational health by partnering with families and communities. This public health approach to relational health needs to be integrated both vertically (by including primary, secondary, and tertiary preventions) and horizontally (by including public service sectors beyond health care). The American Academy of Pediatrics asserts that SSNRs are biological necessities for all children because they mitigate childhood toxic stress responses and proactively build resilience by fostering the adaptive skills needed to cope with future adversity in a healthy manner.

abstract

[a]*Partners in Pediatrics, Westlake, Ohio;* [b]*School of Medicine, Case Western Reserve University, Cleveland, Ohio;* [c]*Cambridge Hospital, Cambridge, Massachusetts; and* [d]*Harvard Medical School, Harvard University, Boston, Massachusetts*

Dr Garner collaborated in conceptualizing and drafting this document, took the lead in reconciling the numerous edits, comments, and suggestions made by many expert reviewers, and made significant contributions to the manuscript; Dr Yogman collaborated in conceptualizing and drafting this document and made significant contributions to the manuscript; and all authors approved the final manuscript as submitted.

To cite: Garner A, Yogman M, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS, COUNCIL ON EARLY CHILDHOOD. Preventing Childhood Toxic Stress: Partnering With Families and Communities to Promote Relational Health. *Pediatrics*. 2021;148(2):e2021052582

In order to develop normally, a child requires progressively more complex joint activity with one or more adults who have an irrational emotional relationship with the child. Someone's got to be crazy about that kid. That's number one. First, last and always.

Urie Bronfenbrenner[1]

INTRODUCTION

The term "toxic stress" refers to a wide array of biological changes that occur at the molecular, cellular, and behavioral levels when there is prolonged or significant adversity in the absence of mitigating social-emotional buffers.[2] Whether those adversity-induced changes are considered adaptive and health-promoting or maladaptive and "toxic" depends on the context. For example, in an abusive context, biological changes, such as the methylation of the glucocorticoid receptor gene,[3–5] an increase in the size or activity of the amygdala,[6–8] and a hypersensitivity to potentially threatening cues[9] could be considered adaptive, at least initially, because those changes might promote survival in a threatening environment. But those same biological changes could prove to be maladaptive, toxic, and health harming over time.[10,11]

This toxic stress framework is powerful, because it taps into a rich and increasingly sophisticated literature describing how early childhood experiences are biologically embedded and influence developmental outcomes across the life course.[12–14] This was the focus of the original technical report on toxic stress from the American Academy of Pediatrics (AAP) in 2012.[2] Current threats to child well-being and long-term health, such as widening economic inequities, deeply embedded structural racism, the separation of immigrant children from their parents, and a socially isolating global pandemic, make the toxic stress framework as relevant as ever.

That said, the toxic stress framework is a problem-focused model because it is focused on what happens biologically in the absence of mitigating social and emotional buffers. Conversely, a solution-focused approach would focus on relational health[15] (see the Appendix for a glossary of terms, concepts, and abbreviations) by promoting the safe, stable, and nurturing relationships (SSNRs) that turn off the body's stress machinery in a timely manner.[1,16,17] Even more importantly, a strengths-based, relational health framework leverages those SSNRs to proactively promote the skills needed to respond to future adversity in a healthy, adaptive manner.[16,18,19] The power of relational health is that it not only buffers adversity when it occurs but also proactively promotes future resilience. The toxic stress framework may help to define many of our most intractable problems at a biological level, but a relational health framework helps to define the much-needed solutions at the individual, familial, and community levels (see Table 1).

This revised policy statement on childhood toxic stress builds on the 2012 policy statement[12] and technical report[2] by:

- Acknowledging that a spectrum of adversity exists, from discrete, threatening events (such as abuse, bullying, or disasters) to ongoing, chronic hardships (such as poverty, racism, social isolation, or neglect). These varied adversities share the potential to trigger toxic stress responses and inhibit the formation of SSNRs.
- Reaffirming an ecobiodevelopmental framework[2] because early childhood experiences, both adverse and nurturing, are biologically embedded and influence the development of both disease and wellness later in life.
- Asserting that adults with core life skills are essential, not only to form and maintain SSNRs with children but also to scaffold and develop the basic social and emotional skills that enable children to be resilient and flourish despite adversity. A multigenerational perspective is fundamental.
- Promoting a public health approach that not only prevents, mitigates, and treats toxic stress but, more importantly, proactively promotes, reduces barriers to, and repairs relational health (the capacity to develop and maintain SSNRs with others).
- Emphasizing that the vertical integration of this public health approach or the layering of primary, secondary, and tertiary preventions and/or interventions is necessary because the heterogeneity of responses to adversity seen at the population level will need to be addressed through a menu of programs that are layered and matched to specific levels of individual need (universal preventions, plus targeted interventions for those at risk, plus indicated therapies for those with symptoms or diagnoses).
- Proposing that the public health approach also be integrated horizontally across multiple public service sectors (eg, health care, behavioral health, education, social services, justice, and faith communities) because SSNRs are promoted in safe, stable, and nurturing families that have access to safe, stable, and nurturing communities with a wide range of resources and services.

This policy statement asserts that to move forward (to proactively build

TABLE 1 A Comparison of the Toxic Stress and Relational Health Frameworks

	Toxic Stress	Relational Health
Definition	Toxic stress refers to the biological processes that occur after the extreme or prolonged activation of the body's stress response systems in the absence of SSNRs.	Relational health refers to the capacity to develop and sustain SSNRs, which in turn prevent the extreme or prolonged activation of the body's stress response systems.
Contribution	Toxic stress explains how a wide range of ACEs become biologically embedded and alter life-course trajectories in a negative manner.	Relational health explains how SSNRs buffer adversity and promote the skills needed to be resilient in the future.
Approach to clinical care	Toxic stress is a deficits-based approach because it is focused on the problem: those biological processes triggered by significant adversity in the absence of SSNRs.	Relational health is a strengths-based approach because it is focused on solutions: those individual, family, and community capacities that promote SSNRs, buffer adversity, and build resilience.
Primary preventions in the framework	Primary preventions in the toxic stress framework are focused on how to prevent the wide array of adversities that might precipitate a toxic stress response.	Primary preventions in the relational health framework are focused on how to universally promote the development and maintenance of SSNRs.
Secondary preventions in the framework	Secondary preventions in the toxic stress framework are focused on identifying individuals at high risk for poor outcomes resulting from toxic stress responses by using population-based risk factors (eg, ACE scores) or emerging biomarkers (eg, methylation patterns).	Secondary preventions in the relational health framework are focused on identifying the potential individual, family, and community barriers to SSNRs by developing respectful and caring therapeutic relationships with patients, families, and communities.
Tertiary preventions in the framework	Tertiary preventions in the toxic stress framework are focused on the evidence-based practices that treat toxic stress-related morbidities such as anxiety, depression, oppositional defiant disorder, posttraumatic stress disorder, and substance abuse disorder.	Tertiary preventions in the relational health framework are focused on the evidence-based practices such as ABC, CPP, or PCIT that repair strained relationships and assist them in becoming more safe, stable, and nurturing.
Summary	Toxic stress defines the problem. Toxic stress explains how many of our society's most intractable problems (disparities in health, education, and economic stability) are rooted in our shared biology but divergent experiences and opportunities.	Relational health defines the solution. Relational health explains how the individual, family, and community capacities that support the development and maintenance of SSNRs also buffer adversity and build resilience across the life course.

not only the healthy, happy children of today but also the well-regulated parents and productive citizens of the future) family-centered pediatric medical homes (FCPMHs) (see the Appendix for a detailed description) need to universally promote relational health. SSNRs not only buffer adversity when it occurs but also proactively build the foundational social and emotional skills that lead to resilience in the face of future adversity. Although pediatric and early childhood professionals have long recognized the parent-child relationship as foundational,[20–22] the elemental nature of relational health is not reflected in much of our current training, research, practice, and advocacy. To prevent childhood toxic stress responses and support optimal development across the life span, the promotion of relational health needs to become an integral component of pediatric care and a primary objective for pediatric research and advocacy.

A SPECTRUM OF ADVERSITY

The previous policy statement[12] and technical report[2] on childhood toxic stress noted the 10 adverse childhood experiences (ACEs) studied in the landmark ACEs Study that began in the 1990s: physical, emotional, or sexual abuse; physical or emotional neglect; problematic parental substance misuse; parental mental illness; parental separation or divorce; intimate partner violence; and an incarcerated house member.[23] These adversities are associated with a wide array of negative outcomes in a dose-dependent manner, such that the higher the ACE score (1 point for each category experienced before the age of 18 years), the higher the risk for unhealthy behaviors such as tobacco, alcohol, and other substance use; risky sexual behaviors; and obesity.[23,24] Dose-dependent relationships have also

been found between ACE scores and several of the leading causes of adult morbidity and mortality,[23,24] including cardiovascular disease,[25] lung disease,[26] liver disease,[27] mental illness,[28] and cancer.[29]

These well-established associations between ACEs and poor health outcomes decades later highlight the importance of understanding the biological mechanisms that allow adversity in childhood to "get under the skin" and to negatively impact life-course trajectories.[30–36] As discussed in the 2012 AAP technical report,[2] toxic stress responses, in which the physiologic stress response to adversity is large, chronic, and unmitigated by social-emotional buffers, are one such mechanism. Toxic stress responses are known to alter multiple systems that interact in a reciprocal and dynamic manner: genomic function, brain structure and connectivity, metabolism, neuroendocrine-immune function, the inflammatory cascade, and the microbiome.[13,14] Toxic stress-induced alterations also influence the adoption of maladaptive coping behaviors decades later.[37–40]

Several researchers have noted that many other experiences in childhood are also associated with poor outcomes later in life, and these include being raised in poverty,[41] left homeless,[42–44] exposed to neighborhood violence,[45–47] subjected to racism,[48–50] bullied,[51,52] or punished harshly.[53] This finding suggests that there is a wide spectrum of adversity that runs from discrete, threatening events (such as being abused, bullied, or exposed to disasters or other forms of violence) to ongoing, chronic life conditions (such as exposure to parental mental illness, racism, poverty, neglect, family separation or a placement in foster care, and environmental toxins or air pollution; unrelenting anxiety about a global pandemic, climate change, or deportation; or social rejection because of one's sexual orientation or gender identity). Although children experiencing discrete catastrophic events such as abuse are at a high risk for toxic stress responses, epidemiology suggests that the largest number of children at risk for toxic stress responses are those affected by ongoing chronic life conditions such as neglect.[54,55] This finding suggests that although interventions targeting children with acute threats are needed urgently (eg, efforts preventing physical abuse, child trafficking, and gun violence), those interventions alone will almost certainly miss large segments of the population (eg, those experiencing the threats of parental mental illness, racism, poverty, social isolation) who may also develop toxic stress responses and their associated poor outcomes. To minimize the burden of toxic stress responses at the population level, the entire pediatric community needs to identify and address not only the acute threats to child wellness such as abuse and physical violence but also the ongoing, chronic life conditions such as racism, poverty, and isolation that are rooted in deep-seated social constructs, societal inequities (including those within the health care system), and public policies that inhibit social cohesion, equity, and relational health. Acute threats to childhood wellness such as abuse need to be taken seriously; similar attention should be given to the social inequities and ongoing, chronic life conditions that similarly imperil a child's biological wellness and life-course trajectory.

This wide spectrum of adversity underscores the fact that ACE scores and other epidemiologically derived risk factors at the population level are not valid or reliable predictors of outcomes at the individual level.[56] Toxic stress, by contrast, refers to an individual's physiologic response to these adversities, and biomarkers of this physiologic response have the potential to be more sensitive and specific measures of experienced adversity at the individual level.[37] Validated biomarkers also offer transformational potential as measures of responsiveness to specific interventions.[37,57] With these applications in mind, the pediatric research community is hoping to develop clinic-friendly, noninvasive biomarkers for different forms and degrees of adversity.

Finally, the diverse conditions included in a broader spectrum of adversity make the formation of SSNRs more difficult. Consequently, the challenge is not only to prevent a broad spectrum of adversities from occurring but also to prevent them from becoming barriers to the SSNRs that allow individuals from across the spectrum of adversity to be resilient and flourish despite the adversity.[17,58,59]

An important consideration across many harmed and exploited communities (such as American Indian or Alaska Native populations) is the accumulation of toxic stress responses across generations, sometimes referred to as historical trauma.[60] Although higher levels of historical trauma are associated with poorer health outcomes, the science underlying these associations is only now being studied rigorously.[61] A detailed discussion of historical trauma and the special needs of these communities is beyond the scope of this policy statement, but the layered, integrated public health approaches presented here to prevent childhood toxic stress and promote relational health might inform efforts to address historical trauma as well.

THE ECOBIODEVELOPMENTAL MODEL OF DISEASE AND WELLNESS

Fortunately, adversity in childhood is only half the story, as positive experiences in childhood are associated with improved outcomes later in life. For example, positive relational experiences, such as engaged, responsive caregivers,[59,62–65] shared children's book reading,[66–68] access to quality early childhood education,[69–71] and opportunities for developmentally appropriate play with others[66,72–74] are associated with positive impacts on learning, behavior, and health. Early childhood experiences, both adverse and positive, appear to be biologically embedded and influence both disease and wellness across the life course.[30] The ecobiodevelopmental model of disease and wellness explains how the ongoing but cumulative and reciprocal dance between ecology and biology leads to changes at the molecular (eg, methylation patterns), cellular (eg, brain connectivity patterns), and behavioral levels (eg, tobacco, alcohol, or other substance use).[2,17] These changes are either adaptive or maladaptive depending on the context, and they are either benefits or risks to future health, academic success, and economic productivity.[75]

For example, significant adversity in the last trimester of pregnancy is associated with methylation of the child's glucocorticoid receptor gene.[76] In adults, the methylation of this gene is associated with the expression of fewer glucocorticoid receptors in the brain.[5] Because cortisol downregulates its own production via negative feedback loops in the brain that use glucocorticoid receptors, children with fewer glucocorticoid receptors would be expected to have higher cortisol levels and be more irritable and harder to console.[77] These changes could be considered adaptive and beneficial in the short-term because they might prepare the newborn infant for a stressful world in which the infant may need to be more vocal to have his or her needs met. But these same changes could be considered maladaptive over time because the higher cortisol levels could impair learning, and the infant's irritability could impair the formation of a strong parental bond with the infant. Conversely, early supports that allow new mothers more opportunities to bond with, breastfeed, and simply stroke their children are associated with decreases in the methylation of the glucocorticoid receptor gene, perhaps allowing infants to downregulate their stress responses more effectively.[78,79] This finding is one of the most significant predictions of the ecobiodevelopmental model: the biological mechanisms that underlie the embedding of significant childhood adversity may also underlie the embedding of positive relational experiences in childhood. The challenge, then, is not only to prevent adversity but also (for mothers, fathers, and other engaged adults) to actively promote positive relational experiences throughout infancy and childhood.

COMPONENTS OF A PUBLIC HEALTH APPROACH TO TOXIC STRESS

The ecobiodevelopmental model suggests that, to improve the likelihood of positive developmental outcomes across the life span, efforts should be made to improve the salient features of the child's environment. Changing all of the potentially salient features of a child's environment cannot be reduced to a single intervention or program, so there will be no singular panacea when it comes to addressing childhood toxic stress responses. Rather, an integrated public health approach (see Fig 1) is needed to support all children, including those with delays in development and special health care needs.[80–82] The foundation for any public health approach is universal primary prevention. In the case of toxic stress responses, universal primary prevention means trying to prevent the precipitants of toxic stress responses (eg, advocating to address the spectrum of adversities discussed above) as well as promote healthy, adaptive responses to adversity through the provision of social supports that nurture the development of foundational resilience skills (such as task persistence, curiosity, and self-regulation).[16,19,59,83]

For children at higher risk for toxic stress responses, targeted secondary interventions with tiered services (eg, HealthySteps[84,85]) may be needed. Children with known adversity but no overt symptoms,[18] children with parents who experienced significant adversity as a child,[86] and families struggling with the social determinants of health (SDoHs) (eg, poverty leading to food or housing insecurity,[87,88] language barriers, or acculturation leading to conflicts within immigrant families[89]) may benefit from an array of interventions that mitigate specific risk factors. For example, the AAP currently recommends screening parents for postpartum depression[90] and food insecurity.[87,88] Similarly, when clinical markers for an individual child's biological sensitivity to context[91–94] (see the Appendix for a glossary of terms, concepts, and abbreviations) are available, children of high (versus low) sensitivity may also benefit from different types of interventions.[95] In concordance with a layered public health approach, these various targeted interventions will

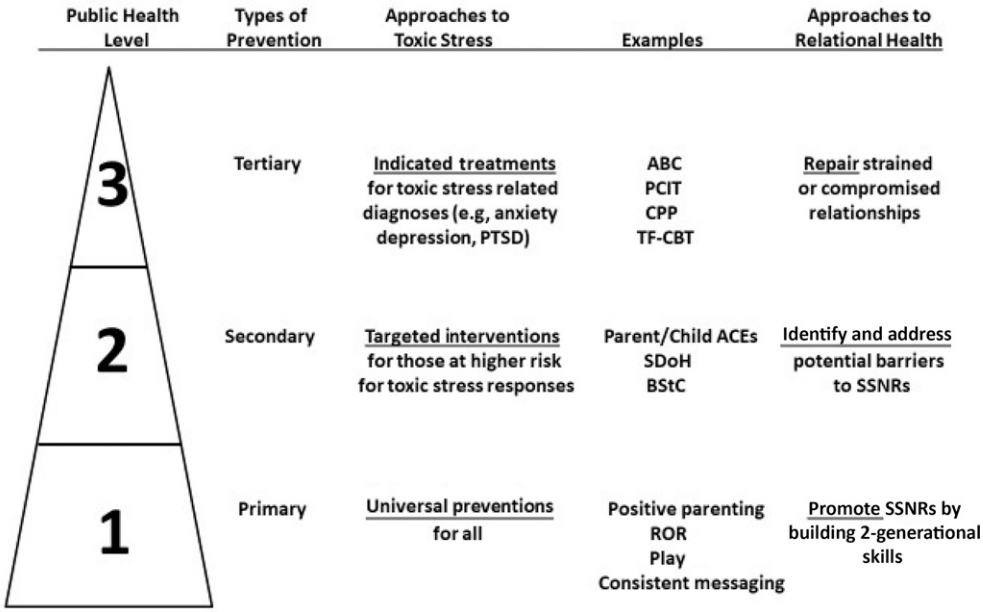


FIGURE 1 A public health approach to prevent childhood toxic stress is a public health approach to promote relational health. Many of the components of a public health approach to prevent, mitigate, and treat toxic stress responses (see examples) are also components of a public health approach to promote, identify barriers to, and repair SSNRs. The examples provided are illustrative and not intended to be comprehensive or exhaustive. See the Appendix for full descriptions of the abbreviations. BStC, biological sensitivity to context; PTSD, posttraumatic stress disorder. Adapted with permission from Garner AS, Saul RA. Thinking Developmentally: Nurturing Wellness in Childhood to Promote Lifelong Health. Itasca, IL: American Academy of Pediatrics; 2018

supplement but not replace the universal primary preventions.

For children who are symptomatic or meet criteria for toxic stress-related diagnoses (eg, anxiety, oppositional defiant disorder, or posttraumatic stress), indicated, evidence-based therapies are needed. For younger children, these therapies may include attachment and biobehavioral catch-up (ABC),[96–98] parent-child interaction therapy (PCIT),[99–102] and child-parent psychotherapy (CPP).[103–105] For older children, trauma-focused cognitive-behavioral therapy (TF-CBT) may be beneficial.[106,107] The effectiveness of these evidence-based therapies may be reduced if targeted interventions are not used to address emerging areas of risk or if universal primary preventions are not applied as well.[59,108] A layered public health approach mirrors the concept of proportionate universalism (see the Appendix for a glossary of terms, concepts, and abbreviations), in which the delivery of universal services is at a scale and intensity that is proportionate to the degree of need.[109–112] For example, if access to healthy foods is a universal objective, a proportionate response would recognize that some families may only need education about which foods are healthy, whereas some may need education about healthy foods and additional financial resources to purchase those healthy foods, and still others may require education about healthy foods, additional financial resources, and access and/or transportation to stores that sell healthy foods.

THE EMERGING SCIENCE OF RELATIONAL HEALTH

The concept of childhood toxic stress taps into a rich literature on the biology of adversity and explains the danger in overlooking significant adversity in childhood. To move forward (to proactively build healthy, resilient children), the pediatric community needs to embrace the concept of relational health.[15] Relational health refers to the ability to form and maintain SSNRs, as these are potent antidotes for childhood adversity and toxic stress responses.[57,113] Not only do SSNRs buffer adversity and turn potentially toxic stress responses into tolerable or positive responses, but they are also the primary vehicle for building the foundational resilience skills that allow children to cope with future adversity in an adaptive, healthy manner.[16,17] These findings highlight the need for multigenerational approaches that support parents and adults as they, in turn, provide the SSNRs that all children need to flourish.

Developmental science is only beginning to understand the way relational health buffers adversity and builds resilience, but emerging data suggest that responsive interactions between children and engaged, attuned adults are

paramount.[1,16,114,115] Not only are infants programmed to connect socially and emotionally with adult caregivers,[116] but the brains of parents of newborn infants appear to be reprogrammed to connect with their infants.[117] Imaging studies of new parents demonstrate changes in several major brain circuits, including a reward circuit, social information circuit, and emotional regulation circuit.[117,118] The reward circuit includes the striatum, ventral tegmental area, anterior cingulated cortex, and prefrontal cortex, where dopamine and rising levels of oxytocin interact to make social interactions more rewarding, thereby encouraging more parental engagement in infant care.[118,119] The social information circuit includes structures such as the anterior insula, inferior frontal gyrus, superior temporal gyrus, and supplemental motor area, which support internal representations of what others may be experiencing and more empathic responses to infant behaviors.[118,119] Finally, the emotional regulation circuit includes the amygdala, superior temporal sulcus, temporoparietal junction, and prefrontal cortex, which promote social cognition and a downregulation of the stress response.[118,119] The convergent conclusion from these preliminary imaging studies of the parental brain is clear: much like the infant brain, the parental brain is programmed to connect.

Recent research suggests that this dyadic need to connect promotes the development of biobehavioral synchrony between parents and infants.[119,120] Feldman[119] states, "Such coordination is observed across four systems: the matching of nonverbal behavior; the coupling of heart rhythms and autonomic function; the coordination of hormone release [eg, oxytocin following contact with both mothers and fathers]; and brain to brain synchrony [eg, coordinated brain oscillation in alpha and gamma rhythms]." Because the human brain is so immature at birth, the infant is dependent on this biobehavioral synchrony not only for survival but also for laying the foundation for future self-regulation and social-emotional skills. One expert has written that "this synchronous biobehavioral matrix builds the child's lifelong capacity for intimacy, socio-affective skills, adaptation to the social group, and the ability to use social relationships to manage stress."[117] Early relational experiences with engaged and attuned adults have a profound influence on early brain and child development.

LINKS BETWEEN RELATIONAL HEALTH AND RESILIENCE

The importance of engaged and attuned adults does not end in the newborn period. In fact, there is increasing evidence that strong social-emotional supports, such as high family resilience and connection and the provision of positive childhood relational experiences, are associated with children who are resilient and flourish despite their level of adversity.[59,121] This finding has renewed interest in defining the critical elements that children, families, and communities need to thrive despite adversity.[18,19,65,122–124] Resilience, for example, is now understood to be the manifestation of capacities, resources, or skills that allow some children, families, and communities to respond to adversity in a healthy, adaptive manner.[16,83,124] At the child level, foundational capabilities (such as social skills, emotional regulation, language, and executive functions like impulse inhibition, working memory, cognitive flexibility, abstract thought, planning, and problem solving) are the building blocks of resilience and need to be modeled, taught, learned, practiced, reinforced, and celebrated.[16] A recent literature review identified 5 modifiable resilience factors relevant to clinical pediatric care: (1) "addressing maternal mental health problems"; (2) "encouraging responsive, nurturing parenting"; (3) "building positive appraisal styles and executive function skills"; (4) "teaching children self-care skills and routines"; and (5) "using trauma-focused interventions and educating families about trauma."[83] The emphasis on building new skills underscores the AAP's concern that excessive screen time might limit opportunities to develop more adaptive and generalizable skills.[125]

Flourishing despite adversity is another construct that has been studied. Three indicators of flourishing are amenable to parental report and are rough markers of executive function: (1) "the child shows interest and curiosity in learning new things," (2) "the child works to finish tasks he or she starts," and (3) "the child stays calm and in control when faced with a challenge."[59] In analyses of data from the 2016–2017 National Survey of Children's Health, "the prevalence of flourishing children increased in a graded fashion with increasing levels of family resilience and connection."[59] In fact, a higher percentage of children with high adversity (ACE scores 4–9) but high family connection and resilience were flourishing (30.5%) than children with low adversity (ACE score of 0) but low family resilience and connection (26.8%).[59] Approaches to minimizing toxic stress that only look at measures of adversity (such as ACE scores or biomarkers) will miss out on opportunities to support the relational health that promotes

flourishing despite adversity. Measures of both resilience and "flourishing despite adversity" suggest that much more can be done to build the SSNRs and overall relational health that buffers adversity and builds both the skills and contexts necessary for children to thrive. The Healthy Outcomes From Positive Experiences framework promotes relational health through positive childhood experiences, such as "being in nurturing, supportive relationships; living, developing, playing, and learning in safe, stable, protective, and equitable environments; having opportunities for constructive social engagement and connectedness; and learning social and emotional competencies."[126,127]

A PUBLIC HEALTH APPROACH TO BUILD RELATIONAL HEALTH

Applying a public health approach to the promotion of relational health (see Fig 1) reveals that many of the universal primary preventions for toxic stress are also effective means of promoting the development of SSNRs (eg, positive parenting styles, developmentally appropriate play with others,[66,73,74,128] and shared reading[129,130]). Similarly, many of the risk factors for toxic stress responses that are the targets of secondary interventions are also potential barriers to the development of SSNRs that need to be identified and addressed (eg, child ACE scores, parent ACE scores, SDoHs, or even a strong biological sensitivity to context). Finally, many of the indicated treatments for children who are symptomatic as a result of toxic stress are programs that focus on repairing strained or compromised relationships (eg, ABC, PCIT, CPP, and TF-CBT). In short, a public health approach to prevent childhood toxic stress is a public health approach to promote relational health.

Vertical Integration to Match Levels of Need With Specific Interventions

Emerging data supporting a biological sensitivity to context (see the Appendix for a glossary of terms, concepts, and abbreviations) begin to explain heterogeneous responses to both adversity and interventions at the population level.[92,131–136] Consequently, there is an urgent need for a battery of biological, behavioral, and contextual markers that might better stratify both the risks and predicted responsiveness to interventions at the individual level.[37] FCPMHs (see the Appendix for a detailed description) are well placed to begin matching levels of need with specific types of interventions, a process known as vertical integration.[82]

Public health approaches are vertically integrated when they are founded on universal primary preventions (eg, promoting family resilience and connection and positive childhood experiences), with tiered, targeted interventions (eg, addressing SDoHs) and indicated treatments (eg, PCIT) being layered on this foundation, depending on the specific needs of the particular child, family, or community. This emphasis on universal primary preventions is congruent with the fact that more children are mentally and socially well and flourish as adults, regardless of their level of childhood adversity, if they also are afforded positive relational experiences and high family resilience and connection during childhood.[59,121] Relational health includes more than "nurturing" in its traditional, spoken sense (eg, verbal warmth or responsivity); it also includes the activities that support the relationship more broadly (eg, reading aloud and a prescription to play), and research has documented that nurturing words and actions are inextricably linked.[137] Although there are both practice-based (eg, Reach Out and Read [ROR],[129,138,139] the Video Interaction Project [VIP],[66,72] HealthySteps[84,85]) and community-based programs (eg, positive parenting programs,[140,141] home visiting programs,[142,143] quality early child care settings[69,71]) that promote these early positive relational experiences, they are not funded at levels that would make them universally accessible. More importantly, they are rarely integrated vertically with other programs that layer on additional efforts to address barriers to relational health (eg, SDoHs) or already strained or compromised relationships (eg, PCIT) when needed. A vertically integrated public health approach acknowledges that universal primary preventions are absolutely necessary yet insufficient to promote relational health.

For children deemed to be at high risk for toxic stress responses, potential barriers to relational health need to be identified and addressed through team-based care[144] and collaborative community partnerships (eg, food banks,[145,146] medical-legal partnerships[147]). These additional interventions are supplemental to and do not replace universal primary preventions. Similarly, symptomatic children need to be referred to evidence-based treatment programs (eg, ABC, PCIT, CPP, TF-CBT), but these are supplemental to and do not replace either targeted interventions for potential barriers to SSNRs or the aforementioned universal primary preventions. Efforts to repair strained or compromised relationships are likely to be more effective if other potential barriers to SSNRs are being addressed (eg, parental mental illness and basic needs) and additional efforts are being made to actively promote

SSNRs (eg, the provision of developmentally appropriate play).

Horizontal Integration Across Sectors at the Community Level

A public health approach to promoting relational health should also be integrated horizontally (or across sectors) at the local level.[81,82,148] SSNRs are easier to form when safe, stable, and nurturing families are able to live in safe, stable, and nurturing communities.[124,149,150] The FCPMH is ideally placed to educate families about what a safe, stable, and nurturing family environment looks like for a child, but doing so will require changes at the provider and practice levels (see Table 2). However, FCPMHs are also called to advocate for policies at the federal, state, and local levels that promote safe, stable, and nurturing communities. In doing so, FCPMHs become the anchor for "medical neighborhoods,"[149] in which community resources across multiple sectors (eg, health, education, justice, social services, faith communities, and businesses) collaborate not only to address barriers to SSNRs (such as home visiting programs,[142] HealthySteps,[150,151] medical-legal partnerships,[147] coordinated responses to disasters,[152,153] and efforts to promote access to healthy foods, safe housing, potable water, and clean air) but also to advocate for public policies (such as paid parental leave,[154,155] income support,[87,88] restorative justice,[156–158] and implementation of the Family First Prevention Services Act) that intentionally and actively foster SSNRs (Table 2).[149,159–161]

THE CENTRALITY OF RELATIONSHIPS IN PEDIATRIC CARE

A public health approach to relational health is built on the SSNRs that buffer adversity and build resilience. Such an approach will require pediatricians, other pediatric health care professionals, and FCPMHs in general to partner with families and communities in practical and innovative ways to universally promote SSNRs, address potential barriers to SSNRs in a targeted manner, and afford indicated treatments that repair relationships that have been strained or compromised (see Table 2). But underlying this approach are 2 fundamental assumptions. The first is that pediatric providers will have the financial supports needed to expand their capacity for developing respectful, continuous, trusted, and nurturing relationships with both the patients and caregivers of the patients who they serve. Without strong therapeutic alliances with patients, caregivers, and families, few of the recommended universal primary preventions will be implemented, few of the targeted interventions will be used, and few of the indicated treatments will be sought. To promote SSNRs at the practice level, both financial incentives (eg, payment reforms) and enhanced training needs to be provided.[162,163] Pediatric providers should be afforded the following: (1) sufficient time with patients and families, (2) the benefit of long-term continuity with patients and families, and (3) opportunities to learn about and practice the interpersonal and communication skills needed to form respectful, trusted, and collaborative therapeutic relationships.[162] For parents to trust, pediatric providers need to listen and understand parental concerns and beliefs before making recommendations. Communication could be further enhanced by cultural humility,[164,165] implicit bias training,[166–171] a more diverse health care team (eg, providing families and patients the opportunity to seeing themselves reflected in the sex, ethnicity, and cultural backgrounds of the team members), and access to professional interpreters. In the end, the ability of the FCPMH to leverage change within the family context is entirely dependent on the capacity of the pediatric providers to form strong therapeutic relationships with the patients, caregivers, and families.

The second assumption is that the FCPMH will have the capacity to form working relationships with a wide array of community partners. The FCPMH alone cannot leverage significant change within the community context. Changing community contexts will require healthy, trusting, and robust partnerships with a wide array of local community partners from multiple sectors (education, social services, and businesses), not only to facilitate family access to the requisite community interventions but also to coordinate effective advocacy campaigns to secure both those interventions and family-friendly public policies. Simply put, successfully implementing a public health approach that prevents childhood toxic stress and promotes SSNRs will require FCPMHs to put relational health at the center of everything they do.[172]

ACKNOWLEDGING THE ROLE AND TOLL OF SOCIAL ISOLATION

There is an emerging evidence base that social isolation is on the rise and detrimental to both individual[173] and community health.[174] Social scientists have documented the fragmentation of society at the community level[175] as well as its negative impact on how communities view their collective stewardship of their most treasured resource: their children.[176] Psychologists have decried a "crisis of connection" and point to a culture that values the self over relationships and individual

TABLE 2 Implementing a Public Health Approach to Relational Health Will Require Changes at the Provider, Practice, and Community Levels, as Well as Horizontal Integration Across Sectors

Types of Prevention	Approaches to Relational Health	Examples at the Provider Level	Examples at the Practice Level	Examples at the Community Level
Tertiary	Repair strained or compromised relationships	Build the therapeutic alliance; employ a common-factors approach; explain behavioral responses to stress; endorse referral resources.	Colocate counseling services (warm handoffs); facilitate, track, and follow-up on referrals offered.	Embrace restorative justice and social inclusion (over punitive measures and exclusion).
Secondary	Identify and address potential barriers to SSNRs	Build the therapeutic alliance; surveil for possible barriers to SSNRs; champion screening at practice level; endorse referral resources.	Universal screening for prevalent barriers seen in that practice; facilitate, track, and follow-up on referrals offered.	Identify and address sources of inequity, isolation, and social discord (poverty and racism).
Primary	Promote SSNRs by building 2-generational relational skills	Build the therapeutic alliance; promote positive parenting; encourage developmentally appropriate play.	Provide or support positive parenting classes; participate in ROR, VIP, and other programs that support the dyad.	Implement home visiting; support extended family medical leave.

See the Appendix for full descriptions of the abbreviations.

successes over the general welfare, leading to declining levels of empathy and trust.[177] Epidemiologists have demonstrated that an individual's degree of social isolation is a powerful predictor of mortality, much like traditional clinical risk factors (eg, obesity or hypertension) or ACE scores.[178] Both epidemiologists and economists have pointed to increasing levels of inequity as correlating with poorer levels of overall health for both the impoverished and the wealthy.[174] Finally, physiologists have long known that social deprivation in childhood alters the programming of the body's stress response.[179,180]

Taken together, these diverse lines of inquiry suggest that it may not actually be the wide spectrum of childhood adversity that drives poor outcomes but the degree to which that adversity drives shame, guilt, anger, alienation, disenfranchisement, and degree of social isolation.[181,182] If so, the proposed public health approach toward the promotion of SSNRs is needed, not only to buffer adversity and promote resilience but also to begin bridging political, religious, economic, geographic, identity-based, and ideological divides that increase social isolation, encourage tribalism, diminish empathy, and, ultimately, drive poor outcomes in the medical, educational, social service, and justice systems.

For many resource-poor families and older children, overall relational health is dependent not only on dyadic serve and return interactions with family members but also on trusted, SSNRs with others in the community through interactions at the medical clinic, school, recreation leagues, faith-based and civic organizations, community improvement efforts, and employment opportunities. Along

these lines, the Aspen Institute has created the Social Fabric Project to incentivize local projects that prioritize the building of relationships and community connections over a focus on self-absorption and hyperindividualism.[183] Similarly, more attention could be given to the built environment and need for public green spaces, such as parks, to promote social cohesion and a sense of community belonging.[184,185]

Finally, it should be noted that public health mandates to maintain "social distancing" during the coronavirus pandemic actually refer to physical distancing and are not intended to further isolate, alienate, or disenfranchise already vulnerable populations. If nothing else, pandemic-mandated stay-at-home orders should increase our collective awareness of the distress associated with being socially isolated or vulnerable. The coronavirus pandemic has highlighted the urgent need to provide all children with the SSNRs that buffer unexpected adversities and build the skills necessary to be resilient.

A RENEWED COMMITMENT TO SCIENCE-BASED POLICY FORMATION

In the decade since the first AAP policy statement and technical report on childhood toxic stress were published, even more evidence has accumulated that:

1. "What happens in childhood does not stay in childhood."[186,187] Adverse experiences in childhood are not destiny, but for many children, significant adversity bends life-course trajectories for the worse.
2. In the absence of SSNRs, many different forms of childhood adversity (from catastrophic episodes of abuse or violence to chronic conditions, such as exposure to racism, poverty, and/or neglect) can lead to toxic stress responses that result in changes at the molecular, cellular, and behavioral levels and negatively impact outcomes in health, education, and economic productivity.
3. Individual variation in biological sensitivity to context (see the Appendix for a glossary of terms, concepts, and abbreviations) contributes to heterogeneity in both responses to adversity and responses to interventions. This has important implications for how we nurture and fulfill the potential of all children, not just those who are relatively less sensitive to their contexts and appear to be relatively more resilient despite adversity.
4. In the presence of SSNRs, a limited degree of childhood adversity (eg, normative childhood frustrations and setbacks) can lead to the positive stress responses that build the rudiments of resilience: a set of social and emotional skills that allow children to adapt to future adversity in a healthy manner.
5. Relational health, in the form of at least one SSNR, is a universal, biological imperative for children to fulfill their potential; to be healthy and resilient; to be successful academically, economically, and socially; and, perhaps most importantly, to be the caregivers that value and build SSNRs with subsequent generations.

Society is currently trending toward division, marginalization, alienation, and social isolation.[177] In opposing this trend and calling for a public health approach that builds SSNRs, the AAP is working to translate the latest developmental science into practices and public policies (see Table 2) that build healthy, resilient children. With almost a century of service to children, families, and communities, the field of pediatrics has made critical contributions at the interface of science and public policy. Be it child labor laws, federal grants to states to promote maternal-child health, support for paid parental leave after childbirth, required immunizations to attend school, the use of car safety seats, the adoption of children by same-sex parents, the harms of corporal punishment, the safe storage of firearms, the care of immigrant children in federal custody, the negative effect of toxins and global warming on child health, or the importance of nutrition and income support for healthy families, pediatric professionals have been a powerful force for bringing a scientifically grounded, evidence-based perspective to public debates. The AAP remains committed to respond when empirical evidence and the latest developmental science shine new light on the issues and trends of the day. Simply put, public policies, social constructs, and societal norms that divide, marginalize, alienate, and isolate are clear threats to the well-being of all children. The commitment of the AAP to the well-being of all children requires that it not only address a wide spectrum of adversities but, also, that it speak against public policies, social constructs, and societal norms that perpetuate the ongoing, chronic precipitants of toxic stress responses such as poverty[87,88] and racism[166] and for public policies that promote relational health, inclusion, and equity.[111,188–191]

APPLICATION OF SCIENCE-BASED PRINCIPLES TO STRENGTHEN PEDIATRIC PRACTICE

Drawing on a framework produced by the Center on the Developing Child at Harvard University,[192] this policy statement highlights the following 3 science-informed principles to prevent toxic stress

responses and to build healthy, resilient children.

Support Nurturing Relationships

Of the 3 principles, this is the one that aligns most clearly with the core functions of the FCPMH and is, therefore, the primary focus of this policy statement. The use of trusted, supportive relationships within the FCPMH to promote the relational health of families is an emerging focal point for pediatric clinical research, and pediatric primary care is increasingly seen as a venue for fostering social-emotional health.[193,194] These universal primary prevention strategies form the base of the public health pyramid (Fig 1 and Table 2), but additional, layered interventions that recognize and address child-level (eg, delays in development and a biological sensitivity to context), family-level (eg, poverty and parent mental illness), and community-level (eg, racism and violence) barriers to SSNRs may also be required for some families, whereas others will need even more intensive, evidence-based treatments (eg, ABC, PCIT, CPP, TF-CBT) to repair relationships that are already strained or compromised. The buffering and skill-building roles of responsive relationships are biologically embedded, and they are essential promoters of healthy development.[59] Existing AAP reports on managing perinatal depression,[90] supporting grieving children,[195] fostering male caregiver engagement,[196] partnering with home visiting programs,[142] encouraging developmentally appropriate play,[74,197] discouraging screen time,[125] and promoting shared-book reading[67,68] include additional recommendations on ways primary care pediatricians might promote SSNRs.

Reduce External Sources of Stress on Families

This principle points to the potential benefits of addressing stressors from across the spectrum of adversity, including those that might have been considered well beyond the scope of traditional pediatric practice in the past. Poverty, food insecurity, housing insecurity, racism, community violence, discrimination, alienation, disenfranchisement, and social isolation are examples that impose significant hardships on families and become potential barriers to developing SSNRs. FCPMHs could work to reduce these barriers by partnering with their AAP chapter, local organizations (such as schools, businesses, and faith-based organizations), and other community assets (including parents, extended family, child care providers, community health workers, and patients) to form medical neighborhoods[149,159,161] that work collaboratively to address the SDoHs while also advocating for policies that support safe, stable, and nurturing families and communities. For example, expanding family leave policies[154] could reduce family stress and promote positive childhood experiences. Similarly, advocating for a Health in All Policies approach could advance health equity and minimize family and community distress by addressing the underlying economic inequities.[198–200] The commitment of the AAP to decreasing family stress is manifest in many of its official statements, including poverty,[87,88] racism,[166] maternal depression,[90] disasters,[152,153] father engagement,[196] home visiting,[142] and the importance of play.[74,197]

Strengthening Core Life Skills

The strengthening of core life skills (eg, executive function and self-regulation) is needed for families and communities to provide well-regulated, nurturing environments. Although intensive, capacity-building efforts for parents and other caregivers with limited executive function skills is beyond the scope of most pediatric settings, providing information and support around basic child-rearing practices and establishing daily routines is a cornerstone of traditional primary care. Caregivers with core life skills are essential for the development of executive function and self-regulation skills in their children. The guidelines on parent education and support in *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* (4th edition) is a starting point for all families,[201] but there is a need to provide more effective, individualized, evidence-based parenting supports (eg, ROR, HealthySteps, VIP) beyond simply providing information about child development. Integrated behavioral health services as part of the FCPMH team might be the next layer for parents who need additional assistance (eg, parental depression), and the need for more intensive skill building (eg, PCIT) for some parents becomes yet another focus for collaboration with key services within the community (eg, ABC, PCIT, CPP, and TF-CBT). Understanding, practicing, and reinforcing executive functions and self-regulation skills (eg, managing strong emotions, ensuring adequate sleep, and getting regular exercise) is essential because all caregivers need these skills to create the kinds of environments in which children thrive.[16,37,59] Whether an adult coaching or skill-building component is incorporated within a FCPMH or connected to it in a collaborative manner, the essential role that these programs play in promoting the healthy development of children is clear, especially for those who are the most disadvantaged.[1,16]

Realizing the full impact of these principles within primary care practice, however, will also require fundamental changes in medical education and payment models. To usher in these fundamental reforms, more pediatricians will need to assume leadership positions outside the realm of clinical care.[202,203] In addition, pediatric training programs will need to educate residents about the ecobiodevelopmental model, train them on how to develop strong therapeutic relationships with parents and caregivers, teach them how to model nurturing and affirming interactions with children of all ages, train them how to encourage caregivers to have positive relational experiences with children of all ages, prepare them to work as part of interdisciplinary teams[144,150] (eg, integrated with behavioral health and social service professionals), educate them on how to develop collaborative partnerships with community referral resources, and encourage them to become vocal advocates for public policies that promote safe, stable, and nurturing families and communities.

Foremost on the advocacy agenda will be the need for serious payment reforms that consider the complexity of care attributable to adverse family and community contexts and include financial supports that incentivize families to engage with an FCPMH.[204] Payment reforms need to be sufficient to allow FCPMHs to spend more time with families, function as interdisciplinary teams, integrate into their community's initiatives and services to support children and families (horizontal integration), and anchor medical neighborhoods that not only foster wellness in childhood but promote positive outcomes across the life span.

SUMMARY AND RECOMMENDATIONS

Preventing childhood toxic stress responses, promoting resilience, and optimizing development will require that all children be afforded the SSNRs that buffer a wide range of adversities and build the foundational skills needed to cope with future adversity in an adaptive, health-promoting manner. The 3 principles described above, each of which is grounded in the research literature, provide a science-based framework for developing innovative strategies to promote SSNRs at the dyadic level, family level, and community level. Translating these principles into pediatric practice will require FCPMHs to:

1. Understand the toxic stress framework, which explains how many of our society's most intractable problems, such as disparities in health, education, and economic stability, are rooted in our shared biology but divergent experiences and opportunities (see Table 1).
2. Understand the relational health framework, which explains how the individual, family, and community capacities that support the development and maintenance of SSNRs also buffer adversity and build resilience across the life course (see Table 1).
3. Foster strong, trusted, respectful, and supportive relationships with patients and their families to encourage the acceptance of individualized prevention, intervention, and treatment strategies. Doing so will require all health professionals to address their implicit biases, develop cultural humility, and provide culturally competent recommendations.
4. Foster strong, trusted, respectful, and effective collaborations with the community partners who are well-positioned to provide the individualized prevention, intervention, and treatment strategies.
5. Acknowledge that a wide range of adversities, from discrete, threatening events to ongoing, chronic life conditions, share the potential to trigger toxic stress responses and inhibit the formation of SSNRs.
6. Embrace an ecobiodevelopmental model for understanding how both adverse and positive relational experiences in childhood become biologically embedded and impact both negative and positive outcomes across the life course.
7. Move beyond singular, panacea programs toward a layering of interventions that are integrated, both vertically and horizontally, into the local public health efforts to promote safe, stable, and nurturing communities, families, and relationships.
8. Employ a vertically integrated public health approach to promote relational health that is founded on universal primary preventions (such as positive parenting programs, ROR, and developmentally appropriate play) but also offers more precise screening for relational health barriers (such as maternal depression, food insecurity, or exposure to racism) as well as indicated treatments to repair strained or compromised relationships (such as ABC, CPP, PCIT, and TF-CBT).
9. Become hubs for medical neighborhoods, horizontally integrating a wide array of local efforts and early childhood initiatives that not only support families with resources and programs but also advocate for

the public policies that promote safe, stable, and nurturing families and communities.

10. Advocate that health systems, payers, and policy makers at all levels of government align incentives and provide funding to promote the universal primary prevention work discussed in this policy statement. FCPMHs are well-suited and even inclined to support the formation and maintenance of SSNRs as outlined in this policy statement, but they are not currently funded to do so.[205]

Finally, to develop the physician leadership for the FCPMHs of the future, pediatric training programs will need to:

1. Educate residents about the ecobiodevelopmental model and the implications for not only health care but education, juvenile justice, and public policy.
2. Provide longitudinal experiences that train residents on how to develop strong, trusted, respectful, and supportive relationships with parents and caregivers. Doing so will require all trainees to address their implicit biases, develop cultural humility, and provide culturally competent recommendations.
3. Teach residents how to identify and develop collaborative relationships with the local referral resources and early childhood initiatives in their communities.
4. Prepare residents to work as part of the interdisciplinary teams[144] that transform FCPMHs into hubs for medical neighborhoods.[161]
5. Educate residents about the many different facets of a fractured early childhood system of care (eg, Medicaid, Individuals with Disabilities Education Act Parts C and B, Child Care and Development Block Grants, Head Start, etc), as there is little collaboration or communication between the systems, funders, and programs that address child health, out-of-home child care, education, special education, protective services, or public health. Trainees need to understand all of these many facets so they are prepared to be effective advocates for their patients and families.
6. Encourage them to become leaders in interdisciplinary early childhood systems work and vocal advocates for public policies that promote positive relational experiences in safe, stable, and nurturing families and communities.

APPENDIX

Glossary of Terms, Concepts, and Abbreviations

ABC

Acronym for Attachment and Biobehavioral Catch-up; ABC is an evidence-based program of interventions to assist foster parents in nurturing children who have experienced disruptions in care.

ACEs

Acronym for adverse childhood experiences. In the original ACE Study, 10 categories of adversity were examined: emotional, physical, and sexual abuse; 5 measures of household dysfunction, including the mother being treated violently (intimate partner violence), household substance abuse, household mental illness, parental separation or divorce, and incarcerated household member; and emotional or physical neglect. Other investigators have applied the term ACEs to additional adversities known to affect child health, such as poverty, neighborhood violence, and exposure to racism. Although this term is frequently used to refer to the child's experiences (child ACEs), it has also been applied to the adversities that parents experienced during their own childhoods (parental ACEs).

ACE Score

The ACE score is the sum of the 10 original categories of ACEs experienced before the 18th birthday. To determine an individual's ACE score, see http://acestoohigh.com/got-your-ace-score.

Biobehavioral Synchrony

Biobehavioral synchrony refers to the matching of nonverbal behaviors (eg, eye contact), coupling autonomic functions (eg, heart rate), coordination of hormone release (eg, oxytocin), and alignment of brainwaves between a parent and an infant.

Biological Sensitivity to Context

Biological sensitivity to context is a theory with emerging evidence "that children differ in their susceptibility to environmental influence in a 'for better and for worse' manner, depending on their psychobiologic reactivity to stress." As a consequence, "the very characteristics that are often thought of as children's frailties (eg, high stress reactivity) can also be their strengths, given the right context."*,[91,131,134,206]

Common-Factors Approach

The common factors are communication skills that help to build a therapeutic alliance (the bond felt between the clinician and

**The quoted material in this entry is from Ellis BJ. Biological Sensitivity to Context/Adaptive Calibration Model. University of Utah, Department of Psychology, College of Social & Behavioral Science. Available at: https://psych.utah.edu/research/labs/biological-sensitivity.php.*

patient and/or family, a powerful factor in facilitating emotional and psychological healing), which, in turn, increases the patient and/or family's optimism, feelings of well-being, and willingness to work toward improved health. Other common-factors techniques target feelings of anger, ambivalence, and hopelessness, family conflicts, and barriers to behavior change and help seeking. Still other techniques keep the discussion focused, practical, and organized. These techniques come from family therapy, cognitive therapy, motivational interviewing, family engagement, family-focused pediatrics, and solution-focused therapy. They have been proven useful and effective in addressing mental health symptoms in pediatrics across the age spectrum (as per the AAP policy statement on mental health competencies in pediatric care).

CPP

Acronym for child-parent psychotherapy; CPP is an evidence-based, psychoanalytic approach for treating dysfunctional parent-child relationships based on the theory that the parent has unresolved conflicts with previous relationships.

Ecobiodevelopmental

The ecobiodevelopmental framework asserts that the ecology becomes biologically embedded, and there is an ongoing but cumulative dance between the ecology and the biology that drives development over the life span.

Executive Functions

Executive functions are the cognitive skills needed to control behavior and attain goals. Executive functions are core life skills, and they include capacities like impulse inhibition, working memory, cognitive flexibility, abstract thought, planning, and problem solving.

FCPMH

Acronym for the family-centered pediatric medical home; in an FCPMH, the pediatrician leads an interdisciplinary team of professionals providing care that is:

- family-centered: the family is recognized and acknowledged as the primary caregiver and support for the child, ensuring that all medical decisions are made in true partnership with the family;
- accessible: care is easy for the child and family to obtain, including geographic access and insurance accommodation;
- continuous: the same primary care clinician cares for the child from infancy through young adulthood, providing assistance and support to transition to adult care;
- comprehensive: preventive, primary, and specialty care are provided to the child and family;
- coordinated: a care plan is created in partnership with the family and communicated with all health care clinicians and necessary community agencies and organizations;
- compassionate: genuine concern for the well-being of a child and family are emphasized and addressed; and
- culturally effective: the family and child's culture, language, beliefs, and traditions are recognized, valued, and respected.

An FCPMH is not a building or place; it extends beyond the walls of a clinical practice. A medical home builds partnerships with clinical specialists, families, and community resources. The medical home recognizes the family as a constant in a child's life and emphasizes partnership between health care professionals and families (as per the National Resource Center for the Patient/Family-Centered Medical Home at the AAP).

If properly funded, FCPHMs are well placed to implement the following functions:

- screening for behavioral and developmental risk factors and diagnoses, including mental health conditions, developmental delays, SDoHs, and family-level risk and resilience factors;
- care coordination, linking families to community-based supports to address SDoHs, parenting concerns, developmental delays, and behavioral and mental health concerns;
- integrated behavioral health and family support services through colocated, interdisciplinary teams that include case management, behavioral health services, and positive parenting programs;
- preventive and dyadic mental health services that do not requiring a psychiatric diagnosis code for payment, thereby enabling the deployment of primary and secondary prevention strategies before the emergence of behavioral or medical disorders;
- enhanced payment for prolonged medical visits, allowing for more patient-centered communication, interdisciplinary care, and development of therapeutic alliances; and
- ancillary support services (interpretation, telemedicine, transportation, etc) enabling youth with special health care needs to access the many layers of support that they frequently require.

HealthySteps

HealthySteps is an evidence-based, interdisciplinary pediatric primary care program that promotes positive parenting and healthy development for infants and toddlers, with an emphasis on families living in low-income communities. HealthySteps uses a tiered approach to match services with the level of need, and the core components include: (1) child development social-emotional, and behavioral screening, (2) screening for family needs, (3) child development support line (eg, phone,

text, e-mail, and online portal), (4) child development and behavioral consultants, (5) care coordination and systems navigation, (6) positive parenting guidance and information, (7) early learning resources, and (8) ongoing, preventive team-based well-child visits.

Horizontal Integration

A public health approach that cuts across traditional silos and funding streams; a horizontally integrated public health approach also includes the educational, civic, social service, and juvenile justice systems.

Medical Neighborhood

Extends the concept of the FCPMH into the local community; in a medical neighborhood, the FCPMH or health system anchors and supports cross-sector efforts to address family needs (eg, the SDoH), promote population level wellness, and collectively advocate for needed funding and policy changes.

PCIT

Acronym for Parent-Child Interaction Therapy; PCIT is an evidence-based intervention to change the patterns of parent-child interactions to improve the parent-child relationship.

Positive Childhood Experiences

Reciprocal experiences with engaged and attuned adults (like those that occur during developmentally appropriate play) that build SSNRs; they are warm, affirming, and inclusive, and they promote early relational health.

Relational Health

The capacity to develop and maintain SSNRs with others; relational health is an important predictor of wellness across the life span.

Resilience

The capacity to respond to adversity in a healthy, adaptive manner; resilience is the manifestation of skills (eg, social skills, emotional regulation, language, and executive functions) that can be modeled, taught, learned, practiced, and reinforced.

Restorative Justice

Refers to efforts to repair the harm that occurs with unjust behaviors, as opposed to retributive or punitive justice, which simply punishes those who have acted unjustly. Typically, restorative justice allows the victims and the offenders to mediate a restitution agreement that is satisfactory to both parties. In this way, the victims play an active role in communicating with and understanding the offenders, and the offenders have the chance to take responsibility for their actions, identify steps that might prevent offending behaviors in the future, and redeem themselves in the eyes of the victims and community (as per Garner and Saul[17])

ROR

Acronym for Reach Out and Read; ROR is a nonprofit organization and early literacy program. ROR provides age appropriate books and encourages parents to regularly read to and interact with their children to support school readiness and healthy parent-child relationships.

SDoHs

Acronym for the social determinants of health; SDoHs refer to conditions where people live, learn, work, and play (like socioeconomic status, social capital, or exposure to discrimination or community violence) that are known to affect health outcomes across the life span.

SSNRs

Acronym for safe, stable, and nurturing relationships; these allow the child to feel protected, connected, and competent.

TF-CBT

Acronym for Trauma-Focused Cognitive Behavioral Therapy; TF-CBT is an evidence-based, manualized, skills-based therapy that allows parents and children to better process emotions and thoughts related to traumatic experiences.

Toxic Stress

The biological response to frequent, prolonged, or severe adversities in the absence of at least one safe stable and nurturing relationship; these biological responses might be beneficial or adaptive initially, but they often become health harming or maladaptive or "toxic" over time or in different contexts.

Vertical Integration

A public health approach that includes primary universal preventions to promote wellness (like promoting positive parenting practices), secondary targeted interventions for those deemed to be at risk for poor outcomes (like using biomarkers both to identify those at higher risk and to monitor the effectiveness of various interventions), and tertiary evidence-based treatments for the symptomatic (like referring to providers trained in TF-CBT).

VIP

Acronym for the Video Interaction Project; VIP uses video-taped interactions of parent-child dyads to teach parents how to be more engaged, attuned, and responsive to their child's developing behaviors.

ACKNOWLEDGMENTS

Drs Garner and Yogman gratefully acknowledge the contributions of Dr Shonkoff to early drafts of this article.

LEAD AUTHORS

Andrew Garner, MD, PhD, FAAP
Michael Yogman, MD, FAAP

ABBREVIATIONS

AAP: American Academy of Pediatrics
ABC: attachment and biobehavioral catch-up
ACE: adverse childhood experience
CPP: child–parent psychotherapy
FCPMH: family-centered pediatric medical home
PCIT: parent–child interaction therapy
ROR: Reach Out and Read
SDoH: social determinants of health
SSNR: safe, stable, and nurturing relationship
TF-CBT: trauma-focused cognitive-behavioral therapy
VIP: Video Interaction Project

appropriate.

DOI: https://doi.org/10.1542/peds.2021-052582

Address correspondence to xxx. E-mail: xxx

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. National Scientific Council on the Developing Child. *Young Children Develop in an Environment of Relationships: Working Paper No. 1*. Cambridge, MA: Center on the Developing Child at Harvard University; 2004. Available at: https://developingchild.harvard.edu/resources/wp1/. Accessed June 28, 2021
2. Shonkoff JP, Garner AS; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232–e246
3. Romens SE, McDonald J, Svaren J, Pollak SD. Associations between early life stress and gene methylation in children. *Child Dev*. 2015;86(1):303–309
4. Labonte B, Yerko V, Gross J, et al. Differential glucocorticoid receptor exon 1(B), 1(C), and 1(H) expression and methylation in suicide completers with a history of childhood abuse. *Biol Psychiatry*. 2012;72(1):41–48
5. McGowan PO, Sasaki A, D'Alessio AC, et al. Epigenetic regulation of the glucocorticoid receptor in human brain associates with childhood abuse. *Nat Neurosci*. 2009;12(3):342–348
6. McCrory EJ, Gerin MI, Viding E. Annual research review: childhood maltreatment, latent vulnerability and the shift to preventative psychiatry - the contribution of functional brain imaging. *J Child Psychol Psychiatry*. 2017;58(4):338–357
7. Marusak HA, Martin KR, Etkin A, Thomason ME. Childhood trauma exposure disrupts the automatic regulation of emotional processing. *Neuropsychopharmacology*. 2015;40(5):1250–1258
8. van Harmelen AL, van Tol MJ, Demenescu LR, et al. Enhanced amygdala reactivity to emotional faces in adults reporting childhood emotional maltreatment. *Soc Cogn Affect Neurosci*. 2013;8(4):362–369
9. Sandre A, Ethridge P, Kim I, Weinberg A. Childhood maltreatment is associated with increased neural response to ambiguous threatening facial expressions in adulthood: evidence from the late positive potential. *Cogn Affect Behav Neurosci*. 2018;18(1):143–154
10. Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiol Behav*. 2012;106(1):29–39
11. Rogosch FA, Dackis MN, Cicchetti D. Child maltreatment and allostatic load: consequences for physical and mental health in children from low-income families. *Dev Psychopathol*. 2011;23(4):1107–1124
12. Garner AS, Shonkoff JP; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. Early childhood adversity, toxic stress, and the role of the pediatrician: translating developmental science into lifelong health. *Pediatrics*. 2012;129(1):e224–e231
13. Boyce WT, Levitt P, Martinez FD, McEwen BS, Shonkoff JP. Genes, environments, and time: the biology of adversity and resilience. *Pediatrics*. 2021;147(2):e20201651
14. Shonkoff JP, Boyce WT, Levitt P, Martinez F, McEwen B. Leveraging the biology of adversity and resilience to transform pediatric practice. *Pediatrics*. 2021;147(2):e20193845
15. Frameworks Institute. *Building Relationships: Framing Early Relational Health*. Washington, DC: Frameworks Institute; 2020
16. National Scientific Council on the Developing Child. *Supportive Relationships and Active Skill-Building Strengthen the Foundations of Resilience*: Working Paper No. 13 Cambridge, MA: National Scientific Council on the Developing Child; 2015. Available at: https://developingchild.harvard.edu/resources/supportive-relationships-and-active-skill-building-strengthen-the-foundations-of-resilience/. Accessed June 28, 2021
17. Garner A, Saul R. *Thinking Developmentally: Nurturing Wellness in Childhood to Promote Lifelong Health*. 1st ed. Itasca, IL: American Academy of Pediatrics; 2018
18. Brody GH, Yu T, Beach SR. Resilience to adversity and the early origins of disease. *Dev Psychopathol*. 2016;28(4, pt 2):1347–1365
19. Flouri E, Midouhas E, Joshi H, Tzavidis N. Emotional and behavioural resilience to multiple risk exposure in early life: the role of parenting. *Eur Child Adolesc Psychiatry*. 2015;24(7):745–755
20. Bowlby J. *A Secure Base: Parent-Child Attachment and Healthy Human Development*. New York, NY: Basic Books; 1988
21. Ainsworth MD. Object relations, dependency, and attachment: a theoretical review of the infant-mother relationship. *Child Dev*. 1969;40(4):969–1025
22. Brazelton TB. *Touchpoints: Birth to 3: Your Child's Emotional and Behavioral Development*. 2nd ed. Cambridge, MA: Da Capo Lifelong Books; 2006
23. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258
24. Anda RF, Felitti VJ, Bremner JD, et al. The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 2006;256(3):174–186
25. Dong M, Giles WH, Felitti VJ, et al. Insights into causal pathways for ischemic heart disease: adverse childhood experiences study. *Circulation*. 2004;110(13):1761–1766

26. Anda RF, Brown DW, Dube SR, Bremner JD, Felitti VJ, Giles WH. Adverse childhood experiences and chronic obstructive pulmonary disease in adults. *Am J Prev Med.* 2008;34(5):396–403

27. Dong M, Dube SR, Felitti VJ, Giles WH, Anda RF. Adverse childhood experiences and self-reported liver disease: new insights into the causal pathway. *Arch Intern Med.* 2003;163(16):1949–1956

28. Anda RF, Brown DW, Felitti VJ, Bremner JD, Dube SR, Giles WH. Adverse childhood experiences and prescribed psychotropic medications in adults. *Am J Prev Med.* 2007;32(5):389–394

29. Brown DW, Anda RF, Felitti VJ, et al. Adverse childhood experiences are associated with the risk of lung cancer: a prospective cohort study. *BMC Public Health.* 2010;10:20

30. Hertzman C. Putting the concept of biological embedding in historical perspective. *Proc Natl Acad Sci USA.* 2012;109(suppl 2):17160–17167

31. Hertzman C, Boyce T. How experience gets under the skin to create gradients in developmental health. *Ann Rev Public Health.* 2010;31:329–347

32. McEwen BS. Brain on stress: how the social environment gets under the skin. *Proc Natl Acad Sci USA.* 2012;109(suppl 2):17180–17185

33. Szyf M, Bick J. DNA Methylation: A Mechanism for Embedding Early Life Experiences in the Genome. *Child Dev.* 2013;84(1):49–57

34. Chae DH, Nuru-Jeter AM, Adler NE, et al. Discrimination, racial bias, and telomere length in African-American men. *Am J Prev Med.* 2014;46(2):103–111

35. Liu SY, Kawachi I. Discrimination and telomere length among older adults in the United States. *Public Health Rep.* 2017;132(2):220–230

36. Lee DB, Kim ES, Neblett EW. The link between discrimination and telomere length in African American adults. *Health Psychol.* 2017;36(5):458–467

37. Shonkoff JP. Capitalizing on advances in science to reduce the health consequences of early childhood adversity. *JAMA Pediatr.* 2016;170(10):1003–1007

38. Shonkoff JP. Leveraging the biology of adversity to address the roots of disparities in health and development. *Proc Natl Acad Sci USA.* 2012;109(suppl 2):17302–17307

39. Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. *JAMA.* 2009;301(21):2252–2259

40. National Scientific Council on the Developing Child. *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper No. 3.* Updated Edition. Cambridge, MA: National Scientific Council on the Developing Child; 2014. Available at: https://developingchild.harvard.edu/resources/wp3/. Accessed June 28, 2021

41. Non AL, Román JC, Gross CL, et al. Early childhood social disadvantage is associated with poor health behaviours in adulthood. *Ann Hum Biol.* 2016;43(2):144–153

42. Merrick MT, Henly M, Turner HA, et al. Beyond residential mobility: A broader conceptualization of instability and its impact on victimization risk among children. *Child Abuse Negl.* 2018;79:485–494

43. Cutuli JJ, Ahumada SM, Herbers JE, Lafavor TL, Masten AS, Oberg CN. Adversity and children experiencing family homelessness: implications for health. *J Child Poverty.* 2017;23(1):41–55

44. Jetelina KK, Reingle Gonzalez JM, Cuccaro PM, et al. The association between familial homelessness, aggression, and victimization among children. *J Adolesc Health.* 2016;59(6):688–695

45. James S, Donnelly L, Brooks-Gunn J, McLanahan S. Links between childhood exposure to violent contexts and risky adolescent health behaviors. *J Adolesc Health.* 2018;63(1):94–101

46. Saxbe D, Khoddam H, Piero LD, et al. Community violence exposure in early adolescence: longitudinal associations with hippocampal and amygdala volume and resting state connectivity. *Dev Sci.* 2018;21(6):e12686

47. Ma J, Grogan-Kaylor A, Lee SJ. Associations of neighborhood disorganization and maternal spanking with children's aggression: a fixed-effects regression analysis. *Child Abuse Negl.* 2018;76:106–116

48. Thurston H, Bell JF, Induni M. Community-level adverse experiences and emotional regulation in children and adolescents. *J Pediatr Nurs.* 2018;42:25–33

49. Evans SZ, Simons LG, Simons RL. Factors that influence trajectories of delinquency throughout adolescence. *J Youth Adolesc.* 2016;45(1):156–171

50. Wade R Jr, Cronholm PF, Fein JA, et al. Household and community-level adverse childhood experiences and adult health outcomes in a diverse urban population. *Child Abuse Negl.* 2016;52:135–145

51. Takizawa R, Danese A, Maughan B, Arseneault L. Bullying victimization in childhood predicts inflammation and obesity at mid-life: a five-decade birth cohort study. *Psychol Med.* 2015;45(13):2705–2715

52. Halpern J, Jutte D, Colby J, Boyce WT. Social dominance, school bullying, and child health: what are our ethical obligations to the very young? *Pediatrics.* 2015;135(suppl 2):S24–S30

53. Zolotor AJ. Corporal punishment. *Pediatr Clin North Am.* 2014;61(5):971–978

54. Odgers CL, Jaffee SR. Routine versus catastrophic influences on the developing child. *Annu Rev Public Health.* 2013;34:29–48

55. Keeshin BR, Dubowitz H. Childhood neglect: the role of the paediatrician. *Paediatr Child Health.* 2013;18(8):e39–e43

56. Anda RF, Porter LE, Brown DW. Inside the adverse childhood experience score: strengths, limitations, and misapplications. *Am J Prev Med.* 2020;59(2):293–295

57. Slopen N, McLaughlin KA, Shonkoff JP. Interventions to improve cortisol regulation in children: a systematic review. *Pediatrics.* 2014;133(2):312–326

58. Shonkoff JP, Fisher PA. Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Dev Psychopathol.* 2013;25(4, pt 2):1635–1653

59. Bethell CD, Gombojav N, Whitaker RC. Family resilience and connection promote flourishing among US children,

even amid adversity. *Health Aff (Millwood)*. 2019;38(5):729–737

60. Conching AKS, Thayer Z. Biological pathways for historical trauma to affect health: A conceptual model focusing on epigenetic modifications. *Soc Sci Med*. 2019;230:74–82
61. Gone JP, Hartmann WE, Pomerville A, Wendt DC, Klem SH, Burrage RL. The impact of historical trauma on health outcomes for indigenous populations in the USA and Canada: a systematic review. *Am Psychol*. 2019;74(1):20–35
62. Weisleder A, Cates CB, Dreyer BP, et al. Promotion of positive parenting and prevention of socioemotional disparities. *Pediatrics*. 2016;137(2):e20153239
63. Mendelsohn AL, Huberman HS, Berkule SB, Brockmeyer CA, Morrow LM, Dreyer BP. Primary care strategies for promoting parent-child interactions and school readiness in at-risk families: the Bellevue Project for Early Language, Literacy, and Education Success. *Arch Pediatr Adolesc Med*. 2011;165(1):33–41
64. Yousafzai AK, Rasheed MA, Rizvi A, Armstrong R, Bhutta ZA. Parenting skills and emotional availability: an RCT. *Pediatrics*. 2015;135(5):e1247–e1257
65. Hambrick EP, Brawner TW, Perry BD, Brandt K, Hofmeister C, Collins JO. Beyond the ACE score: examining relationships between timing of developmental adversity, relational health and developmental outcomes in children. *Arch Psychiatr Nurs*. 2019;33(3):238–247
66. Mendelsohn AL, Cates CB, Weisleder A, et al. Reading aloud, play, and social-emotional development. *Pediatrics*. 2018;141(5):e20173393
67. COUNCIL ON EARLY CHILDHOOD; COUNCIL ON SCHOOL HEALTH. The pediatrician's role in optimizing school readiness. *Pediatrics*. 2016;138(3):e20162293
68. High PC, Klass P; Council on Early Childhood. Literacy promotion: an essential component of primary care pediatric practice. *Pediatrics*. 2014;134(2):404–409
69. Campbell F, Conti G, Heckman JJ, et al. Early childhood investments substantially boost adult health. *Science*. 2014;343(6178):1478–1485
70. McLaughlin AE, Campbell FA, Pungello EP, Skinner M. Depressive symptoms in young adults: the influences of the early home environment and early educational child care. *Child Dev*. 2007;78(3):746–756
71. Schweinhart LH, Monte J, Xiang Z. *Lifetime Effects: the High/Scope Perry Preschool Study Through Age 40*. Ypsilanti, MI.: High/Scope Press; 2005
72. Cates CB, Weisleder A, Berkule Johnson S, et al. Enhancing parent talk, reading, and play in primary care: sustained impacts of the video interaction project. *J Pediatr*. 2018;199:49–56.e1
73. Chang SM, Grantham-McGregor SM, Powell CA, et al. Integrating a parenting intervention with routine primary health care: a cluster randomized trial. *Pediatrics*. 2015;136(2):272–280
74. Yogman M, Garner A, Hutchinson J, Hirsh-Pasek K, Golinkoff RM; COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH; COUNCIL ON COMMUNICATIONS AND MEDIA. The power of play: a pediatric role in enhancing development in young children. *Pediatrics*. 2018;142(3):e20182058
75. Garner AS. Thinking developmentally: the next evolution in models of health. *J Dev Behav Pediatr*. 2016;37(7):579–584
76. Palma-Gudiel H, Córdova-Palomera A, Eixarch E, Deuschle M, Fañanás L. Maternal psychosocial stress during pregnancy alters the epigenetic signature of the glucocorticoid receptor gene promoter in their offspring: a meta-analysis. *Epigenetics*. 2015;10(10):893–902
77. Oberlander TF, Weinberg J, Papsdorf M, Grunau R, Misri S, Devlin AM. Prenatal exposure to maternal depression, neonatal methylation of human glucocorticoid receptor gene (NR3C1) and infant cortisol stress responses. *Epigenetics*. 2008;3(2):97–106
78. Murgatroyd C, Quinn JP, Sharp HM, Pickles A, Hill J. Effects of prenatal and postnatal depression, and maternal stroking, at the glucocorticoid receptor gene. *Transl Psychiatry*. 2015;5:e560
79. Lester BM, Conradt E, LaGasse LL, Tronick EZ, Padbury JF, Marsit CJ. Epigenetic programming by maternal behavior in the human infant. *Pediatrics*. 2018;142(4):e20171890
80. Halfon N, Larson K, Son J, Lu M, Bethell C. income inequality and the differential effect of adverse childhood experiences in US children. *Acad Pediatr*. 2017;17(7S):S70–S78
81. Halfon N, Wise PH, Forrest CB. The changing nature of children's health development: new challenges require major policy solutions. *Health Aff (Millwood)*. 2014;33(12):2116–2124
82. Halfon N, Inkelas M, Hochstein M. The health development organization: an organizational approach to achieving child health development. *Milbank Q*. 2000;78(3):447–497
83. Traub F, Boynton-Jarrett R. Modifiable resilience factors to childhood adversity for clinical pediatric practice. *Pediatrics*. 2017;139(5):e20162569
84. Minkovitz CS, Strobino D, Mistry KB, et al. Healthy Steps for Young Children: sustained results at 5.5 years. *Pediatrics*. 2007;120(3):e658–e668
85. Johnston BD, Huebner CE, Anderson ML, Tyll LT, Thompson RS. Healthy steps in an integrated delivery system: child and parent outcomes at 30 months. *Arch Pediatr Adolesc Med*. 2006;160(8):793–800
86. Schickedanz A, Halfon N, Sastry N, Chung PJ. Parents' adverse childhood experiences and their children's behavioral health problems. *Pediatrics*. 2018;142(2):e20180023
87. Pascoe JM, Wood DL, Duffee JH, Kuo A; COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH; COUNCIL ON COMMUNITY PEDIATRICS. Mediators and adverse effects of child poverty in the United States. *Pediatrics*. 2016;137(4):e20160340
88. COUNCIL ON COMMUNITY PEDIATRICS. Poverty and child health in the United States. *Pediatrics*. 2016;137(4):e20160339
89. Kim SY, Schwartz SJ, Perreira KM, Juang LP. Culture's influence on stressors, parental socialization, and developmental processes in the mental health of children of immigrants. *Annu Rev Clin Psychol*. 2018;14:343–370
90. Earls MF, Yogman MW, Mattson G, Rafferty J; COMMITTEE ON PSYCHOSOCIAL

ASPECTS OF CHILD AND FAMILY HEALTH. Incorporating recognition and management of perinatal depression into pediatric practice. *Pediatrics*. 2019;143(1):e20183259

91. Ellis BJ, Shirtcliff EA, Boyce WT, Deardorff J, Essex MJ. Quality of early family relationships and the timing and tempo of puberty: effects depend on biological sensitivity to context. *Dev Psychopathol*. 2011;23(1):85–99
92. Obradović J, Bush NR, Stamperdahl J, Adler NE, Boyce WT. Biological sensitivity to context: the interactive effects of stress reactivity and family adversity on socioemotional behavior and school readiness. *Child Dev*. 2010;81(1):270–289
93. Obradović J, Boyce WT. Individual differences in behavioral, physiological, and genetic sensitivities to contexts: implications for development and adaptation. *Dev Neurosci*. 2009;31(4):300–308
94. Boyce WT. *The Orchid and the Dandelion: Why Some Children Struggle and How All Can Thrive*. New York, NY: Knopf; 2019
95. Gleason MM, Goldson E, Yogman MW; COUNCIL ON EARLY CHILDHOOD; COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH; SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS. Addressing early childhood emotional and behavioral problems. *Pediatrics*. 2016;138(6):e20163025
96. Dozier M, Roben CKP, Caron E, Hoye J, Bernard K. Attachment and Biobehavioral Catch-up: an evidence-based intervention for vulnerable infants and their families. *Psychother Res*. 2018;28(1):18–29
97. Dozier M, Bernard K. Attachment and biobehavioral catch-up: addressing the needs of infants and toddlers exposed to inadequate or problematic caregiving. *Curr Opin Psychol*. 2017;15:111–117
98. Bernard K, Dozier M, Bick J, Lewis-Morrarty E, Lindhiem O, Carlson E. Enhancing attachment organization among maltreated children: results of a randomized clinical trial. *Child Dev*. 2012;83(2):623–636
99. Bjørseth Å, Wichstrøm L. Effectiveness of parent-child interaction therapy (PCIT) in the treatment of young children's behavior problems. a randomized controlled study. *PLoS One*. 2016;11(9):e0159845
100. Thomas R, Herschell AD. Parent-child interaction therapy: a manualized intervention for the therapeutic child welfare sector. *Child Abuse Negl*. 2013;37(8):578–584
101. Thomas R, Zimmer-Gembeck MJ. Parent-child interaction therapy: an evidence-based treatment for child maltreatment. *Child Maltreat*. 2012;17(3):253–266
102. Thomas R, Zimmer-Gembeck MJ. Accumulating evidence for parent-child interaction therapy in the prevention of child maltreatment. *Child Dev*. 2011;82(1):177–192
103. Hagan MJ, Browne DT, Sulik M, Ippen CG, Bush N, Lieberman AF. Parent and child trauma symptoms during child-parent psychotherapy: a prospective cohort study of dyadic change. *J Trauma Stress*. 2017;30(6):690–697
104. Ghosh Ippen C, Harris WW, Van Horn P, Lieberman AF. Traumatic and stressful events in early childhood: can treatment help those at highest risk? *Child Abuse Negl*. 2011;35(7):504–513
105. Lieberman AF, Ghosh Ippen C, VAN Horn P. Child-parent psychotherapy: 6-month follow-up of a randomized controlled trial. *J Am Acad Child Adolesc Psychiatry*. 2006;45(8):913–918
106. Cohen JA, Deblinger E, Mannarino AP, Steer RA. A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *J Am Acad Child Adolesc Psychiatry*. 2004;43(4):393–402
107. Cisler JM, Sigel BA, Kramer TL, et al. Amygdala response predicts trajectory of symptom reduction during trauma-focused cognitive-behavioral therapy among adolescent girls with PTSD. *J Psychiatr Res*. 2015;71:33–40
108. Merrick MT, Ford DC, Ports KA, Guinn AS. Prevalence of adverse childhood experiences from the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatr*. 2018;172(11):1038–1044
109. Bywater T, Berry V, Blower SL, et al. Enhancing social-emotional health and wellbeing in the early years (E-SEE): a study protocol of a community-based randomised controlled trial with process and economic evaluations of the incredible years infant and toddler parenting programmes, delivered in a proportionate universal model. *BMJ Open*. 2018;8(12):e026906
110. Egan M, Kearns A, Katikireddi SV, Curl A, Lawson K, Tannahill C. Proportionate universalism in practice? A quasi-experimental study (GoWell) of a UK neighbourhood renewal programme's impact on health inequalities. *Soc Sci Med*. 2016;152:41–49
111. Carey G, Crammond B, De Leeuw E. Towards health equity: a framework for the application of proportionate universalism. *Int J Equity Health*. 2015;14:81
112. *Team Marmot Report. Fair Society, Healthy Lives. The Marmot Review*. London, UK: University College of London Institute of Health Equity; 2010
113. Jaffee SR, Bowes L, Ouellet-Morin I, et al. Safe, stable, nurturing relationships break the intergenerational cycle of abuse: a prospective nationally representative cohort of children in the United Kingdom. *J Adolesc Health*. 2013;53(4, suppl):S4–S10
114. National Scientific Council on the Developing Child. *Building the Brain's "Air Traffic Control" System: How Early Experiences Shape the Development of Executive Function*: Working Paper No. 11. Cambridge, MA: National Scientific Council on the Developing Child; 2011. Available at: https://developingchild.harvard.edu/resources/building-the-brains-air-traffic-control-system-how-early-experiences-shape-the-development-of-executive-function/. Accessed June 28, 2021
115. National Scientific Council on the Developing Child. *The Timing and Quality of Early Experiences Combine to Shape Brain Architecture.*: Working Paper No. 5. Cambridge, MA: National Scientific Council on the Developing Child; 2007. Available at: https://developingchild.harvard.edu/resources/the-timing-and-quality-of-early-experiences-combine-to-shape-brain-architecture/. Accessed June 28, 2021
116. Schore AN. Attachment and the regulation of the right brain. *Attach Hum Dev*. 2000;2(1):23–47
117. Feldman R. The adaptive human parental brain: implications for

children's social development. *Trends Neurosci.* 2015;38(6):387–399

118. Watamura S, Kim P. *Two Open Windows: Infant and Parent Neurobiological Change*. Washington, DC: Aspen Institute; 2015
119. Feldman R. The neurobiology of human attachments. *Trends Cogn Sci.* 2017;21(2):80–99
120. Feldman R. The neurobiology of mammalian parenting and the biosocial context of human caregiving. *Horm Behav.* 2016;77:3–17
121. Bethell C, Jones J, Gombojav N, Linkenbach J, Sege R. Positive childhood experiences and adult mental and relational health in a statewide sample: associations across adverse childhood experiences levels. *JAMA Pediatr.* 2019;173(11):e193007
122. Heard-Garris N, Davis MM, Szilagyi M, Kan K. Childhood adversity and parent perceptions of child resilience. *BMC Pediatr.* 2018;18(1):204
123. Fritz J, de Graaff AM, Caisley H, van Harmelen AL, Wilkinson PO. A systematic review of amenable resilience factors that moderate and/or mediate the relationship between childhood adversity and mental health in young people. *Front Psychiatry.* 2018;9:230
124. Ellis WR, Dietz WH. A new framework for addressing adverse childhood and community experiences: the building community resilience model. *Acad Pediatr.* 2017;17(7S):S86–S93
125. COUNCIL ON COMMUNICATIONS AND MEDIA. Media and young minds. *Pediatrics.* 2016;138(5):e20162591
126. Sege RD, Harper Browne C. Responding to ACEs with HOPE: Health Outcomes From Positive Experiences. *Acad Pediatr.* 2017;17(7S):S79–S85
127. Sege R, Bethell C, Linkenbach J, Jones J, Kilkao B, Pecora PJ. *Balancing Adverse Childhood Experiences with HOPE: New Insights Into the Role of Positive Experience on Child And Family Development.* Boston, MA: The Medical Foundation; 2017
128. Shah R, DeFrino D, Kim Y, Atkins M. Sit down and play: a preventive primary care-based program to enhance parenting practices. *J Child Fam Stud.* 2017;26(2):540–547
129. Zuckerman B, Augustyn M. Books and reading: evidence-based standard of care whose time has come. *Acad Pediatr.* 2011;11(1):11–17
130. Needlman R, Toker KH, Dreyer BP, Klass P, Mendelsohn AL. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambul Pediatr.* 2005;5(4):209–215
131. Ellis BJ, Boyce WT. Differential susceptibility to the environment: toward an understanding of sensitivity to developmental experiences and context. *Dev Psychopathol.* 2011;23(1):1–5
132. Blair C. Stress and the development of self-regulation in context. *Child Dev Perspect.* 2010;4(3):181–188
133. Ellis BJ, Essex MJ, Boyce WT. Biological sensitivity to context: II. Empirical explorations of an evolutionary-developmental theory. *Dev Psychopathol.* 2005;17(2):303–328
134. Boyce WT, Ellis BJ. Biological sensitivity to context: I. An evolutionary-developmental theory of the origins and functions of stress reactivity. *Dev Psychopathol.* 2005;17(2):271–301
135. Humphreys KL, Telzer EH, Flannery J, et al. Risky decision making from childhood through adulthood: contributions of learning and sensitivity to negative feedback. *Emotion.* 2016;16(1):101–109
136. Essex MJ, Armstrong JM, Burk LR, Goldsmith HH, Boyce WT. Biological sensitivity to context moderates the effects of the early teacher-child relationship on the development of mental health by adolescence. *Dev Psychopathol.* 2011;23(1):149–161
137. Weisleder A, Cates CB, Harding JF, et al. Links between shared reading and play, parent psychosocial functioning, and child behavior: evidence from a randomized controlled trial. *J Pediatr.* 2019;213:187–195.e1
138. Needlman RD, Dreyer BP, Klass P, Mendelsohn AL. Attendance at well-child visits after Reach Out and Read. *Clin Pediatr (Phila).* 2019;58(3):282–287
139. Zuckerman B, Khandekar A. Reach Out and Read: evidence based approach to promoting early child development. *Curr Opin Pediatr.* 2010;22(4):539–544
140. Sanders MR. Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *J Fam Psychol.* 2008;22(4):506–517
141. Sanders MR, Bor W, Morawska A. Maintenance of treatment gains: a comparison of enhanced, standard, and self-directed Triple P-Positive Parenting Program. *J Abnorm Child Psychol.* 2007;35(6):983–998
142. Duffee JH, Mendelsohn AL, Kuo AA, Legano LA, Earls MF; COUNCIL ON COMMUNITY PEDIATRICS; COUNCIL ON EARLY CHILDHOOD; COMMITTEE ON CHILD ABUSE AND NEGLECT. Early childhood home visiting. *Pediatrics.* 2017;140(3):e20172150
143. Garner AS. Home visiting and the biology of toxic stress: opportunities to address early childhood adversity. *Pediatrics.* 2013;132(suppl 2):S65–S73
144. Katkin JP, Kressly SJ, Edwards AR, et al; TASK FORCE ON PEDIATRIC PRACTICE CHANGE. Guiding principles for team-based pediatric care. *Pediatrics.* 2017;140(2):e20171489
145. Feigelman S, Dubowitz H, Lane W, Grube L, Kim J. Training pediatric residents in a primary care clinic to help address psychosocial problems and prevent child maltreatment. *Acad Pediatr.* 2011;11(6):474–480
146. Garg A, Sarkar S, Marino M, Onie R, Solomon BS. Linking urban families to community resources in the context of pediatric primary care. *Patient Educ Couns.* 2009
147. Sege R, Preer G, Morton SJ, et al. Medical-legal strategies to improve infant health care: a randomized trial. *Pediatrics.* 2015;136(1):97–106
148. Halfon N, Long P, Chang DI, Hester J, Inkelas M, Rodgers A. Applying a 3.0 transformation framework to guide large-scale health system reform. *Health Aff (Millwood).* 2014;33(11):2003–2011
149. Duby JC. Early childhood behavioral health: can the medical neighborhood move us forward? *Pediatrics.* 2018;141(5):e20180156
150. Help Me Grow National Center. The HMG Model System Model. Available at: https://helpmegrownational.org/hmg-system-model/. Accessed June 21, 2021
150. Zuckerman B, Parker S, Kaplan-Sanoff M, Augustyn M, Barth MC. Healthy

Steps: a case study of innovation in pediatric practice. *Pediatrics*. 2004;114(3):820–826

151. Valado T, Tracey J, Goldfinger J, Briggs R. HealthySteps: transforming the promise of pediatric care. *Future Child*. 2019;29:99–122
152. DISASTER PREPAREDNESS ADVISORY COUNCIL; COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE. Ensuring the health of children in disasters. *Pediatrics*. 2015;136(5):e1407–e1417
153. Schonfeld DJ, Demaria T; DISASTER PREPAREDNESS ADVISORY COUNCIL AND COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH. Providing psychosocial support to children and families in the aftermath of disasters and crises. *Pediatrics*. 2015;136(4):e1120–e1130
154. Heymann J, Sprague AR, Nandi A, et al. Paid parental leave and family wellbeing in the sustainable development era. *Public Health Rev*. 2017;38:21
155. Schuster MA, Chung PJ. Time off to care for a sick child–why family-leave policies matter. *N Engl J Med*. 2014;371(6):493–495
156. Ahlin EM, Gibbs JC, Kavanaugh PR, Lee J. Support for restorative justice in a sample of U.S. university students. *Int J Offender Ther Comp Criminol*. 2017;61(2):229–245
157. Riedl K, Jensen K, Call J, Tomasello M. Restorative justice in children. *Curr Biol*. 2015;25(13):1731–1735
158. Wenzel M, Okimoto TG, Feather NT, Platow MJ. Retributive and restorative justice. *Law Hum Behav*. 2008;32(5):375–389
159. Brown CM, Perkins J, Blust A, Kahn RS. A neighborhood-based approach to population health in the pediatric medical home. *J Community Health*. 2015;40(1):1–11
160. Beck AF, Sandel MT, Ryan PH, Kahn RS. Mapping neighborhood health geomarkers to clinical care decisions to promote equity in child health. *Health Aff (Millwood)*. 2017;36(6):999–1005
161. Garg A, Sandel M, Dworkin PH, Kahn RS, Zuckerman B. From medical home to health neighborhood: transforming the medical home into a community-based health neighborhood. *J Pediatr*. 2012;160(4):535–536.e1
162. Chang S, Lee TH. Beyond evidence-based medicine. *N Engl J Med*. 2018;379(21):1983–1985
163. Marsac ML, Kassam-Adams N, Hildenbrand AK, et al. Implementing a trauma-informed approach in pediatric health care networks. *JAMA Pediatr*. 2016;170(1):70–77
164. Derrington SF, Paquette E, Johnson KA. Cross-cultural interactions and shared decision-making. *Pediatrics*. 2018;142(suppl 3):S187–S192
165. Ruberton PM, Huynh HP, Miller TA, Kruse E, Chancellor J, Lyubomirsky S. The relationship between physician humility, physician-patient communication, and patient health. *Patient Educ Couns*. 2016;99(7):1138–1145
166. Trent M, Dooley DG, Dougé J, SECTION ON ADOLESCENT HEALTH; COUNCIL ON COMMUNITY PEDIATRICS; COMMITTEE ON ADOLESCENCE. The impact of racism on child and adolescent health. *Pediatrics*. 2019;144(2):e20191765
167. Hagiwara N, Elston Lafata J, Mezuk B, Vrana SR, Fetters MD. Detecting implicit racial bias in provider communication behaviors to reduce disparities in healthcare: challenges, solutions, and future directions for provider communication training. *Patient Educ Couns*. 2019;102(9):1738–1743
168. Schnierle J, Christian-Brathwaite N, Louisias M. Implicit bias: what every pediatrician should know about the effect of bias on health and future directions. *Curr Probl Pediatr Adolesc Health Care*. 2019;49(2):34–44
169. Poitevien P, Osman C. Tackling implicit and explicit bias through objective structured teaching exercises for faculty. *J Grad Med Educ*. 2018;10(3):353–354
170. Dehon E, Weiss N, Jones J, Faulconer W, Hinton E, Sterling S. A systematic review of the impact of physician implicit racial bias on clinical decision making. *Acad Emerg Med*. 2017;24(8):895–904
171. Johnson TJ, Winger DG, Hickey RW, et al. Comparison of physician implicit racial bias toward adults versus children. *Acad Pediatr*. 2017;17(2):120–126
172. Garner AS, Forkey H, Szilagyi M. Translating developmental science to address childhood adversity. *Acad Pediatr*. 2015;15(5):493–502
173. Lieberman MD. *Social: Why Our Brains Are Wired to Connect*. 1st ed. New York, NY: Broadway Books; 2013
174. Wilkinson RG, Pickett K. *The Spirit Level: Why Greater Equality Makes Societies Stronger*. New York, NY: Bloomsbury Press; 2010
175. Putnam RD. *Bowling Alone: the Collapse and Revival of American Community*. New York, NY: Simon & Schuster; 2000
176. Putnam RD. *Our Kids: the American Dream in Crisis*. 1st ed. New York, NY: Simon & Schuster; 2015
177. Way N, Ali A, Gilligan C, Noguera P, Kirkland DE. *The Crisis of Connection: Roots, Consequences, and Solutions*. New York, NY: New York University Press; 2018
178. Pantell M, Rehkopf D, Jutte D, Syme SL, Balmes J, Adler N. Social isolation: a predictor of mortality comparable to traditional clinical risk factors. *Am J Public Health*. 2013;103(11):2056–2062
179. Koss KJ, Hostinar CE, Donzella B, Gunnar MR. Social deprivation and the HPA axis in early development. *Psychoneuroendocrinology*. 2014;50:1–13
180. Tottenham N, Hare TA, Quinn BT, et al. Prolonged institutional rearing is associated with atypically large amygdala volume and difficulties in emotion regulation. *Dev Sci*. 2010;13(1):46–61
181. Murray DR, Haselton MG, Fales M, Cole SW. Subjective social status and inflammatory gene expression. *Health Psychol*. 2019;38(2):182–186
182. Sheikh MA. The potential protective effect of friendship on the association between childhood adversity and psychological distress in adulthood: a retrospective, preliminary, three-wave population-based study. *J Affect Disord*. 2018;226:21–27
183. Brooks D. A nation of weavers. *The New York Times*. February 18, 2019
184. Jennings V, Bamkole O. The Relationship between social cohesion and urban green space: an avenue for health promotion. *Int J Environ Res Public Health*. 2019;16(3):E452

185. Rugel EJ, Carpiano RM, Henderson SB, Brauer M. Exposure to natural space, sense of community belonging, and adverse mental health outcomes across an urban region. *Environ Res*. 2019;171:365–377

186. Breuer J, Freud S. *Sigmund Freud Collection (Library of Congress). Studies on Hysteria*. New York, NY: Basic Books; 1957

187. Lanius RA, Vermetten E, Pain C. *The Impact of Early Life Trauma on Health and Disease: the Hidden Epidemic*. Cambridge, UK: Cambridge University Press; 2010

188. Goldhagen JL, Shenoda S, Oberg C, et al. Rights, justice, and equity: a global agenda for child health and wellbeing. *Lancet Child Adolesc Health*. 2020;4(1):80–90

189. Douglas MD, Josiah Willock R, Respress E, et al. Applying a health equity lens to evaluate and inform policy. *Ethn Dis*. 2019;29(suppl 2):329–342

190. Mohammed M, Simha S, Clarke-Pearson K, et al. Community engagement and equitable policy: promoting resilience and stability for children in immigrant families in North Carolina. *N C Med J*. 2019;80(2):94–100

191. Welsh J, Strazdins L, Ford L, et al. Promoting equity in the mental wellbeing of children and young people: a scoping review. *Health Promot Int*. 2015;30(suppl 2):ii36–ii76

192. Center on the Developing Child at Harvard University. Three Principles to Improve Outcomes for Children and Families, 2021 Update. Available at: https://developingchild.harvard.edu/resources/three-early-childhood-development-principles-improve-child-family-outcomes/. Accessed May 5, 2019

193. Center for the Study of Social Policy. *Pediatricians Supporting Parents*. Washington, DC: Center for the Study of Social Policy; 2019

194. Doyle S, Chavez S, Cohen S, Morrison S. *Fostering Social and Emotional Health Through Pediatric Primary Care: Common Threads to Transform Practice and Systems*. Washington, DC: Center for Study of Social Policy; 2019

195. Schonfeld DJ, Demaria T; COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, DISASTER PREPAREDNESS ADVISORY COUNCIL. Supporting the grieving child and family. *Pediatrics*. 2016;138(3):e20162147

196. Yogman M, Garfield CF; COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH. Fathers' roles in the care and development of their children: the role of pediatricians. *Pediatrics*. 2016;138(1):e20161128

197. Healey A, Mendelsohn A; COUNCIL ON EARLY CHILDHOOD. Selecting appropriate toys for young children in the digital era. *Pediatrics*. 2019;143(1):e20183348

198. Hall RL, Jacobson PD. Examining whether the health-in-all-policies approach promotes health equity. *Health Aff (Millwood)*. 2018;37(3):364–370

199. Rigby E, Hatch ME. Incorporating economic policy into a 'health-in-all-policies' agenda. *Health Aff (Millwood)*. 2016;35(11):2044–2052

200. Shankardass K, Muntaner C, Kokkinen L, et al. The implementation of Health in All Policies initiatives: a systems framework for government action. *Health Res Policy Syst*. 2018;16(1):26

201. American Academy of Pediatrics. *Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents*. 4th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2017

202. Cochran J, Kaplan GS, Nesse RE. Physician leadership in changing times. *Healthc (Amst)*. 2014;2(1):19–21

203. Hobson WL, Carey JC, Bale JF Jr. Academy of pediatric education and leadership: preparing leaders for educational innovation. *Pediatrics*. 2011;128(1):1–4

204. Price J, Brandt ML, Hudak ML; COMMITTEE ON CHILD HEALTH FINANCING. Principles of financing the medical home for children. *Pediatrics*. 2020;145(1):e20193451

205. Cohen Ross D, Guyer J, Lam A, Toups M. *Fostering Social and Emotional Health Through Pediatric Primary Care: a Blueprint for Leveraging Medicaid and CHIP to Finance Change*. Washington, DC: Center for the Study of Social Policy; 2019

206. Sijtsema JJ, Nederhof E, Veenstra R, Ormel J, Oldehinkel AJ, Ellis BJ. Family cohesion, prosocial behavior, and aggressive/delinquent behavior in adolescence: moderating effects of biological sensitivity to context. *Dev Psychopathol*. 2013;25(3):699–712

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Trauma-Informed Care

Heather Forkey, MD, FAAP,[a] Moira Szilagyi, MD, PhD, FAAP,[b] Erin T. Kelly, MD, FAAP, FACP,[c] James Duffee, MD, MPH, FAAP,[d]
THE COUNCIL ON FOSTER CARE, ADOPTION, AND KINSHIP CARE, COUNCIL ON COMMUNITY PEDIATRICS, COUNCIL ON CHILD ABUSE AND NEGLECT, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH

Most children will experience some type of trauma during childhood, and many children suffer from significant adversities. Research in genetics, neuroscience, and epidemiology all provide evidence that these experiences have effects at the molecular, cellular, and organ level, with consequences on physical, emotional, developmental, and behavioral health across the life span. Trauma-informed care translates that science to inform and improve pediatric care and outcomes. To practically address trauma and promote resilience, pediatric clinicians need tools to assess childhood trauma and adversity experiences as well as practical guidance, resources, and interventions. In this clinical report, we summarize current, practical advice for rendering trauma-informed care across varied medical settings.

INTRODUCTION

Experiences in childhood, both positive and negative, have a significant effect on subsequent health, mental health, and developmental trajectories. For many children and adolescents, traumatic experiences are all too common. Almost one-half of American children, or 34 million younger than 18 years, have faced at least 1 potentially traumatic early childhood experience.[1–7] Such traumas may include those originating outside the home, such as community violence, natural disasters, unintentional injuries, terrorism, immigrant or refugee traumas (including detention, discrimination,[6,8,9] or racism), and/or those involving the caregiving relationship, such as intimate partner violence, parental substance use, parental mental illness, caregiver death, separation from a caregiver, neglect, or abuse, originally defined as adverse childhood experiences (ACEs).[10] For many children, medical events, such as injury, medical procedures, and/or invasive medical treatments, can be traumatic. Given the robust science explaining the physiologic consequences of accumulated trauma experiences on the brain and body,[11–14] there have been calls for pediatric clinicians to address childhood trauma and child traumatic stress.[10,14–16] However,

abstract

[a]Department of Pediatrics, University of Massachusetts, Worcester, Massachusetts; [b]Divisions of General and Developmental-Behavioral Pediatrics, Department of Pediatrics, University of California, Los Angeles, Los Angeles, California; [c]Ambulatory Health Services, Philadelphia Department of Public Health, Philadelphia, Pennsylvania; and [d]Departments of Pediatrics and Psychiatry, Boonshoft School of Medicine, Wright State University, Dayton, Ohio

Drs Forkey, Szilagyi, Kelly, and Duffee were equally responsible for conceptualizing, writing, and revising the manuscript and considering input from all reviewers and the Board of Directors; and all authors approved the final manuscript as submitted.

DOI: https://doi.org/10.1542/peds.2021-052580

Address correspondence to Heather Forkey, MD. E-mail: heather.forkey@umassmemorial.org

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

To cite: Forkey H, Szilagyi M, Kelly ET, et al. AAP COUNCIL ON FOSTER CARE, ADOPTION, AND KINSHIP CARE, COUNCIL ON COMMUNITY PEDIATRICS, COUNCIL ON CHILD ABUSE AND NEGLECT, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH. Trauma-Informed Care. *Pediatrics.* 2021;148(2):e2021052580

practical guidance about how to consider, address, and operationalize this care, although necessary, has been insufficient.

Pediatric clinicians are on the front lines of caring for children and adolescents and, thus, have the greatest potential for early identification of and response to childhood trauma. Data indicate that, although pediatric providers intuitively understand the negative effects of trauma, they report a lack of knowledge, time, and resources as major barriers to providing trauma-informed care (TIC).[5,6] Yet, experts believe that the complete assessment of child and adolescent behavioral, developmental, emotional, and physical health requires consideration of trauma as part of the differential diagnosis to improve diagnostic accuracy and appropriateness of care.[17,18]

TIC is defined by the National Child Traumatic Stress Network as medical care in which all parties involved assess, recognize, and respond to the effects of traumatic stress on children, caregivers, and health care providers. This includes attention to secondary traumatic stress (STS), the emotional strain that results when an individual hears about the first-hand trauma experiences of another. In the clinical setting, TIC includes the prevention, identification, and assessment of trauma, response to trauma, and recovery from trauma as a focus of all services. TIC can be conceptualized in a public health stratification, as summarized in Table 1:

- primary prevention of trauma and promotion of resilience;
- secondary prevention and intervention for those exposed to potentially traumatic experiences, including caregivers, siblings, guardians, and health care workers; and
- tertiary care for children who display symptoms related to traumatic experiences.

This clinical report and the accompanying policy statement[19] address secondary prevention and intervention: practical strategies for identifying children at risk for trauma and/or experiencing trauma symptoms. "Children," unless otherwise specified, refers to youth from birth to 21 years of age. These clinical strategies and skills include the following[16,20]:

- knowledge about trauma and its potential lifelong effects;
- support for the caregiver-child relationship to build resilience and prevent traumatic stress reactions;
- screening for trauma history and symptoms;
- recognition of cultural context of trauma experiences, response, and recovery;
- anticipatory guidance for families and health care workers;
- avoidance of retraumatization;
- processes for referral to counseling with evidence-based therapies when indicated; and
- attention to the prevention and treatment of STS and associated sequelae.

Pediatricians have a powerful voice and reach that could promote the policies and procedures necessary to transform pediatric health care into a TIC system. This guidance for pediatric clinicians is organized around 5 strategies for implementation to become trauma informed: awareness, readiness, detection and assessment, management, and integration. The companion policy statement[19] outlines broad recommendations for implementing TIC in child health systems.

AWARENESS

Pediatric clinicians can promote resilience, identify adversity and trauma, and ameliorate the effects of adversity in their work with children and families. Although the epidemiology and physiology of trauma have been explored in the literature,[9,12,13,21,22] few concepts have been translated into the provision of practical TIC in pediatric settings.[6,16,23] Awareness of the science and epidemiology of trauma provides the scientific grounding for the practices of TIC.

TABLE 1 Range of Trauma Experiences, Symptoms, and Response

Potentially Traumatic Experiences	Trauma Symptoms (Table 5)	Office Response
None	None to some	Primary prevention: anticipatory guidance; resilience promotion
Single-incident or minor trauma	None or latent or mild	Secondary prevention: anticipatory guidance; resilience promotion; trauma-informed guidance; close monitoring: screen for trauma history and symptoms
Major event or cumulative	Mild to moderate	Secondary and tertiary prevention: anticipatory guidance; resilience promotion; psychoeducation; trauma-informed guidance, close monitoring, and follow-up; possible referrals to community services, mental health
Major event or cumulative	Moderate to severe	Tertiary prevention and treatment: anticipatory guidance; resilience promotion; psychoeducation; trauma-informed guidance, close monitoring, and follow-up; avoidance of retraumatization; referrals to community services; referral to evidence-based and evidence-informed trauma mental health services

Adapted from Forkey H, Griffin J, Szilagyi M. *Childhood Trauma and Resilience: A Practical Guide.* Itasca, IL: American Academy of Pediatrics; 2021.

Safe, Stable, and Nurturing Relationships

The most fundamental adaptational mechanism for any child is a secure relationship with a safe, stable, nurturing adult who is continuous over time in the child's life.[24] This is usually the child's parent or caregiver but can involve extended family and biological or fictive kin. It is in the protective context of this secure relationship that the child develops the varied resilience skills that will prevent or ameliorate the effects of cumulative adversities. The nurturing caregiver protects the child from harm, mediates the world for the child, and helps the child to develop the adaptive skills to manage stressful experiences. Physiology, in addition to psychology, is affected by protective relationships.[14,25–27]

Toxic Stress and Trauma

All children experience some stress and adversity at some point in life, but when it is managed within the context of these nurturing relationships, such events can be weathered and even used for growth. Adverse events that lead to the frequent or prolonged activation of the stress response (see Fig 1) in the relative absence of protective relationships has been termed "toxic stress" in the pediatric literature.[14] Toxic stress responses result from events that may be long lasting, severe in intensity, or frequent in occurrence. The available caregiver support is insufficient to turn off the body's stress response. It is critical to note that the toxic stress response has 2 components: the significant stressors and the relative insufficiency of protective relationships. In sum, there is a marked imbalance between stressors and protective factors.[28]

Toxic stress responses can result in potentially long-lasting or lifelong impairments in physical and mental health through biological processes that embed developmental, neurologic, epigenetic, and immunologic

Stress Responses

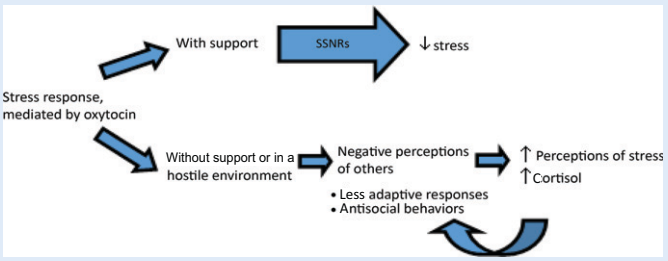
Freeze	• Originates in central nucleus of the amygdala and mediated by hypothalamus and superior colliculus[222] • Typically brief response, forces the organism to alert to danger • Can be followed by the fight-or-flight responses • Parasympathetic and vagal response can lead to dissociation or faint
Fight or flight	• Results from adrenal release of epinephrine and cortisol that allow the threat to be addressed • Short term: physiological changes, including increased heart rate and blood pressure • Excess or frequent activation in childhood can result in long-term changes in HPA axis function, which leads to dysregulation of the neuroendocrine stress response and consequent physiologic changes (see Table 2)[12,223]
Affiliate (gather social support, "tend and befriend")	• Higher brain response mediated by oxytocin,[224,225] appears to mediate stress within the social context by promoting the ability to look to others in the environment for support in managing a threat (social salience)[70,226] • With the provision of support, stress response declines [70,227] • Having no support or a hostile environment leads to negative perceptions of others, induces less adaptive responses and antisocial behaviors, and leads to increased perception of stress and increased cortisol [70,228-230] • Emerging science underlying the affiliative response elucidates how safe, stable, nurturing relationships can buffer adversity and promote resilience 

FIGURE 1 Stress responses. HPA, hypothalamic-pituitary-adrenal.

TABLE 2 Physiologic Effects of Trauma in Children

Area	Impact	Specifics	Implications and Associations
Brain connectivity[93]	Cortisol acts on rapidly developing brain structures	Amygdala overactive; hippocampus underactive; prefrontal cortex not accessible	Preliminary association with more severe clinical course in major depressive disorder
Epigenetic changes[21]	Methylation patterns impacted by threat, mediated by cortisol	Methyl groups attach to promoter region or come off promotor regions of genes, leading to the transcription or lack of transcription of genes	Adult stress and reactivity behavior[231,232]
Immune function[80]	Alteration of immune system in response to constant threat	Inflammatory system up-regulated; humoral immunity diminished; cytokine-induced "sickness behavior"[81] (feeling sick)	Symptoms including the following: decreased appetite, fatigue, mood changes including depression and irritability, poor cognitive function

changes.[12,14] The lifelong effects of toxic stress are statistically related to many adult illnesses, particularly those related to chronic inflammation, and causes for early mortality.[29] The robust literature on the physiologic effects of toxic stress is beyond the scope of this clinical report yet briefly summarized in Table 2.

Trauma is a broader term used to describe both a precipitant and a human response. The Substance Abuse and Mental Health Services Administration defines trauma as an event, series of events, or circumstances experienced by a person as physically or emotionally harmful that have long-lasting adverse effects on the person's functioning and well-being (emotional, physical, or spiritual).[16] This definition accounts for the fact that people may respond differently to potentially traumatic events and informs TIC with appreciation that the traumas people experience can result in behavioral changes that may allow them to manage the trauma in the short-term but can have lasting negative effects on conduct. These difficulties should not be viewed as malicious actions or even intentional but as consequences of adversity.[30]

Because these epidemiological and physiologic studies provide the background and impetus for TIC, understanding the terminology derived from this literature is important in appreciating the scope, variety, and nuances of TIC and how to actualize them. These are summarized in Table 3.

High-risk Populations

It is important to be aware that the exposures of some child populations and their families put them at particular risk of experiencing trauma but also that the components of TIC can benefit these children and families.[31–34] More than 7.4 million children, or nearly 1 in 10 children, are reported as potential victims of child abuse and neglect annually.[35] In 2019, more than 670 000 children spent time in foster care.[36] Children who remain at home after child protective services investigation or are moved to kinship care resemble their peers in foster care in having an extremely high prevalence of significant childhood trauma.[37–39] Immigrant and refugee children may have left poverty, war, and violence, may have encountered abuse or separation from family members, and can be at risk for deportation, detention, and separation and discrimination.[6,40,41] Poverty, or near poverty, affects approximately 43% of US children, and both urban and rural poverty have been linked with multiple stressors and increased risk of trauma.[42–44] Children of underrepresented racial, ethnic, and religious groups are more likely to be exposed to discrimination.[45,46] The psychological, interpersonal, and perhaps physiologic effects of trauma inflicted on a community (particularly because of race, identity, or ethnicity) may be passed to succeeding generations and is referred to as historical trauma.[47,48] Community violence and bullying, along with cyberbullying, are experienced by many children and recognized as traumatic exposures included in expanded definitions of ACEs.[49–51] Lesbian, gay, bisexual, transgender, and queer children and adolescents, children of color, American Indian and Alaskan native children, immigrant children, neurodiverse children and adolescents, and children and adolescents with overweight and obesity are all more likely to experience discrimination, both overt and as a series of microaggressions (small slights, insults, or indignities either intentional or unintentional) that accumulate over time.[52–54] Additionally, children of military families have a higher prevalence of trauma, abuse, grief, and loss.[55] Populations at higher risk for pediatric medical traumatic stress include preterm infants, children with complex and/or chronic medical conditions, and those suffering from serious injury or illness.[56] Up to 80% of children and family members experience trauma

TABLE 3 Definitions of Terminology in TIC

Terminology of Traumas	Definitions
Acute stress disorder and Post-traumatic stress disorder (PTSD)	Psychiatric diagnoses that include having experienced or witnessed a traumatic event and then having persistent symptoms that include the following: reexperiencing (intrusive thoughts, nightmares, or flashbacks); avoidance (feeling numb, refusing to talk about the event); hyperarousal (irritability, exaggerated startle response, always expecting danger); acute stress disorder: symptoms occur 3 d to 1 mo after traumatic exposure[81]; PTSD: symptoms must occur ≥3 mo after the trauma[233]
ACEs	Stressful or traumatic events, including child abuse and neglect, that occur within the primary caregiving relationship; often breach the parent-child relationship, which is fundamental to nurturing healthy development; linked in population studies to physiologic and behavioral changes impacting the health and well-being of patients over their life course with a wide array of health problems, including associations with substance misuse.[10,21,24,80] The original ACEs (from initial study published in 1998) are the following: physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, intimate partner violence, mother treated violently, substance misuse within household, household mental illness, parental separation or divorce, and incarcerated household member. Subsequent studies have expanded the original ACE panel to include other adversities,[9,234] including the following: experiencing racism, experiencing bullying, separation from caregiver (resulting from immigration, foster care, incarceration, death, or any other reason), witnessing violence, community violence,[49] adverse neighborhood experience,[235] and financial insecurity[236]
Complex childhood trauma (as defined by the National Child Traumatic Stress Network)	Encompasses both a child's exposure to multiple interpersonal traumatic events, including maltreatment and household dysfunction, and the broad, pervasive, and predictable impact this exposure has on the individual child[83,237]; can disrupt a child's attachment with caregivers, development, and sense of self
Developmental trauma disorder (DTD)	A proposed diagnosis based on evidence that children exposed to complex trauma are at risk for severe pervasive disruptions in their development in the domains of emotional health, physical health, attention, cognition, learning, behavior, interpersonal relationships, and sense of self; sometimes used interchangeably with complex childhood trauma; describes problems in affect dysregulation, negative self-concept, and difficulty with relationships that occur as a result of trauma-related developmental impairments; symptoms overlap or co-occur with several PTSD symptoms, but DTD includes a fuller spectrum of dysregulation resulting from the insults to multiple pathways in the developing brain when nurturing and is seen as a result of complex childhood trauma; more accurately describes the outcomes of such trauma in children than does the diagnosis PTSD[158,238]
Pediatric medical traumatic stress (PMTS)	The distress that children and family members experience during hospitalization for a perceived life-threatening diagnosis or while living with or caring for someone with life-altering chronic conditions[239–241]; often related to the person's subjective experience of the medical event rather than its objective severity and is mitigated by SSNRs that promote resilience
Secondary traumatic stress (STS)	A response that may occur in parents, other family members, and health care workers such as physicians, nurses, other hospital staff (including nonclinical staff), first responders, and therapists who are exposed to the suffering of others, particularly children[242]; may have many of the same long-term effects on health that affect children exposed to trauma; individual trauma histories can contribute to the reaction
Social determinants of health (SDoHs)	Conditions of the greater ecology or environment, occurring where people live, learn, work and play, which affect the neuroendocrine stress response and affect a wide range of health risks and outcomes[8,22]; can be mitigated by an SSNR and other protective factors and exacerbated by ACEs and intrafamilial and interpersonal traumas; examples include: poverty, food insecurity, homelessness, and lack of access to health care; examples that also overlap with the expanded ACEs include racism, discrimination, and community violence
Trauma	An event, series of events, or set of circumstances an individual experiences as physically or emotionally harmful that can have lasting adverse effects on the person's functioning and mental, physical, emotional, or spiritual well-being[14]; can occur outside caregiving relationships (eg, dog bites, natural disasters), within the context of the caregiving relationship (eg, exposure to domestic violence, various forms of abuse or disordered caregiving because of parental mental illness or substance use disorder), or in the context of relationships outside the family (racism, bias, discrimination, bullying)

symptoms after a life-threatening illness, injury, or painful medical procedure.[57]

READINESS

TIC transforms the fundamental questions in medical care from "What is wrong with you?" to "What happened to you?" and, finally, to "What's strong with you?" A trauma-informed approach acknowledges the biological effects of adversity without suggesting that childhood adversity is destiny. It requires a compassionate approach that does not suggest blame. It requires pediatric health care workers at every level to understand the context of a child's relationships, especially within the family, and ask, "What are the caregiver's strengths and challenges?" "What are the child's strengths and challenges?" and "Who supports you?" This changes the pediatric role from "I must fix you" to "I must understand you (and the relationships that created you and can help you heal)."[25,58] Thus, readiness includes an understanding of what provides resilience and how to promote it.

Relational Health Care

TIC is fundamentally relational health care, the ability to form and maintain safe, stable, and nurturing relationships (SSNRs). Pediatricians are able to support the caregiver-child relationship, the context in which there can be recovery from trauma and the restoration of resilience. Fundamental to these concepts is an understanding of attachment.

Attachment

Attachment describes the emotionally attuned give-and-take between caregiver and child and the trust, safety, and security provided to the child[59] that promotes healthy brain growth, development of accurate mental maps of self and others, development of resilience, and protection from trauma.[60] Fundamentally, the predictable compassionate availability of the caregiver promotes the secure attachment of the child.[61,62] Recent studies show attachment remains malleable beyond infancy, even into adolescence and adulthood, to some extent.[63,64]

Effective Parenting

Effective parenting encompasses the skills that caregivers bring to the task of parenting and is the context in which secure attachment develops and is relied on during and after traumatic experiences. Although caregivers approach parenting with a range of skills, attitudes, and beliefs rooted in their cultural and family contexts, studies have shown that effective or positive parenting has some universal features.[65–67]

It is through secure attachment with a predictably empathic caregiver that children learn to regulate their emotions. Children start by turning to a caregiver when upset. The caregiver comforts the child by touch, words, and compassion, which shuts down the stress response and restores emotional regulation. Secure attachment happens as a child predictably receives this sympathetic support from the caregiver when the child is distressed and the child comes to confidently anticipate that support. This relationship becomes a reliable source of safety, and the caregiver is a secure base from which the child can explore their environment.[62] Multiple studies have shown that a secure attachment relationship is the best means for building or rebuilding resilience in children; it is also the context for promoting healthy brain growth and development.[62,65,68,69] With these positive affiliative experiences, modulation of the stress response begins and includes the release of oxytocin, a potent hormone regulator of the sense of safety and well-being.[68,70]

Thus, the first step of TIC is to assess this aspect of the relationship, observing the child-caregiver interaction, including the caregiver's attention to the child, the caregiver's ability to read and respond to the child in developmentally appropriate ways, and the child's ease, comfort, and response to the caregiver. Discussion can begin by focusing on the caregiver's and child's strengths and noting the constructive aspects of the relationship while providing the caregiver with empathy. When attachment is strained, caregivers have often lost empathy for the child. The positive regard and attuned attentive listening provided before and while raising concerns supports the caregiver. The empathy provided to the caregiver thus allows the opportunity for them to reattune to the child.[62]

Resilience

Resilience is defined as a dynamic process of positive adaptation to or despite significant adversities.[71] This is not a static or innate quality but includes skills children can learn over time with reliable support from attachment figures. The development of resilience includes aptitudes that are attained through play, exploration, and exposure to a variety of normal activities and resources. Studies have shown that development can be robust, even in the face of severe adversity, if certain basic adaptational mechanisms of human development (resilience factors) are protected and in good working order. These mechanisms include attachment to a competent caregiver, cognitive development with opportunity for continued growth, mastery of age-salient developmental tasks, self-control or self-regulation, belief that life has meaning, hope for the future, a sense of self-efficacy, and a network of supportive relationships.[71] On the other hand, if those basic adaptational mechanisms or protective factors are absent or impaired before, during, or after the adversity, then the outcomes for children tend to be poorer[71] (see Table 4).

TABLE 4 Adaptational Mechanisms of Resilience

T	Thinking and learning brain, with opportunity for continued growth; cognitive development
H	Hope, optimism, faith, belief in a future for oneself
R	Regulation (self-regulation, self-control of emotions, behaviors, attention, and impulses)
E	Efficacy (self-efficacy) or sense that one can impact their environment or outcomes
A	Attachment, secure attachment relationship with safe, stable, and nurturing caregiver or competent caregiver
D	Development, mastery of age-salient developmental tasks
S	Social context, or the larger network of healthy relationships in which one lives and learns

Adapted from Masten AS. Ordinary magic. Resilience processes in development. *Am Psychol.* 2001;56(3)227–238; Forkey H, Griffin J, Szilagyi M. *Childhood Trauma and Resilience: A Practical Guide.* Itasca, IL: American Academy of Pediatrics; 2021.

Robust implementation of TIC is strength-based, building on family protective factors rather than emphasizing deficits. At almost every encounter, from early childhood through adolescence, pediatric care can include resilience promotion, building on identified strengths. Because resilience is a dynamic process of positive adaptation, routine anticipatory guidance about development or safety can be used to promote relational health and positive childhood experiences, including achievements at home, at school, and in neighborhoods, which enhance resilience.[72] When addressing adversities or concerns about development, surmounting the challenges can be framed with resilience and positive experiences as the goal.[73] For example, when speaking with a caregiver about a child learning to fall asleep on their own, sleep skills can be framed as building resilience by supporting self-regulation and self-efficacy. Alternatively, when a caregiver expresses concern about a child or teenager who had been sleeping until experiencing a traumatic event, the discussion can be framed around what resilience factors are being challenged (developmental skill mastery, self-efficacy, self-regulation) and which ones can be used to support the child's recovery (attachment and thinking).

DETECTION AND ASSESSMENT

Detection involves both surveillance and formal screening to identify children and families with the history of exposure to potentially traumatic experiences as well as those who exhibit signs and symptoms of trauma. Although TIC is common in social services and other mental health settings, in a health care environment, TIC can be conceptualized by using a medical model. Similar to other medical conditions, TIC includes purposeful triage, engagement, history-taking, surveillance and screening, examination, differential diagnosis, sharing of the diagnosis, and management, which may include office-based anticipatory guidance, referral, psychopharmacology, and/or follow-up or recommendations.

Surveillance for maladaptation after experiencing trauma includes consideration of all those who may be affected by exposure to the direct suffering of the child. Health care workers, such as first responders, nurses, social workers, trainees, physicians, and nonclinical hospital or clinic employees, may be deeply affected by witnessing or hearing about the traumatic experiences of children. Parents (biological, foster, kinship, or adoptive) are particularly at risk for prolonged trauma reactions that may impair their ability to care for and comfort their children. Siblings may also be affected, particularly when there is complex trauma or exposure to suffering, such as having a sibling with cancer or another life-altering disease that involves chronic pain.

Peri-trauma

Peri-trauma refers to situations in which medical providers are caring for children as the traumatic events are unfolding. One example is pediatric medical traumatic stress. Pediatric medical traumatic stress is a situation in which children experience medical procedures or other aspects of medical care as traumatic events. The effects of such trauma can be mitigated by attending to the child's and family's experience of medical care and reducing (as much as possible) frightening or painful aspects of necessary care and procedures. This mitigation can include asking children (and caregivers) about their fears and worries, optimizing pain management and comfort measures, and working with caregivers to increase their ability to provide effective support for their child. The Healthcare Toolbox includes a number of specific suggestions, including assessing distress (D), providing emotional support (E), and addressing the family needs (F)—a D, E, F protocol to follow the A, B, Cs of resuscitation.[74]

Another comprehensive strategy used by schools and community agencies when a mass trauma or disaster occurs is Psychological First Aid (PFA).[75] Developed by the National Child Traumatic Stress Network, PFA is an evidence-informed program that is designed to help children, families, adults, and other witnesses in the immediate aftermath of a disaster or terror event. Core skills for implementation of PFA are identical to TIC: establish an emotionally safe environment, connect with primary support persons (relational health), link to community resources, and provide psychoeducational materials to help understand the potential responses of children to the exposure.

Triage

The first step in medical care is to identify an emergency versus nonemergency situation. When dealing with trauma, its causes, or its consequences, consideration of whether a child may be emergently at risk requires assessment and response as a top priority. In practicing TIC, protocols and practices to identify and address child or family safety issues, both physical and psychological, are integral to care.

Trauma may result from children being in unsafe settings because of abuse, neglect, or impaired caregiving. When the practitioner suspects maltreatment or failure of the caregiver to protect a child at any point in a health encounter, referral to child protective services

is necessary and mandated. These issues need to be considered even before screening and addressed with standard protocols to respond to identified risks.[76–78]

Other immediate safety issues may arise when a consequence of trauma is self-harm or intent to injure others. Screening for suicidality, self-injury, or intent to harm others is included in TIC along with clear protocols for how to address positive endorsement of these issues.

Engagement

TIC creates a respectful and emotionally safe space in which to engage children, adolescents, and families around the discussion and management of these issues and to prevent retraumatization. Discussion of trauma may raise stress levels, and appropriate engagement reassures the child and family that the setting is safe. Culture can also affect how trauma is experienced and understood by families, and cultural awareness can ease the conversation. Engaging children and families begins with greeting the patient and family and being fully present in the moment while maintaining a balance between professionalism and friendliness. It involves initially asking open-ended questions, followed by more specific and probing questions as needed and that are elicited by caregiver and child or adolescent responses. It involves listening in an active, nonjudgmental, attuned way, reflecting back to the family what is heard for clarification and confirmation, seeking clarification when necessary, paraphrasing, attending to and reflecting on the emotions that accompany the information, and summarizing what is discussed. Implicit bias can affect the provider's ability to be nonjudgmental in these conversations.[46,79] Acceptance, curiosity, and empathy are conveyed to the patient or caregiver in the process of attentive listening.[61] Engagement also involves mutual regard between the provider and family. Adolescents and capable children bring their own perspective. Each brings expertise to the TIC of the child or adolescent. The provider has expertise in medicine, whereas the patient and family have expertise about the child, what happened, and their situation, beliefs, strengths, and culture.

When working with families and patients who have experienced trauma, the provider's body language, affect, and tone of voice can promote or inhibit care. Affect describes the facial and body expressions that reflect our emotional state. Individuals who have experienced trauma are more sensitive to body language, facial expressions, and tone of voice.[70] Approaching children slowly and calmly or letting them sit with a caregiver and using higher pitched, more musical speech may ease a child's tension because these sounds are associated with the release of oxytocin in the amygdala, resulting in calming of this threat-sensitive brain area. A shift to low tones during a discussion may alert a child or caregiver to potential danger and stimulate defensive responses.[61]

History

Much of the information needed to integrate TIC into practice may be obtained as part of the routine health evaluation. Social, developmental, and medical history are all opportunities to identify risks, stressors, and strengths. The health history provides an opportunity to assess child and family resilience factors, social connectedness, parenting attitudes, and skills. The review of systems allows the medical provider to collect symptoms of trauma that may not have been identified in the chief complaint but that can offer valuable insight into the current impact of trauma on the patient.[80,81] Symptoms may be functional, neurodevelopmental, or related to immune function.

1. Functional symptoms: Manifestation of the symptoms of trauma may evolve over time. Functional complaints can result after single-incident traumas (eg, automobile crash, hurricane) or may be early manifestations of complex trauma.[82–84] Sleep difficulty, changes in appetite, toileting concerns (eg, constipation, abdominal pain or enuresis), and challenges with school functioning (eg, poor attention or attendance) may be the early presentation of ongoing trauma.[84,85] Diagnostic criteria for attention-deficit/hyperactivity disorder and adjustment disorder overlap with some of these functional symptoms. When these signs and symptoms are noted, it can be useful to include trauma in the differential diagnosis.[17,86,87]
2. Neurodevelopmental symptoms: Some of the most recognizable manifestations of early trauma result from the effect on areas of the rapidly developing brain of young children. Developmental skill acquisition (higher brain) can be hindered as recognition of and response to threat is prioritized (lower brain).[88,89] Specific areas of the brain affected are the limbic system, hippocampus, and prefrontal cortex.[12,13,90–92] The prefrontal cortex is involved in cognition, emotional regulation, attention, impulse control, and executive function. Consequently, children may have developmental delay and behave as if they are younger than their actual age[89,93] (see Table 5 for an easy way to remember these effects). Other

TABLE 5 Most Common Symptoms of Trauma Exposure

F	Frets (anxiety and worry) and fears
R	Regulation difficulties (disorders of behaviors or emotions; hyperactive, impulsive, easily becomes aggressive or emotional; inattentive)
A	Attachment challenges (insecure attachment relationships with caregivers); poor peer relationships
Y	Yawning (sleep problems) and yelling (aggression, impulsivity)
E	Educational and developmental delays (especially cognitive, social-emotional, and communication)
D	Defeated (hopeless), depressed, or dissociated (separated from reality of moment, lives in own head)

Adapted from Forkey H, Griffin J, Szilagyi M. *Childhood Trauma and Resilience: A Practical Guide.* Itasca, IL: American Academy of Pediatrics; 2021.

observed symptoms may include the following:

- rapid, reflexive response to stimuli, reminders, or triggers[93,94];
- inattention, poor focus, hyperactivity, and difficulty completing tasks[86,95];
- difficulty tolerating negative mood so the child seeks ways to defuse the tension through hyperactivity, impulsive behaviors, aggression, self-harm, such as cutting and suicidality, or engagement in health risk behaviors (substance use, sexual activity)[89,95,96];
- reactions to stimuli, triggers, or reminders can be transient and flip suddenly back to "normal"; this appears to the observer as emotional lability[88,92]; and
- negative world view and self-narrative; flat affect; difficulty engaging socially or viewing themselves as worthless.[88,92,97]

3. Immune function symptoms: When a child is exposed to early, severe, or prolonged trauma, the immune system is chronically pressed into action, and, over time, changes can occur in the inflammatory system and humoral immunity.[80,89] A persistent inflammatory response can leave children vulnerable to diseases, such as asthma and metabolic syndrome.[80,98,99] Humoral immunity may be impaired so that children are more susceptible to infection. Additionally, immune system stimulation may result in the "sick syndrome," which is a perception of feeling unwell that can include headaches, stomachaches, and lethargy.[80,81]

Surveillance

Surveillance or monitoring is the process of recognizing children who might be at risk for being affected by trauma and is modeled after developmental surveillance. Surveillance is less formal than screening and can be conducted at every visit. Asking about caregivers' concerns, obtaining a trauma history, observing the child, and identifying risk and protective factors provides information about resilience supports and trauma exposure.[100] Surveillance requires attention to relationships and engagement. Questions such as "Has anything scary or concerning happened to you or your child since the last visit?" are a way to more specifically explore the possibility of adverse experiences.[85] Recognizing that certain symptoms may indicate exposure to childhood adversities, we can ask, "What has happened to you (or your family)?" For adolescents, these questions can be asked as part of the HEADSSS (questions about Home environment, Education and employment, Eating, peer-related Activities, Drugs, Sexuality, Suicide/depression, and Safety) psychosocial interview.[101,102] Questions that are considered less threatening are asked first and followed with questions that may be perceived as more intrusive.[101] Providers may be concerned that asking questions about a family's needs, a child's trauma history, or a child's symptoms may distress the child or caregiver, but studies in which this topic has been explored indicate that, when the topic is raised, families respond well to having the issues acknowledged and addressed in a supportive setting.[85,103,104]

Children only heal from trauma in the context of SSNRs, so it is also necessary to ask about the strengths that are already present in the family. Starting these conversations with questions about child, adolescent, or family strengths frames the conversation in a positive and resilience-focused way.[105,106] For instance, a clinician may ask how the child, adolescent, or family copes with stress, what a teenager does well, whether they have frequent family meetings to talk about solving problems, and whether each member of the family has someone to turn to for safety and comfort when they are upset. Trauma that occurs because of problems in the primary attachment relationship represents the greatest threat to the child or adolescent and may be the most challenging for providers to explore. Caregivers may have their own trauma histories or mental health struggles, substance use issues, and/or multiple stressors related to social determinants of health (SDoHs), including poverty, housing instability, and violence exposure that affect their parenting. Exploring parenting stressors, strengths, and attitudes in conversation can help the provider to pinpoint specific leverage points to help children but may also create an opportunity for the caregiver to reflect about the effects of their parenting or stressors on the child. TIC is compassionate and assumes that all caregivers love their children and are doing the best they can. It also assumes that children

are doing the best they can.[107,108] Adolescents should be included in these conversations and have a role in identifying strengths and challenges. Pediatricians who have cared for a family over time may already have considerable insight into the family's dynamics and be able to engage the caregivers in an empathic yet open conversation. Furthermore, compassionate surveillance can be combined with use of screeners or questionnaires to elicit more information.

Screening

Validated screeners used at preventive health care visits can provide valuable information about child development, mental health, and behavior.[109] They can be reassuring when normal or alert the pediatric provider to symptoms or risks when borderline or abnormal. Commonly used tools, such as the Ages and Stages Questionnaire,[110] the Pediatric Symptom Checklist,[111] the Strengths and Difficulties Questionnaire,[112] and the Patient Health Questionnaire-9[113] may elicit symptoms that are the possible result of trauma (developmental delays, social-emotional problems, anxiety, etc). Perinatal depression screening may not only identify symptoms of this illness but provide opportunities to explore maternal stressors and strengths.[114] Those exposed to known traumas can be evaluated by using standardized posttraumatic stress disorder (PTSD) screening tools such as the PTSD Reaction Index Brief Form,[115] and those exposed to medical traumas can be evaluated by using a tool such as the Psychosocial Assessment Tool.[116,117] The Pediatric Traumatic Stress Screening Tool in the Intermountain Care Process Model has been recently developed to screen for pediatric traumatic stress in the primary care setting, either as a universal screen or with targeted screening when traumas are known.[118] These tools effectively help identify the diagnostic criteria for PTSD, although they are not designed to identify the full spectrum of symptoms of complex trauma (developmental trauma disorder [DTD]).

Screening, per American Academy of Pediatrics (AAP) guidelines, suggests using instruments that are standardized and validated and have defined psychometric properties (sensitivity, specificity, positive predictive value). By that definition, there are currently no screening tools for ACEs and only a few validated screening tools for SDoHs. However, standardized (but not validated) tools are being used in some pediatric settings to assess ACEs and SDoHs and are using aggregate risk scoring to target providing increased support.[119–121] Many of the available screening tools expanded on the domains included in the original Centers for Disease Control and Prevention/Kaiser ACE study to include additional items applicable to urban and minority populations, including witnessing neighborhood violence and experiencing bullying or discrimination.[9] Parental ACE screening may offer the opportunity to align with caregivers and build a partnership to explore issues that may be affecting their parenting. Indeed, several recent studies suggest that parental ACEs can be linked with concerning outcomes for children.[122–125] Concurrent resilience screening offers the opportunity to identify protective factors that can buffer identified stressors, thus providing more nuanced understanding of a child's risk. Screening also offers the opportunity to then frame the discussion around promoting strengths in the caregiver-child relationship to protect a child from toxic stress and build adaptive skills.[107] Similar to ACE screening, there are few available standardized validated resilience screening tools, although the Connor-Davidson Resilience Scale[126] and Brief Resilience Scale[127] assess caregiver resilience.[128] (Readers are referred to the AAP Screening Technical Assistance Web site at https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Screening/Pages/About-Us.aspx for developmental and SDoH screening tools.)

A limitation of ACE and SDoH screening tools is their lack of nuance: they identify risk factors that have been derived from epidemiological studies, not outcomes at the individual level.[129,130] Those outcomes are the result of the physiologic response to adversities. Although currently only available in the research setting, biomarkers of this physiologic response have the potential to be more accurate measures of the effects of adversity at the individual level.[131–133] Eventually, clinic-friendly, noninvasive biomarkers could also be used to identify patient-specific response to both stressors and therapeutic interventions.[134,135]

Screening health care workers for the effects of hearing about and addressing the trauma experiences of others is most commonly achieved with informal self-assessment strategies to identify symptoms or experiences that may be associated with burnout or STS.[136] Substance use disorder, depression, and suicidality may be associated with exposure to secondary trauma, and there appears to be overlap between burnout and STS.[137–144] An example of a screening tool for health care workers is the Professional Quality of Life Scale,[145] which includes subscales for compassion satisfaction, burnout, and STS.

Cultural considerations affect all aspects of TIC, including screening. Instruments that are not normed for the population or translated and validated in the language of the patient and family can result in misleading results. Thus, it is important to consider screening results cautiously with consideration of the family's culture and ethnicity in relation to the screening tool being used.[146]

Examination

Blood pressure measurement at preventive health visits or when stress is a potential etiologic factor for concerns is indicated.[147] Elevated blood pressure may be the first symptom of childhood traumatic stress, especially as youth age.[148,149] Abnormalities in hearing, vision, and growth parameters can be clues to adversities.[150,151] Overweight and obesity have been associated with ACEs.[152–154] Physical examination may reveal signs of neglect or abuse. The immunologic effect of trauma may result in inflammatory or infectious consequences identifiable on examination.[1,80,99,155,156] Children who have sustained cumulative ACEs and traumas may exhibit certain common behaviors the provider may witness during physical and mental health evaluation (refer to history and symptoms described earlier).

Differential Diagnosis Considerations and Comorbidities

The provider is encouraged to consider trauma as a possible etiology in the assessment of developmental, mental health, behavioral, and physical symptoms in all pediatric encounters because of the following: (1) the experience of adversity is so common; (2) the symptoms of trauma overlap with the symptoms of other common pediatric conditions[87,95]; and (3) failure to do so might lead to an incorrect or incomplete diagnosis and treatment, enabling the effects of trauma to further embed.[17,157,158] Trauma may be mistaken for other conditions, such as attention-deficit/hyperactivity disorder, and includes symptoms that overlap with other diagnostic categories, such as anxiety and depression.[86,87,159] It has been proposed that trauma may result in a different "ecophenotype" of common conditions that have a different trajectory and different response to common treatments.[93] Children may also have comorbid conditions, such as ADHD, anxiety, depression, or developmental and learning issues, because they frequently accompany childhood trauma. A more detailed description of diagnoses that are commonly confused with trauma or comorbid with it are covered in the AAP clinical report "Children Exposed to Maltreatment: Assessment and the Role of Psychotropic Medication."[87]

Diagnostic Continuum

Pediatric providers may encounter children with a wide range of symptoms resulting from trauma. As noted, trauma can result in short-term changes in behavior or have a more lasting impact depending on the child, the trauma itself, and the supports or emotional buffers in a child's life. When traumatic events are more severe, prolonged, or less buffered by a caregiver, effects on various aspects of functioning can be more severe.[1,160–163] Children exposed to chaotic households, abuse, or neglect, especially in the early years of life, may have more severe symptoms and symptoms that evolve over time.[94,159,164,165] Diagnostically, this may result in children who have functional symptoms (short-term problems with sleeping, eating, toileting), adjustment disorder, PTSD, or complex trauma symptoms.[163,166,167]

MANAGEMENT

Sharing the Diagnosis With Children and Caregivers

Some parents and caregivers may come to understand the role of adversities in their child's symptoms through discussion of the trauma history and symptoms, and others will require the provider to explain this connection before they can appreciate the provider's advice and recommendations. Psychoeducation is the first step in management of childhood trauma and includes empathic, nonjudgmental sharing of diagnostic information and provider concerns about the etiology of a child's symptoms The provider's role is to integrate the child or adolescent and caregiver's concerns, the child or adolescent's symptoms, and elements of a thorough history and examination into an explanation of why this raises a concern about trauma exposure or why trauma may be the underlying cause or one of the causes of a child's symptoms, much as is done for any diagnosis. A simple explanation of the pathophysiology of trauma may help the caregiver to move from frustration with the child or adolescent's behaviors or symptoms to empathy. In some situations, the explanation may also provide the caregiver with insight into their own history of trauma and its impact on their parenting behaviors or responses to their child's behaviors, or how an event that affected their child may have traumatized the caregiver as well.

Psychoeducation includes acknowledging that a trauma history can affect behavior and thoughts, with some discussion of how that happens. Table 6 has information on specific psychoeducation. The variable responses of children to trauma can be frustrating or confusing. Discussion of the emerging data on the biological sensitivity to context may be useful

TABLE 6 Responses to Trauma to Explain to Caregivers: Psychoeducation

Impacts of Trauma on Function and Behavior	Clinical Presentation
Changes in auditory processing	Children may lose the ability to hear sounds of safety (musical high-pitched voice) and be preferentially attuned to low-pitched sounds that warn of caregiver depression and anger.[247]
Changes in how children interpret facial expressions	Children may misinterpret the affects and emotions of others, particularly confusing anger and fear.[93]
Limited vocabulary for emotions	Children may also not accurately recognize or express their own emotions, leading them to act out or respond in ways that seem "off." What a child (or caregiver) identifies as "anger" may be disappointment, frustration, fear, grief, or anxiety.[88]
Negativity	Trauma results in children having overactive limbic systems with a focus on safety and a presumption of danger. This can result in strong negative reactions as the first response to a stimulus that might be benign or ambiguous.[61]
Triggers	Triggers can be physical (smells or sounds that recall details of the trauma) or emotional (feeling embarrassed or shamed, recalling how child felt during abuse). Prevention of exposures to reminders or triggers is the best approach. Triggers may be subtle, so educating and assisting caregivers with their identification is key. This helps caregivers understand a child's response.[167]
Learned Behavior	Behaviors that were adaptive for a child in a previous environment may be maladaptive in their current environment. These behaviors can evoke some of the same reactions from caregivers that the child experienced with other adults, reinforcing a familiar pattern of interactions that may not be productive in the new setting.[61]

Adapted from the National Child Traumatic Stress Network. Families and caregivers. Available at: https://www.nctsn.org/audiences/families-and-caregivers. Accessed January 11, 2021;[243] US Department of Health and Human Services, Administration for Children and Families. Resources on trauma for caregivers and families. Available at: https://www.childwelfare.gov/topics/responding/trauma/caregivers/. Accessed January 11, 2021[244]; and American Academy of Pediatrics. Parenting After Trauma: Understanding Your Child's Needs. Available at: https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/healthy-foster-care-america/Documents/FamilyHandout.pdf. Accessed June 24, 2021[245].

to caregivers.[168,169] Genetic variations in how a person responds to stress may contribute to a child's sensitivity to adversity.[170] Yet, those with high reactivity who are supported and learn to channel that reactivity to positive activities and passions may have the greatest potential.[168] This information, along with specific suggestions about how to support children, can address some of the consternation of caregivers regarding children's heterogeneous responses to both adversity and interventions.

Office-Based Anticipatory Guidance and Management

Trauma-informed anticipatory guidance provided by pediatricians can help families promote resilience and begin to address the effects of trauma. If screening for SDoHs is being conducted and/or social needs are identified, referral to applicable community-based services is indicated (eg, food bank, pro bono legal aid, etc). Having a list of community providers, such as Early Head Start, Head Start, evidence-based maternal, infant, and early childhood home visiting programs, state Maternal Child Health Title V programs, and Family to Family Health Information Centers ready for distribution, directly contacting the referral provider with the patient present, or providing formal care coordination all facilitate family engagement and help families connect to needed community resources. For older children and adolescents, trauma-informed schools and teenager crisis centers may be available in the community. In trauma-informed schools, personnel at all levels have a basic realization about trauma and an understanding of how trauma affects student learning and behavior in the school environment.[171,172]

Every encounter in an office setting, from those with young children to those with adolescents, is an opportunity to strengthen the attachment between a child and caregiver.[173] Through techniques such as reinforcing positive back-and-forth interactions between a parent and a child (serve and return), helping the caregiver to understand the child's experience (keeping the child's mind in mind), helping the children to learn words to describe a variety of emotions, and promoting self-reflection concerning the caregiver's own trauma history, the pediatric clinician can render primary prevention against the development of anxious and maladaptive attachment patterns and promote regulation.[82,174] Examples of relevant anticipatory guidance include advice, resources, or referrals to community programs, including Reach Out and Read[175–177]; developmentally appropriate play with others[178–180]; promoting positive, authoritative (in contrast to punitive or authoritarian) parenting styles[181–183]; and mindfulness.[184–186] Table 7 includes specific advice to promote regulation after trauma.

Referral for Treatment

The presence of complex symptoms, mental health diagnoses, substance abuse, and/or a significant trauma history are indications for referral to evidence-based trauma-informed mental health services.

TABLE 7 Anticipatory Guidance

	Office-Based Guidance to Promote Regulation After Trauma
Restoring safety	To reduce the stress response after trauma, caregivers can: repeatedly assure a child or teenager that they are safe now; allow the youth to express how they feel and listen attentively; provide extra physical contact (if appropriate) with hugs, touch, and rocking for younger children.
Routines	Routines or rituals also help reduce the stress response after the unpredictability and chaos of trauma by restoring a sense of order. Caregivers can use visual (pictorial schedule or charts) and verbal cues for well-defined mealtimes, sleep times, and rituals ("Before bed, we are going to brush teeth, read a story, sing a song, and then turn lights out"). Preparing children for changes in routines, or, for the child in foster care or the child of separated or divorced parents, for visitation, can reduce stress responses.
Relaxation techniques	Provide information verbally, with printed instructions or on phone apps that guide relaxation, meditation, and mindfulness. Refer to community programs that provide training in belly breathing, guided imagery, meditation, mindfulness, yoga, stretching, and massage, which can help to reduce the fight-or-flight responses and symptoms.[247]
Time-in or special time	Dedicated, child-chosen or child-directed play with a caregiver. Caregiver chooses a time that works for them and plans to spend 10 to 30 min with the child in fun activity of child's choosing. For infant or toddler, reading time is a good example of "time-in." Recommended for children from early childhood through adolescence.
Small successes	Children who experience trauma may have delays in skill development. Expectations may need to be tailored to the child's developmental level rather than actual age. It may take lots of repetition and practice before a skill or behavior is learned, so it is useful to celebrate and reward small steps toward desired behaviors.
Emotional container	Child may have strong emotions if reminded of trauma, and the emotions may be directed at the caregiver, although they are usually not about the caregiver. Caregiver needs to remain calm to model self-regulation and avoid retraumatizing the child.
Cognitive triangle	Thoughts impact feelings, which then impact behavior, which then reimpacts thoughts. For example, if children worry they cannot fall asleep, they will then feel nervous and stressed, and then not be able to fall asleep, reinforcing their cognitive belief that they cannot fall asleep. Similarly, if children think no one likes them, they will feel rejected and may lash out at another child, leading to rejection by that child and reinforcing their belief that they are not liked. It can help to identify this triangle and break the link between thoughts and emotions (through new experiences that link thought with different emotions) and/or the link between the emotions and the behavior ("It is ok to feel ___, but it is better to do ___ than to do _____." This technique involves labeling the emotions and teaching an alternative behavior.)
Distraction	Children who are dysregulating may benefit from distraction from the traumatic thoughts by suggesting a game, music, calling a friend, or deep breathing in a calm environment.
Positive parenting techniques	Positive parenting techniques have to be adapted to the age and developmental stage of the child, but they are principles that are known to work: (1) helping children identify and name their emotions; the next step for the child is to understand the emotion and then to learn healthy ways to express the emotion and build regulation skills; (2) reassuring safety and keeping the child safe both emotionally and physically; (3) attuned, attentive listening, which starts in infancy with "serve and return" but evolves into conversational exchanges over time; (4) setting appropriate boundaries and providing guidance through connecting and listening with children; it is best to teach rather than tell or command; for example, "We draw on paper, not on walls, because it is hard to wash markers off the walls"; (5) catching the child being good and offering the child positive, specific praise for good behaviors; (6) implementing rewards and privileges to create opportunities to develop skills; start small so the child can earn a reward quickly and then build up; (7) using positive language instead of "no" commands: for example, "We color on paper, not on the table," is a better way to approach a child who is drawing on the table than, "Stop that," Or, "we use gentle hands—we don't hit others"; (8) being a good role model as child mimics what they see rather than what they are told; (9) having some fun together as a family (time-in): read, talk, sing, play; (10) reinforcing positive skills as they develop: cooperation, politeness, appropriate assertiveness, kindness, etc; and (11) the law of natural consequences: sometimes the best lesson is letting the consequences play out (not cleaning your room means it will be a mess when your friends come over).

Adapted from Camoirano A. Mentalizing makes parenting work: a review about parental reflective functioning and clinical interventions to improve it. *Front Psychol*. 2017;8:14; Zuckerman B, Augustyn M. Books and reading: evidence-based standard of care whose time has come. *Acad Pediatr*. 2011;11(1)11–17; Zuckerman B, Khandekar, A. Reach Out and Read: evidence based approach to promoting early child development. *Curr Opin Pediatr*. 2010;22(4):539–544; Needlman R, Toker KH, Dreyer BP, Klass P, Medelsohn AL. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambul Pediatr*. 2005;5(4)209–215; Mendelsohn AL, Cates CB, Weisleder A, et al. Reading aloud, play, and social-emotional development. *Pediatrics*. 2018;141(5):e20173393; Shah R, DeFrino D, Kim Y, Atkins M. Sit Down and Play: a preventive primary care-based program to enhance parenting practices. *J Child Fam Stud*. 2017;26(2):540–547; Chang SM, Grantham-McGregor SM, Powell CA, et al. Integrating a parenting intervention with routine primary health care: a cluster randomized trial. *Pediatrics*. 2015;136(2)272–280; Girard LC, Doyle O, Tremblay RE. Maternal warmth and toddler development support for transactional models in disadvantaged families. *Eur Child Adolesc Psychiatry*. 2017;26(4):497–507; Weisleder A, Cates CB, Dreyer BP, et al. Promotion of positive parenting and prevention of socioemotional disparities. *Pediatrics*. 2016;137(2):e20153239; Shah R, Kennedy S, Clark MD, Bauer SC, Schwartz A. Primary care-based interventions to promote positive parenting behaviors: a meta-analysis. *Pediatrics*. 2016;137(5)e20153393; Perry-Parrish C, Copeland-Linder N, Webb L, Sibinga EMS. Mindfulness-based approaches for children and youth. *Curr Probl Pediatr Adolesc Health Care*. 2016;46(6):172–178; Bauer CCC, Caballero C, Scherer E, et al. Mindfulness training reduces stress and amygdala reactivity to fearful faces in middle-school children. *Behav Neurosci*. 2019;133(6):569–585; Ortiz R, Sibinga EM. The role of mindfulness in reducing the adverse effects of childhood stress and trauma. *Children (Basel)*. 2017;4(3):16; Forkey H, Griffin J, Szilagyi M. Childhood Trauma and Resilience: A Practical Guide. Itasca, IL: American Academy of Pediatrics; 2021.

The most effective therapies are evidence-based treatments (EBTs) with demonstrated efficacy for children who have experienced trauma.[85,187,188] Treatments that are designated as evidence based have had the most rigorous evaluation, whereas evidence-informed treatments range from newly emerging practices that are building evidence support to less rigorously studied tools. Sege et al[189] published an overview of evidence-based individual and family-based psychotherapeutic interventions. Gleason et al[190] specifically outlined services for the treatment of young children. Having these services available on-site or through direct communication with colleagues in mental health (a "warm handoff") has been revealed to be the most effective approach.[191] It is important for caregivers who have their own history of trauma to seek individual therapy, and the pediatric provider may find it useful to have a list of adult mental health providers who address trauma. As research continues to elucidate the neurocognitive basis of trauma symptoms and methods to address those effects, new treatment modalities are being developed and may offer increased therapeutic resources for both adults and children.[192–194]

Even if therapies are not available on-site, it is useful to familiarize self and staff with evidence-based trauma therapies, how they work, how to refer locally and how to incorporate principals of treatment into pediatric anticipatory guidance. A quick reference for EBTs that includes a brief description of each and the level of evidence can be found on the California Evidence-Based Clearinghouse for Child Welfare (http://www.cebc4cw.org/). Some EBTs have been successfully adapted for telehealth,[195,196] and, in the wake of the coronavirus disease 2019 pandemic, opportunities for EBT via telehealth have expanded.[197] Telehealth is a mechanism to provide EBT in rural and other underresourced communities.[196]

Psychopharmacology

No medication, to date, is approved by the US Food and Drug Administration for trauma-specific symptoms or PTSD in children and adolescents. Medications may be judiciously considered for specific symptoms that are interfering with a child's ability to function normatively in specific ways.[72] Readers are referred to the AAP clinical report "Children Exposed to Maltreatment: Assessment and the Role of Psychotropic Medication" for discussion of medication use in identified comorbid mental health conditions.[87]

Role of Close Follow-up and Support

A commitment to working with the family over time may prevent or reduce feelings of abandonment or rejection, especially when community and mental health resources are in short supply. The pediatric provider who is continuous over time can continue to listen attentively and offer practical trauma-informed advice that reinforces resilience building and healing. Obtaining consent to share information with a mental health provider may also be reassuring to the caregiver or patient even after a referral and linkage to mental health care is established.

Integration

Once these aspects of care are part of a provider's repertoire of care, integrating knowledge about trauma into policies and procedures and daily practice are the next steps in creating a trauma-informed medical setting.[198,199]

Train All Staff in TIC

All staff, from schedulers to billers to nurses and care coordinators, can benefit from training in TIC that is thorough and discipline specific and includes information about physiology, presentation, recognition, and response.[15,200,201] This training would ideally promote patient empowerment and include caregiver and patient perspectives.

Implementing TIC in any setting is effective when there is consideration of clinic workflow to maintain efficiency. Specific strategies can include a warm and welcoming waiting room, clear communication of expectations and procedures, and providing choices when possible (eg, do you want blood pressure taken on right arm or left?).[201] As noted earlier, the care of a child who has experienced trauma requires an approach that is similar to addressing other health concerns. TIC can include members of the staff, all aware of and empowered to emphasize safety, patient self-efficacy, and a trauma-informed approach.[15,201] Use of formalized training in TIC for all staff has been found to be effective in changing staff-reported beliefs and behaviors for caregivers of children in residential care[202,203,204] and in improving child functioning and behavioral regulation.[204] In pediatrics, training of pediatrics residents caring for substance-exposed infants in TIC was effective at changing attitudes and improving therapeutic relationships.[205]

Office personnel may engage with caregivers and patients in ways that trigger strong emotions, especially if they themselves have experienced adversity or trauma. Financial considerations, scheduling, and conflict in the small spaces of an office can also be explored from a TIC perspective. Personnel would ideally engage in some planning

about how to handle a crisis or difficult situations that occasionally arise, such as the following: patients or caregivers who are indifferent or shut down, demanding, provocative, rejecting or hostile, or inattentive and distracted; or a child who is out of control and threatening to elope from the office. It is helpful to monitor one's own response when difficult situations arise and resist the urge to be angry or retaliate. It is less provocative to focus or comment on the emotion than the behavior: "I can see that you are angry, worried, sad, upset, etc," or "You probably don't want to be here right now." These responses are more affiliative and can help to shut down the stress response of the patient or caregiver whose fight-or-flight response may have been triggered by the health care setting, the interaction, or the medical stressor.

Integrated Health Care

Many providers find that the most efficient TIC can be provided by integrating physical and mental health services and social supports. Integrated care has been found to increase social-emotional screening rates[206] through colocation of services with clear strategies for medical provider introduction of the patient to the behavioral health consultant in real-time (warm handoff), by reducing the stigma of a mental health referral, or through facilitated or prearranged referral protocols.[191,207] Financial and staffing resource issues vary significantly by region, but investigating opportunities for primary care and mental health integration, social work, and/or formal engagement of referral sources and partnering organizations may increase the efficiencies of TIC. Providing case management to address the social modifiers of health (eg, referral to food bank, legal aid) can help to increase family resilience and prevent the consequences of trauma. Referring to resources has been revealed to be associated with increased employment, use of child care, and a decrease in the use of homeless shelters.[208]

Two-Generation Approach

Growing evidence has linked increasing parental ACE scores and negative effects on child health and development,[122,123,125,209] providing compelling evidence that taking a 2-generation approach is important. Families may customarily live in multigenerational family units, and this is a cultural norm for some. The opioid crisis has produced many kinship and grand-families, emphasizing the need for multigenerational care because both children and caregivers have suffered traumatic losses and may be influenced by their own trauma histories.[210] Addressing how adversity experienced by a caregiver in childhood may affect their parenting and resilience can have profound effects on a child's health and outcomes. This approach can include asking these questions in engagement, surveillance, and screening; careful consideration of how the provider or practice can and will respond to elicited issues is important before integrating this into practice flow.

Community Partnerships

Pediatric offices can develop methods to coordinate trauma-related care with schools, child care, early educators, courts, legal supports, child welfare services, and other community partners (see policy statement[19]).

Staff and Provider Support

Addressing the trauma experiences of others can have significant consequences for health providers and staff. Per the National Child Traumatic Stress Network, STS is the emotional distress that results when an individual hears about the first-hand trauma experiences of another.[136] The essential act of listening to trauma stories may take an emotional toll that compromises professional functioning and diminishes quality of life. Burnout is a syndrome characterized by a high degree of emotional exhaustion and depersonalization (ie, cynicism) and a low sense of personal accomplishment from work. Burnout refers more to general occupational stress and is not used to describe the effects of indirect trauma exposure specifically.[136] At least one meta-analysis concluded that job burnout contributes to, or at least increases the risk of, STS.[142] Recent surveys of medical students and residents reveal a high rate of depression (Patient Health Questionnaire-9 score >10) of 25% to 30%.[139,211] Some data indicate that more than 50% of the physician workforce in the United States suffers from burnout related to their profession.[212–214] For the individual physician, burnout can result in increased rates of apathy, depression, substance abuse, and suicide and can affect personal relationships.[139,212] STS similarly affects providers, although it is more often discussed in the mental health and child welfare literature rather than the medical literature.[144]

Detailed discussion of the response to burnout and STS is beyond the scope of this clinical report. However, effective TIC includes recognition of the effect of indirect trauma exposure on the workforce and safeguards to protect those caring for children and caregivers.[136,143] Acknowledgment that these are issues and providing resources to address them, with attention to leadership and supervision, have been cited as the most important first steps.[143,212,215] For both burnout and STS, support from the immediate supervisor and

organizational leadership have been demonstrated to be effective ways to combat the effects of trauma.[143,209] Team-based care, efficiencies in practice, and opportunities to share successes and frustrations with peers can all be helpful.[216–218] Promoting self-care remains an important part of TIC, with adequate time for rest, distance from the office or hospital, exercise, healthy diet, and prayer, meditation, or mindfulness shown to reduce symptoms of burnout and STS.[143,219,220] Such interventions are integral to developing and sustaining a trauma-informed practice and include all members of the health care team.

SUMMARY

TIC recognizes that exposure to adversities is common to many, if not most, children and that the developmental, behavioral, and health consequences can be profound and long lasting. Pediatric clinicians with an understanding of the physiology of both resilience and trauma are in a position to promote resilience, recognize and respond to traumas, and promote recovery.

Key Points

1. TIC is fundamentally relational health care, the ability to form and maintain SSNRs. Pediatric clinicians are well positioned to use a 2-generation approach, evaluate attachment relationships, and harness these attachments to encourage the caregiver's role in promoting regulation and resilience.
2. Providing TIC is achieved through common pediatric practices, starting with engagement and providing a safe setting for patients and families. Obtaining history, using surveillance or screening tools appropriate to the pediatric setting and clinical need, and effecting a response involving the pediatric provider and other community resources is consistent with addressing most health-related issues.
3. Trauma symptoms can vary, from changes in eating and sleeping to severe physical and mental health effects requiring extensive treatment. Individual differences in trauma symptoms relate to the interplay of exposures and buffering from SSNRs as well as genetic variations impacted by the early environment (biological differential sensitivity to context).
4. Treatment can begin in the office setting with psychoeducation and brief guidance for caregivers. Facilitating linkages to community resources for families to programs that promote positive parenting skills, regulation, and self-efficacy; address the SDoHs (poverty, housing, food insecurity, etc); or provide EBT further supports those at risk and can effectively treat those who are symptomatic.
5. Integrating this relational model of care to prevent and mitigate the impact of trauma so that all members of the care team feel supported and valued is integral to TIC. Addressing safety and supporting relationships that promote affiliative responses, decrease stress responses, and promote building resilience are principles of TIC for children, caregivers, and health care personnel.

Lead Authors

Heather Forkey, MD, FAAP
Moira Szilagyi, MD, PhD, FAAP
Erin T. Kelly, MD, FAAP, FACP
James Duffee, MD, MPH, FAAP

Council on Foster Care, Adoption, and Kinship Care Executive Committee, 2019–2021

Sarah H. Springer, MD, FAAP, Chairperson
Moira Szilagyi, MD, PhD, FAAP, Immediate Past Chairperson
Heather Forkey, MD, FAAP
Kristine Fortin, MD, MPH, FAAP
Mary Booth Vaden Greiner, MD, MS, FAAP
Todd J. Ochs, MD, FAAP
Anu N. Partap, MD, MPH, FAAP
Linda Davidson Sagor, MD, MPH, FAAP
Deborah L. Shropshire, MD, FAAP
Jonathan D. Thackeray, MD, FAAP
Douglas Waite, MD, FAAP
Lisa Weber Zetley, MD, FAAP

Liaisons

Jeremy Harvey – *Foster Care Alumni of America*
Wynne Shepard Morgan, MD – *American Academy of Child and Adolescent Psychiatry*
Camille Robinson, MD, FAAP – *Section on Pediatric Trainees*

Staff

Tammy Piazza Hurley
Mary Crane, PhD, LSW
Müge Chavdar, MPH

Council on Community Pediatrics Executive Committee, 2019–2021

James Duffee, MD, MPH, FAAP, Chairperson
Kimberly G. Montez, MD, MPH, FAAP, Vice Chairperson
Kimberley J. Dilley, MD, MPH, FAAP
Andrea E. Green, MD, FAAP
Joyce Javier, MD, MPH, MS, FAAP
Madhulika Mathur, MD, MPH, FAAP
Gerri Mattson, MD, FAAP
Kimberly Montez, MD, MPH, FAAP
Jacqueline L. Nelson, MD, FAAP
Mikah Owen, MD, MPH, FAAP
Kenya Parks, MD, MPH, FAAP
Christopher B. Peltier, MD, FAAP

Liaisons

Donene Feist – *Family Voices*
Rachel Nash, MD, MPH, MD – *Section on Pediatric Trainees*
Judith Thierry, DO, MPH, FAAP – *Committee on Native American Child Health*

Staff

Dana Bennett-Tejes, MA, MNM

Council on Child Abuse and Neglect Executive Committee, 2019–2021

Suzanne B. Haney, MD, MS, FAAP, Chairperson
Andrew P. Sirotnak, MD, FAAP, Immediate Past Chairperson
Andrea Gottsegen Asnes, MD, FAAP
Amy R. Gavril, MD, MSCI, FAAP
Amanda Bird Hoffert Gilmartin, MD, FAAP
Rebecca Greenlee Girardet, MD, FAAP
Nancy D. Heavilin, MD, FAAP
Sheila M. Idzerda, MD, FAAP
Antoinette Laskey, MD, MPH, MBA, FAAP
Lori A. Legano, MD, FAAP
Stephen A. Messner, MD, FAAP
Bethany A. Mohr, MD, FAAP
Shalon Marie Nienow, MD, FAAP
Norell Rosado, MD, FAAP

Liaisons

Heather Forkey, MD, FAAP – *Council on Foster Care, Adoption, and Kinship Care*
Brooks Keeshin, MD, FAAP – *American Academy of Child and Adolescent Psychiatry*
Jennifer Matjasko, PhD – *Centers for Disease Control and Prevention*
Anish Raj, MD – *Section on Pediatric Trainees*
Elaine Stedt, MSW, ACSW – *Administration for Children, Youth and Families, Office on Child Abuse and Neglect*

Staff

Tammy Piazza Hurley
Müge Chavdar, MPH

Committee on Psychosocial Aspects of Child and Family Health, 2019–2020

Arthur Lavin, MD, FAAP, Chairperson
George L. Askew, MD, FAAP
Rebecca Baum, MD, FAAP
Evelyn Berger-Jenkins, MD, FAAP
Tiffani J. Johnson, MD, MSc, FAAP
Douglas Jutte, MD, MPH, FAAP
Arwa Abdulhaq Nasir, MBBS, MSc, MPH, FAAP

Liaisons

Sharon Berry, PhD, ABPP, LP – *Society of Pediatric Psychology*
Edward R. Christophersen, PhD, FAAP – *Society of Pediatric Psychology*
Kathleen Hobson Davis, LSW – *Family Liaison*
Norah L. Johnson, PhD, RN, CPNP-BC – *National Association of Pediatric Nurse Practitioners*
Abigail Boden Schlesinger, MD – *American Academy of Child and Adolescent Psychiatry*
Rachel Segal, MD, FAAP – *Section on Pediatric Trainees*
Amy Starin, PhD, LCSW – *National Association of Social Workers*

Staff

Carolyn Lullo McCarty, PhD

ABBREVIATIONS

ACE: adverse childhood experience
DTD: developmental trauma disorder
EBT: evidence-based treatment
PFA: Psychological First Aid
PTSD: posttraumatic stress disorder
SDoH: social determinant of health
SSNR: safe, stable, and nurturing relationship
STS: secondary traumatic stress
TIC: trauma-informed care

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. Copeland WE, Keeler G, Angold A, Costello EJ. Traumatic events and posttraumatic stress in childhood. *Arch Gen Psychiatry.* 2007;64(5):577–584
2. Schilling EA, Aseltine RH Jr, Gore S. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health.* 2007;7:30
3. Burke NJ, Hellman JL, Scott BG, Weems CF, Carrion VG. The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse Negl.* 2011;35(6):408–413
4. Lipschitz DS, Rasmusson AM, Anyan W, Cromwell P, Southwick SM. Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at a primary care clinic. *J Am Acad Child Adolesc Psychiatry.* 2000;39(9):1104–1111
5. Suicide Prevention Resource Center; Substance Abuse and Mental Health Services Administration. Fact sheet: trauma among American Indians and Alaska natives. Missoula, MT: National Native Children's Trauma Center; 2016. Available at: https://www.sprc.org/resources-programs/fact-sheet-trauma-among-american-indians-alaska-natives. Accessed January 11, 2021
6. Miller KK, Brown CR, Shramko M, Svetaz MV. Applying trauma-informed practices to the care of refugee and immigrant youth: 10 clinical pearls. *Children (Basel).* 2019;6(8):94

7. Bethell C, Davis MB, Gombojav N, Stumbo S, Powers K. Issue brief: a national and across-state profile on adverse childhood experiences among children and possibilities to heal and thrive. 2017. Available at: https://www.cahmi.org/wp-content/uploads/2018/05/aces_brief_final.pdf. Accessed January 11, 2021
8. Ellis WR, Dietz WH. A new framework for addressing adverse childhood and community experiences: the building community resilience model. *Acad Pediatr*. 2017;17(7S):S86–S93
9. Cronholm PF, Forke CM, Wade R, et al. Adverse childhood experiences: expanding the concept of adversity. *Am J Prev Med*. 2015;49(3):354–361
10. Garner AS, Shonkoff JP; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. Early childhood adversity, toxic stress, and the role of the pediatrician: translating developmental science into lifelong health. *Pediatrics*. 2012;129(1):e224–e231
11. American Academy of Pediatrics. *Adverse Childhood Experiences and the Lifelong Consequences of Trauma*. Elk Grove Village, IL: American Academy of Pediatrics; 2014. Available at: https://www.aap.org/en-us/documents/ttb_aces_consequences.pdf. Accessed January 11, 2021
12. Anda RF, Felitti VJ, Bremner JD, et al. The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 2006;256(3):174–186
13. Heim C, Shugart M, Craighead WE, Nemeroff CB. Neurobiological and psychiatric consequences of child abuse and neglect. *Dev Psychobiol*. 2010;52(7):671–690
14. Shonkoff JP, Garner AS; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232–e246
15. Marsac ML, Kassam-Adams N, Hildenbrand AK, et al. Implementing a trauma-informed approach in pediatric health care networks. *JAMA Pediatr*. 2016;170(1):70–77
16. Substance Abuse and Mental Health Services Administration. *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2014
17. Stein REK, Storfer-Isser A, Kerker BD, et al. Beyond ADHD: how well are we doing? *Acad Pediatr*. 2016;16(2):115–121
18. Horwitz SM, Storfer-Isser A, Kerker BD, et al. Barriers to the identification and management of psychosocial problems: changes from 2004 to 2013. *Acad Pediatr*. 2015;15(6):613–620
19. Duffee J, Szilagyi M, Forkey H, Kelly ET; American Academy of Pediatrics, Council on Community Pediatrics, Council on Foster Care, Adoption, and Kinship Care, Council on Child Abuse and Neglect, Committee on Psychosocial Aspects of Child and Family Health. Policy statement: trauma-informed care in child health systems. *Pediatrics*. 2021;148(2):e2021052579
20. National Child Traumatic Stress Network. *The 12 Core Concepts: Concepts for Understanding Traumatic Stress Responses in Children and Families*. Los Angeles, CA: National Child Traumatic Stress Network; 2007. Available at: https://www.nctsn.org/resources/12-core-concepts-concepts-understanding-traumatic-stress-responses-children-and-families. Accessed January 11, 2021
21. Houtepen LC, Vinkers CH, Carrillo-Roa T, et al. Genome-wide DNA methylation levels and altered cortisol stress reactivity following childhood trauma in humans. *Nat Commun*. 2016;7:10967
22. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258
23. Flynn AB, Fothergill KE, Wilcox HC, et al. Primary care interventions to prevent or treat traumatic stress in childhood: a systematic review. *Acad Pediatr*. 2015;15(5):480–492
24. Centers for Disease Control and Prevention. Essentials for childhood: creating Safe, stable, nurturing relationships and environments. Available at: https://www.cdc.gov/violenceprevention/childabuseandneglect/essentials.html. Accessed January 11, 2021
25. Garner AS, Forkey H, Szilagyi M. Translating developmental science to address childhood adversity. *Acad Pediatr*. 2015;15(5):493–502
26. Lahey BB, Rathouz PJ, Lee SS, et al. Interactions between early parenting and a polymorphism of the child's dopamine transporter gene in predicting future child conduct disorder symptoms. *J Abnorm Psychol*. 2011;120(1):33–45
27. Whittle S, Simmons JG, Dennison M, et al. Positive parenting predicts the development of adolescent brain structure: a longitudinal study. *Dev Cogn Neurosci*. 2014;8:7–17
28. McEwen BS, Gianaros PJ. Central role of the brain in stress and adaptation: links to socioeconomic status, health, and disease. *Ann N Y Acad Sci*. 2010;1186:190–222
29. Merrick MT, Ford DC, Ports KA, et al. Vital Signs: estimated proportion of adult health problems attributable to adverse childhood experiences and implications for prevention - 25 states, 2015–2017. *MMWR Morb Mortal Wkly Rep*. 2019;68(44):999–1005
30. Center for the Developing Child. ACEs and toxic stress: frequently asked questions. Available at: https://developingchild.harvard.edu/resources/aces-and-toxic-stress-frequently-asked-questions/. Accessed January 11, 2021
31. McHugo GJ, Kammerer N, Jackson EW, et al. Women, co-occurring disorders, and violence study: evaluation design and study population. *J Subst Abuse Treat*. 2005;28(2):91–107
32. Bethell C, Jones J, Gombojav N, Linkenbach J, Sege R. Positive childhood experiences and adult mental and relational health in a statewide sample: associations across adverse childhood experiences levels. *JAMA Pediatr*. 2019;173(11):e193007

33. Bethell CD, Gombojav N, Whitaker RC. Family resilience and connection promote flourishing among US children, even amid adversity. *Health Aff (Millwood)*. 2019;38(5):729–737

34. Zeanah P, Burstein K, Cartier J. Addressing Adverse childhood experiences: it's all about relationships. *Societies*. 2018;8(4):115

35. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. *Child Maltreatment*. Washington, DC: US Department of Health and Human Services; 2017. Available at: www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment. Accessed January 11, 2021

36. Child Welfare Information Gateway. *Foster Care Statistics 2019*. Washington, DC: US Department of Health and Human Services, Children's Bureau; 2019. Available at: https://www.acf.hhs.gov/cb/report/afcars-report-27. Accessed January 11, 2021

37. Burgess AL, Borowsky IW. Health and home environments of caregivers of children investigated by child protective services. *Pediatrics*. 2010;125(2):273–281

38. Campbell KA, Thomas AM, Cook LJ, Keenan HT. Longitudinal experiences of children remaining at home after a first-time investigation for suspected maltreatment. *J Pediatr*. 2012;161(2):340–347

39. Horwitz SM, Hurlburt MS, Cohen SD, Zhang J, Landsverk J. Predictors of placement for children who initially remained in their homes after an investigation for abuse or neglect. *Child Abuse Negl*. 2011;35(3):188–198

40. Perez D, Sribney WM, Rodríguez MA. Perceived discrimination and self-reported quality of care among Latinos in the United States. *J Gen Intern Med*. 2009;24(Suppl 3):548–554

41. Wood LCN. Impact of punitive immigration policies, parent-child separation and child detention on the mental health and development of children. *BMJ Paediatr Open*. 2018;2(1):e000338

42. Johnson SB, Riis JL, Noble KG. State of the art review: poverty and the developing brain. *Pediatrics*. 2016;137(4):e20153075

43. National Advisory Committee on Rural Health and Human Services. *Exploring the Rural Context For Adverse Childhood Experiences: Policy Brief and Recommendations*. Washington, DC: US Department of Health and Human Services; 2018

44. Evans GW, English K. The environment of poverty: multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Dev*. 2002;73(4):1238–1248

45. Hackman DA, Farah MJ. Socioeconomic status and the developing brain. *Trends Cogn Sci*. 2009;13(2):65–73

46. Trent M, Dooley DG, Dougé J; Section on Adolescent Health; Council on Community Pediatrics; Committee on Adolescence. Council on Community Pediatrics; Committee on Adolescence. The impact of racism on child and adolescent health. *Pediatrics*. 2019;144(2):e20191765

47. Heard-Garris NJ, Cale M, Camaj L, Hamati MC, Dominguez TP. Transmitting trauma: a systematic review of vicarious racism and child health. *Soc Sci Med*. 2018;199:230–240

48. Mohatt NV, Thompson AB, Thai ND, Tebes JK. Historical trauma as public narrative: a conceptual review of how history impacts present-day health. *Soc Sci Med*. 2014;106:128–136

49. Wade R Jr, Shea JA, Rubin D, Wood J. Adverse childhood experiences of low-income urban youth. *Pediatrics*. 2014;134(1):e13–e20

50. Nixon CL. Current perspectives: the impact of cyberbullying on adolescent health. *Adolesc Health Med Ther*. 2014;5:143–158

51. Finkelhor D, Turner HA, Shattuck A, Hamby SL. Violence, crime, and abuse exposure in a national sample of children and youth: an update. [published correction appears in JAMA Pediatr. 2014;168(3):286]. *JAMA Pediatr*. 2013;167(7):614–621

52. Roberts AL, Austin SB, Corliss HL, Vandermorris AK, Koenen KC. Pervasive trauma exposure among US sexual orientation minority adults and risk of posttraumatic stress disorder. *Am J Public Health*. 2010;100(12):2433–2441

53. Carroll G. Mundane extreme environmental stress and African American families: a case for recognizing different realities. *J Comp Fam Stud*. 1998;29(2):271–284

54. Huynh VW. Ethnic microaggressions and the depressive and somatic symptoms of Latino and Asian American adolescents. *J Youth Adolesc*. 2012;41(7):831–846

55. Siegel BS, Davis BE; Committee on Psychosocial Aspects of Child and Family Health and Section on Uniformed Services. Health and mental health needs of children in US military families. *Pediatrics*. 2013;131(6):e2002–e2015

56. Marsac ML, Kassam-Adams N, Delahanty DL, Widaman KF, Barakat LP. Posttraumatic stress following acute medical trauma in children: a proposed model of bio-psycho-social processes during the peri-trauma period. *Clin Child Fam Psychol Rev*. 2014;17(4):399–411

57. Brosbe MS, Hoefling K, Faust J. Predicting posttraumatic stress following pediatric injury: a systematic review. *J Pediatr Psychol*. 2011;36(6):718–729

58. Garner AS. Thinking developmentally: the next evolution in models of health. *J Dev Behav Pediatr*. 2016;37(7):579–584

59. Bretherton I. The origins of attachment theory: John Bowlby and Mary Ainsworth. *Dev Psychol*. 1992;28(5):759–775

60. Feldman R. The adaptive human parental brain: implications for children's social development. *Trends Neurosci*. 2015;38(6):387–399

61. Hughes DA, Baylin J. *The Neurobiology of Attachment-Focused Therapy: Enhancing Connection and Trust in the Treatment of Children and Adolescents*. New York, NY: W.W. Norton and Co; 2016

62. Allen JG. *Restoring Mentalizing in Attachment Relationships: Treating Trauma with Plain Old Therapy*. Arlington, VA: American Psychiatric Publishing; 2013

63. Cantor P, Osher D, Berg J, Steyer L, Rose T. Malleability, plasticity, and individuality: how children learn and develop in context. *Appl Dev Sci*. 2019;23(4):307–337

64. Ainsworth MD. Attachments beyond infancy. *Am Psychol*. 1989;44(4):709–716

65. Perry RE, Blair C, Sullivan RM. Neurobiology of infant attachment: attachment despite adversity and parental programming of emotionality. *Curr Opin Psychol.* 2017;17:1–6

66. Hoghughi M, Speight AN. Good enough parenting for all children–a strategy for a healthier society. *Arch Dis Child.* 1998;78(4):293–296

67. Winnicott DW. *The Maturational Process and the Facilitative Environment.* New York, NY: International Universities Press; 1965

68. Porges SW. Social engagement and attachment: a phylogenetic perspective. *Ann N Y Acad Sci.* 2003;1008: 31–47

69. Benoit D. Infant-parent attachment: definition, types, antecedents, measurement and outcome. *Paediatr Child Health.* 2004;9(8):541–545

70. Olff M, Frijling JL, Kubzansky LD, et al. The role of oxytocin in social bonding, stress regulation and mental health: an update on the moderating effects of context and interindividual differences. *Psychoneuroendocrinology.* 2013;38(9):1883–1894

71. Masten AS. Ordinary magic. Resilience processes in development. *Am Psychol.* 2001;56(3):227–238

72. Sege RD, Harper Browne C. Responding to ACEs With HOPE: health outcomes from positive experiences. *Acad Pediatr.* 2017;17(7S):S79–S85

73. Garner A, Yogman M; American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health, Section on Developmental and Behavioral Pediatrics, Council on Early Childhood. Preventing childhood toxic stress: partnering with families and communities to promote relational health. *Pediatrics.* 2021;148(2):e2021052582

74. Children's Hospital of Philadelphia Research Institute. Basics of trauma-informed care. Available at: https://www.healthcaretoolbox.org/. Accessed January 11, 2021

75. Brymer M, Jacobs A, Layne C, et al. *Psychological First Aid Field Operations Guide.* 2nd ed. Los Angeles, CA: National Child Traumatic Stress Network and National Center for Posttraumatic Stress Disorder; 2006

76. Finkelhor D. Screening for adverse childhood experiences (ACEs): cautions and suggestions. *Child Abuse Negl.* 2018;85:174–179

77. Flaherty E, Legano L, Idzerda S; Council on Child Abuse and Neglect. Ongoing pediatric health care for the child who has been maltreated. *Pediatrics.* 2019;143(4):e20190284

78. Flaherty EG, Stirling J Jr; American Academy of Pediatrics. Committee on Child Abuse and Neglect. Clinical report—the pediatrician's role in child maltreatment prevention. *Pediatrics.* 2010;126(4):833–841

79. Schnierle J, Christian-Brathwaite N, Louisias M. Implicit bias: what every pediatrician should know about the effect of bias on health and future directions. *Curr Probl Pediatr Adolesc Health Care.* 2019;49(2):34–44

80. Johnson SB, Riley AW, Granger DA, Riis J. The science of early life toxic stress for pediatric practice and advocacy. *Pediatrics.* 2013;131(2):319–327

81. Dantzer R, O'Connor JC, Freund GG, Johnson RW, Kelley KW. From inflammation to sickness and depression: when the immune system subjugates the brain. *Nat Rev Neurosci.* 2008;9(1): 46–56

82. Jonson-Reid M, Wideman E. Trauma and very young children. *Child Adolesc Psychiatr Clin N Am.* 2017;26(3): 477–490

83. Cook A, Spinazzola J, Ford J, et al. Complex trauma in children and adolescents. *Psychiatr Ann.* 2005;35(5): 390–398

84. Substance Abuse and Mental Health Services Administration. *Recognizing and Treating Child Traumatic Stress.* Washington, DC: Substance Abuse and Mental Health Services Administration; 2004. Available at: https://www.samhsa.gov/child-trauma/recognizing-and-treating-child-traumatic-stress#signs. Accessed January 11, 2021

85. Cohen JA, Kelleher KJ, Mannarino AP. Identifying, treating, and referring traumatized children: the role of pediatric providers. *Arch Pediatr Adolesc Med.* 2008;162(5):447–452

86. Siegfried CB, Blackhear K; National Child Traumatic Stress Network and National Resource Center on ADHD.*Is it ADHD or Child Traumatic Stress? A Guide for Clinicians.* Los Angeles, CA, and Durham. NC: National Center for Child Traumatic Stress; 2016

87. Keeshin B, Forkey HC, Fouras G, MacMillan HL; American Academy of Pediatrics, Council on Child Abuse and Neglect, Council on Foster Care, Adoption, and Kinship Care, American Academy of Child and Adolescent Psychiatry, Committee on Child Maltreatment and Vioence, Committee on Adoption and Foster Care.. Children exposed to maltreatment: assessment and the role of psychotropic medication. *Pediatrics.* 2020;145(2):e20193751

88. Blaustein M, Kinniburgh K. *Treating Traumatic Stress in Children and Adolescents: How to Foster Resilience Through Attachment, Self-Regulation and Competency,* 2nd ed. New York, NY: The Guilford Press; 2019

89. De Bellis MD, Zisk A. The biological effects of childhood trauma. *Child Adolesc Psychiatr Clin N Am.* 2014;23(2): 185–222, vii

90. Bremner JD. Traumatic stress: effects on the brain. *Dialogues Clin Neurosci.* 2006;8(4):445–461

91. Lupien SJ, McEwen BS, Gunnar MR, Heim C. Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nat Rev Neurosci.* 2009;10(6):434–445

92. Penza KM, Heim C, Nemeroff CB. Neurobiological effects of childhood abuse: implications for the pathophysiology of depression and anxiety. *Arch Women Ment Health.* 2003;6(1):15–22

93. Teicher MH, Samson JA, Anderson CM, Ohashi K. The effects of childhood maltreatment on brain structure, function and connectivity. *Nat Rev Neurosci.* 2016;17(10):652–666

94. Miller LE. Perceived threat in childhood: a review of research and implications for children living in violent households. *Trauma Violence Abuse.* 2015;16(2):153–168

95. Teicher MH, Samson JA. Childhood maltreatment and psychopathology: a case for ecophenotypic variants as clinically and neurobiologically distinct subtypes. *Am J Psychiatry.* 2013; 170(10):1114–1133

96. Birn RM, Roeber BJ, Pollak SD. Early childhood stress exposure, reward pathways, and adult decision making. *Proc Natl Acad Sci USA*. 2017;114(51):13549–13554

97. Syed SA, Nemeroff CB. Early life stress, mood, and anxiety disorders. *Chronic Stress (Thousand Oaks)*. 2017;1:2470547017694461

98. Ringeisen H, Casanueva C, Urato M, Cross T. Special health care needs among children in the child welfare system. *Pediatrics*. 2008;122(1):e232–e241

99. Clougherty JE, Levy JI, Kubzansky LD, et al. Synergistic effects of traffic-related air pollution and exposure to violence on urban asthma etiology. *Environ Health Perspect*. 2007;115(8):1140–1146

100. Centers for Disease Control and Prevention. Developmental monitoring and screening for health professionals. Available at: https://www.cdc.gov/ncbddd/childdevelopment/screening-hcp.html. Accessed January 11, 2021

101. Klein D, Goldenring JM, Adelman WP. HEEADSSS 3.0: the psychosocial interview for adolescents updated for a new century fueled by media. *Contemp Pediatr*. 2014;31(1):16–28

102. Goldenring JM, Rosen DS. Getting into adolescent heads: an essential update. *Contemp Pediatr*. 2004;21(1):64–90

103. Conn AM, Szilagyi MA, Jee SH, Manly JT, Briggs R, Szilagyi PG. Parental perspectives of screening for adverse childhood experiences in pediatric primary care. *Fam Syst Health*. 2018;36(1):62–72

104. Colvin JD, Bettenhausen JL, Anderson-Carpenter KD, Collie-Akers V, Chung PJ. Caregiver opinion of in-hospital screening for unmet social needs by pediatric residents. *Acad Pediatr*. 2016;16(2):161–167

105. Wissow L, Anthony B, Brown J, et al. A common factors approach to improving the mental health capacity of pediatric primary care. *Adm Policy Ment Health*. 2008;35(4):305–318

106. Ginsburg K. Viewing our patients through a positive lens. *Contemp Pediatr*. 2007;24(1):65–76

107. Traub F, Boynton-Jarrett R. Modifiable resilience factors to childhood adversity for clinical pediatric practice. *Pediatrics*. 2017;139(5):e20162569

108. Greene R, Winkler J. Collaborative and Proactive Solutions (CPS): a review of research findings in families, schools, and treatment facilities. *Clin Child Fam Psychol Rev*. 2019;22(4):549–561

109. Lipkin PH, Macias MM; Council on Children With Disabilities, Section on Developmental and Behavioral Pediatrics. Promoting optimal development: identifying infants and young children with developmental disorders through developmental surveillance and screening. *Pediatrics*. 2020;145(1):e20193449

110. Squires J, Potter L, Bricker D. *The ASQ User's Guide*, 3rd ed. Baltimore, MD: Paul H. Brookes Publishing Co; 2009

111. Jellinek MS, Murphy JM, Little M, Pagano ME, Comer DM, Kelleher KJ. Use of the Pediatric Symptom Checklist to screen for psychosocial problems in pediatric primary care: a national feasibility study. *Arch Pediatr Adolesc Med*. 1999;153(3):254–260

112. Stone LL, Otten R, Engels RCME, Vermulst AA, Janssens JM. Psychometric properties of the parent and teacher versions of the strengths and difficulties questionnaire for 4- to 12-year-olds: a review. *Clin Child Fam Psychol Rev*. 2010;13(3):254–274

113. Richardson LP, McCauley E, Grossman DC, et al. Evaluation of the Patient Health Questionnaire-9 Item for detecting major depression among adolescents. *Pediatrics*. 2010;126(6):1117–1123

114. Earls MF, Yogman MW, Mattson G, Rafferty J; Committee on Psychosocial Aspects of Child and Family Health. Incorporating recognition and management of perinatal depression into pediatric practice. *Pediatrics*. 2019;143(1):e20183259

115. Rolon-Arroyo B, Oosterhoff B, Layne CM, Steinberg AM, Pynoos RS, Kaplow JB. The UCLA PTSD Reaction Index for DSM-5 Brief Form: a screening tool for trauma-exposed youths. *J Am Acad Child Adolesc Psychiatry*. 2020;59(3):434–443

116. Kazak A, Schneider S, Didonato S, Pai ALH. Family psychosocial risk screening guided by the Pediatric Preventative Psychosocial Health Model (PPPHM) using the Psychosocial Assessment Tool (PAT). *Acta Oncol*. 2015;54(5):574–580

117. Kazak AE, Hwang WT, Chen FF, et al. Screening for family psychosocial risk in pediatric cancer: validation of the Psychosocial Assessment Tool (PAT) Version 3. *J Pediatr Psychol*. 2018;43(7):737–748

118. Keeshin B, Byrne K, Thorn B, Shepard L. Screening for trauma in pediatric primary care. *Curr Psychiatry Rep*. 2020;22(11):60

119. Bethell CD, Carle A, Hudziak J, et al. Methods to assess adverse childhood experiences of children and families: toward approaches to promote child well-being in policy and practice. *Acad Pediatr*. 2017;17(7S):S51–S69

120. Purewal SK, Bucci M, Gutiérrez Wang L, et al. Screening for adverse childhood experiences (ACEs) in an integrated pediatric care model. *Zero Three*. 2016;36(3):10–17

121. Colvin JD, Bettenhausen JL, Anderson-Carpenter KD, et al. Multiple behavior change intervention to improve detection of unmet social needs and resulting resource referrals. *Acad Pediatr*. 2016;16(2):168–174

122. Shah AN, Beck AF, Sucharew HJ, et al; H2O Study Group. Parental adverse childhood experiences and resilience on coping after discharge. *Pediatrics*. 2018;141(4):e20172127

123. Folger AT, Eismann EA, Stephenson NB, et al. Parental adverse childhood experiences and offspring development at 2 years of age. *Pediatrics*. 2018;141(4):e20172826

124. Schickedanz A, Halfon N, Sastry N, Chung PJ. Parents' adverse childhood experiences and their children's behavioral health problems. *Pediatrics*. 2018;142(2):e20180023

125. Lê-Scherban F, Wang X, Boyle-Steed KH, Pachter LM. Intergenerational associations of parent adverse childhood experiences and child health outcomes. *Pediatrics*. 2018;141(6):e20174274

126. Connor KM, Davidson JRT. Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-

RISC). *Depress Anxiety.* 2003;18(2):76–82

127. Smith BW, Dalen J, Wiggins K, Tooley E, Christopher P, Bernard J. The brief resilience scale: assessing the ability to bounce back. *Int J Behav Med.* 2008;15(3):194–200
128. Windle G, Bennett KM, Noyes J. A methodological review of resilience measurement scales. *Health Qual Life Outcomes.* 2011;9:8
129. Anda RF, Porter LE, Brown DW. Inside the Adverse Childhood Experience Score: strengths, limitations, and misapplications. *Am J Prev Med.* 2020;59(2):293–295
130. Dube SR. Continuing conversations about adverse childhood experiences (ACEs) screening: a public health perspective. *Child Abuse Negl.* 2018;85:180–184
131. Shonkoff JP. Capitalizing on advances in science to reduce the health consequences of early childhood adversity. *JAMA Pediatr.* 2016;170(10):1003–1007
132. Boyce WT, Levitt P, Martinez FD, McEwen BS, Shonkoff JP. Genes, environments and time: the biology of adversity and resilience. *Pediatrics.* 2020;147(2):e20201651
133. Shonkoff JP, Boyce WT, Levitt P, Martinez F, McEwen B. Leveraging the biology of adversity and resilience to transform pediatric practice. *Pediatrics.* 2020;147(2):e20193845
134. Slopen N, McLaughlin KA, Shonkoff JP. Interventions to improve cortisol regulation in children: a systematic review. *Pediatrics.* 2014;133(2):312–326
135. Le-Niculescu H, Roseberry K, Levey DF, et al. Towards precision medicine for stress disorders: diagnostic biomarkers and targeted drugs. *Mol Psychiatry.* 2020;25(5):918–938
136. National Child Traumatic Stress Network. *Secondary Traumatic Stress: A Fact Sheet for Child-Serving Professionals.* Los Angeles, CA: National Child Traumatic Stress Network; 2011. Available at: https://www.nctsn.org/resources/secondary-traumatic-stress-fact-sheet-child-serving-professionals. Accessed January 11, 2021
137. Cieslak R, Shoji K, Douglas A, Melville E, Luszczynska A, Benight CC. A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. *Psychol Serv.* 2014;11(1):75–86
138. Cocker F, Joss N. Compassion fatigue among healthcare, emergency and community service workers: a systematic review. *Int J Environ Res Public Health.* 2016;13(6):618
139. Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med.* 2008;149(5):334–341
140. Oreskovich MR, Shanafelt T, Dyrbye LN, et al. The prevalence of substance use disorders in American physicians. *Am J Addict.* 2015;24(1):30–38
141. Robins PM, Meltzer L, Zelikovsky N. The experience of secondary traumatic stress upon care providers working within a children's hospital. *J Pediatr Nurs.* 2009;24(4):270–279
142. Shoji K, Lesnierowska M, Smoktunowicz E, et al. What comes first, job burnout or secondary traumatic stress? Findings from two longitudinal studies from the U.S. and Poland. *PLoS One.* 2015;10(8):e0136730
143. Sprang G, Craig C, Clark J. Secondary traumatic stress and burnout in child welfare workers: a comparative analysis of occupational distress across professional groups. *Child Welfare.* 2011;90(6):149–168
144. van Mol MMC, Kompanje EJ, Benoit DD, Bakker J, Nijkamp MD. The prevalence of compassion fatigue and burnout among healthcare professionals in intensive care units: a systematic review. *PLoS One.* 2015;10(8):e0136955
145. The Center for Victims of Torture. Professional quality of life: elements, theory, and measurement. 2019. Available at: https://proqol.org/. Accessed January 11, 2021
146. Wilson JP, So-Kum Tang CC. *Cross-Cultural Assessment of Psychological Trauma and PTSD.* New York, NY: Springer Publishing; 2007
147. Flynn JT, Kaelber DC, Baker-Smith CM, et al; Subcommittee on Screening and Management of High Blood Pressure in Children. Clinical practice guideline for screening and management of high blood pressure in children and adolescents. *Pediatrics.* 2017;140(3):e20171904
148. Gooding HC, Milliren CE, Austin SB, Sheridan MA, McLaughlin KA. Child abuse, resting blood pressure, and blood pressure reactivity to psychosocial stress. *J Pediatr Psychol.* 2016;41(1):5–14
149. Su S, Wang X, Pollock JS, et al. Adverse childhood experiences and blood pressure trajectories from childhood to young adulthood: the Georgia stress and Heart study. *Circulation.* 2015;131(19):1674–1681
150. Szilagyi MA, Rosen DS, Rubin D, Zlotnik S; Council on Foster Care, Adoption, and Kinship Care; Committee on Adolescence; Council on Early Childhood. Health care issues for children and adolescents in foster care and kinship care. *Pediatrics.* 2015;136(4):e1142–e1166
151. Davis L, Barnes AJ, Gross AC, Ryder JR, Shlafer RJ. Adverse childhood experiences and weight status among adolescents. *J Pediatr.* 2019;204:71–76.e1
152. Javier JR, Hoffman LR, Shah SI; Pediatric Policy Council. Making the case for ACEs: adverse childhood experiences, obesity, and long-term health. *Pediatr Res.* 2019;86(4):420–422
153. Purswani P, Marsicek SM, Amankwah EK. Association between cumulative exposure to adverse childhood experiences and childhood obesity. *PLoS One.* 2020;15(9):e0239940
154. Heerman WJ, Krishnaswami S, Barkin SL, McPheeters M. Adverse family experiences during childhood and adolescent obesity. *Obesity (Silver Spring).* 2016;24(3):696–702
155. Exley D, Norman A, Hyland M. Adverse childhood experience and asthma onset: a systematic review. *Eur Respir Rev.* 2015;24(136):299–305
156. Gilbert LK, Breiding MJ, Merrick MT, et al. Childhood adversity and adult chronic disease: an update from ten states and the District of Columbia, 2010. *Am J Prev Med.* 2015;48(3):345–349
157. Heneghan A, Stein RE, Hurlburt MS, et al. Mental health problems in teens investigated by U.S. child welfare

agencies. *J Adolesc Health*. 2013;52(5):634–640

158. Ford JD, Grasso D, Greene C, Levine J, Spinazzola J, van der Kolk B. Clinical significance of a proposed developmental trauma disorder diagnosis: results of an international survey of clinicians. *J Clin Psychiatry*. 2013;74(8):841–849

159. Keeshin BR, Strawn JR. Psychological and pharmacologic treatment of youth with posttraumatic stress disorder: an evidence-based review. *Child Adolesc Psychiatr Clin N Am*. 2014;23(2):399–411, x

160. Carrion VG, Weems CF, Reiss AL. Stress predicts brain changes in children: a pilot longitudinal study on youth stress, posttraumatic stress disorder, and the hippocampus. *Pediatrics*. 2007;119(3):509–516

161. Gunnar M, Quevedo K. The neurobiology of stress and development. *Annu Rev Psychol*. 2007;58:145–173

162. McDonald MK, Borntrager CF, Rostad W. Measuring trauma: considerations for assessing complex and non-PTSD Criterion A childhood trauma. *J Trauma Dissociation*. 2014;15(2):184–203

163. van der Kolk B. Developmental trauma disorder. *Psychiatr Ann*. 2005;35(5):401–409

164. Ogle CM, Rubin DC, Siegler IC. The impact of the developmental timing of trauma exposure on PTSD symptoms and psychosocial functioning among older adults. *Dev Psychol*. 2013;49(11):2191–2200

165. Perry BD, Pollard RA, Blakley TL, Baker WL, Vigilante D. Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: how "states" become "traits.". *Infant Ment Health J*. 1995;16(4):271–291

166. Scheeringa MS. Developmental considerations for diagnosing PTSD and acute stress disorder in preschool and school-age children. *Am J Psychiatry*. 2008;165(10):1237–1239

167. Treisman K. *Working with Relational and Developmental Trauma in Children and Adolescents*. New York, NY: Routledge; 2017

168. Obradović J, Bush NR, Stamperdahl J, Adler NE, Boyce WT. Biological sensitivity to context: the interactive effects of stress reactivity and family adversity on socioemotional behavior and school readiness. *Child Dev*. 2010;81(1):270–289

169. Boyce WT, Ellis BJ. Biological sensitivity to context: I. An evolutionary-developmental theory of the origins and functions of stress reactivity. *Dev Psychopathol*. 2005;17(2):271–301

170. Kennedy E. Orchids and dandelions: how some children are more susceptible to environmental influences for better or worse and the implications for child development. *Clin Child Psychol Psychiatry*. 2013;18(3):319–321

171. Cole SF, Eisner A, Gregory M, Ristuccia J. *Creating and Advocating for Trauma-Sensitive Schools*. Cambridge, MA: Trauma and Learning Policy Initiative; 2013

172. Overstreet S, Chafouleas SM. Trauma-informed schools: introduction to the special issue. *School Ment Health*. 2016;8(1):1–6

173. Allen B, Timmer SG, Urquiza AJ. Parent–child interaction therapy as an attachment-based intervention: theoretical rationale and pilot data with adopted children. *Child Youth Serv Rev*. 2014;47(Part 3):334–341

174. Camoirano A. Mentalizing makes parenting work: a review about parental reflective functioning and clinical interventions to improve it. *Front Psychol*. 2017;8:14

175. Zuckerman B, Augustyn M. Books and reading: evidence-based standard of care whose time has come. *Acad Pediatr*. 2011;11(1):11–17

176. Zuckerman B, Khandekar A. Reach Out and Read: evidence based approach to promoting early child development. *Curr Opin Pediatr*. 2010;22(4):539–544

177. Needlman R, Toker KH, Dreyer BP, Klass P, Mendelsohn AL. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambul Pediatr*. 2005;5(4):209–215

178. Mendelsohn AL, Cates CB, Weisleder A, et al. Reading aloud, play, and social-emotional development. *Pediatrics*. 2018;141(5):e20173393

179. Shah R, DeFrino D, Kim Y, Atkins M. Sit Down and Play: a preventive primary care-based program to enhance parenting practices. *J Child Fam Stud*. 2017;26(2):540–547

180. Chang SM, Grantham-McGregor SM, Powell CA, et al. Integrating a parenting intervention with routine primary health care: a cluster randomized trial. *Pediatrics*. 2015;136(2):272–280

181. Girard LC, Doyle O, Tremblay RE. Maternal warmth and toddler development: support for transactional models in disadvantaged families. *Eur Child Adolesc Psychiatry*. 2017;26(4):497–507

182. Weisleder A, Cates CB, Dreyer BP, et al. Promotion of positive parenting and prevention of socioemotional disparities. *Pediatrics*. 2016;137(2):e20153239

183. Shah R, Kennedy S, Clark MD, Bauer SC, Schwartz A. Primary care-based interventions to promote positive parenting behaviors: a meta-analysis. *Pediatrics*. 2016;137(5):e20153393

184. Perry-Parrish C, Copeland-Linder N, Webb L, Sibinga EMS. Mindfulness-based approaches for children and youth. *Curr Probl Pediatr Adolesc Health Care*. 2016;46(6):172–178

185. Bauer CCC, Caballero C, Scherer E, et al. Mindfulness training reduces stress and amygdala reactivity to fearful faces in middle-school children. *Behav Neurosci*. 2019;133(6):569–585

186. Ortiz R, Sibinga EM. The role of mindfulness in reducing the adverse effects of childhood stress and trauma. *Children (Basel)*. 2017;4(3):16

187. Foa EBKT, Friedman MJ, Cohen JA. *Effective Treatments for Posttraumatic Stress Disorder: Practice Guidelines From the International Society for Traumatic Stress Studies*, 2nd ed. New York, NY: Guilford Press; 2008

188. Dorsey S, McLaughlin KA, Kerns SEU, et al. Evidence base update for psychosocial treatments for children and adolescents exposed to traumatic events. *J Clin Child Adolesc Psychol*. 2017;46(3):303–330

189. Sege RD, Amaya-Jackson L; American Academy of Pediatrics Committee on Child Abuse and Neglect, Council on Foster Care, Adoption, and Kinship Care; American Academy of Child and Adolescent Psychiatry Committee on Child Maltreatment and Violence; National Center for Child Traumatic

Stress. Clinical considerations related to the behavioral manifestations of child maltreatment. *Pediatrics*. 2017;139(4):e20170100

190. Gleason MM, Goldson E, Yogman MW; Council on Early Childhood; Committee on Pyschosocial Aspects of Child and Family Health; Section on Developmental and Behavioral Pediatrics. Addressing early childhood emotional and behavioral problems. *Pediatrics*. 2016;138(6):e20163025

191. Asarnow JR, Rozenman M, Wiblin J, Zeltzer L. Integrated medical-behavioral care compared with usual primary care for child and adolescent behavioral health: a meta-analysis. *JAMA Pediatr*. 2015;169(10):929–937

192. Dunsmoor JE, Kroes MCW, Li J, Daw ND, Simpson HB, Phelps EA. Role of human ventromedial prefrontal cortex in learning and recall of enhanced extinction. *J Neurosci*. 2019;39(17): 3264–3276

193. Giustino TF, Fitzgerald PJ, Ressler RL, Maren S. Locus coeruleus toggles reciprocal prefrontal firing to reinstate fear. *Proc Natl Acad Sci USA*. 2019;116(17):8570–8575

194. Sloan DM, Marx BP, Lee DJ, Resick PA. A brief exposure-based treatment vs cognitive processing therapy for posttraumatic stress disorder: a randomized noninferiority clinical trial. *JAMA Psychiatry*. 2018;75(3):233–239

195. Jones AM, Shealy KM, Reid-Quiñones K, et al. Guidelines for establishing a telemental health program to provide evidence-based therapy for trauma-exposed children and families. *Psychol Serv*. 2014;11(4):398–409

196. Bashshur RL, Shannon GW, Bashshur N, Yellowlees PM. The empirical evidence for telemedicine interventions in mental disorders. *Telemed J E Health*. 2016;22(2):87–113

197. Conrad R, Rayala H, Diamon R, Busch B, Kramer N. Expanding telemental health in response to the COVID-19 pandemic. 2020. Available at: https://www.psychiatrictimes.com/view/expanding-telemental-health-response-covid-19-pandemic. Accessed January 11, 2021

198. Menschner C, Maul A, Center for Health Care Strategies. *Key Ingredients for Successful Trauma-Informed Care Implementation*. Hamilton, NJ: Center for Health Care Strategies; 2016, Available at https://www.chcs.org/resource/key-ingredients-for-successful-trauma-informed-care-implementation/. Accessed January 11, 2021

199. Schulman M, Menschner C. *Laying the Groundwork for Trauma Informed Care*. Hamilton, NJ: Center for Health Care Strategies; 2018. Available at https://www.chcs.org/resource/laying-groundwork-trauma-informed-care/. Accessed January 11, 2021

200. American Academy of Pediatrics. *Trauma Toolbox for Primary Care*. Elk Grove Village, IL: American Academy of Pediatrics; 2014. Available at: www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/healthy-foster-care-america/Pages/Trauma-Guide.aspx. Accessed January 11, 2021

201. Pediatric Integrated Care Collaborative. *Improving the Capacity of Primary Care to Serve Children and Families Experiencing Trauma and Chronic Stress: A Toolkit*. Baltimore, MD: Pediatric Integrated Care Collaborative; 2016. Available at: https://picc.jhu.edu/the-toolkit.html. Accessed January 11, 2021

202. Brown SM, Baker CN, Wilcox P. Risking connection trauma training: a pathway toward trauma-informed care in child congregate care settings. *Psychol Trauma*. 2012;4(5):507–515

203. Bryson SA, Gauvin E, Jamieson A, et al. What are effective strategies for implementing trauma-informed care in youth inpatient psychiatric and residential treatment settings? A realist systematic review. *Int J Ment Health Syst*. 2017;11:36

204. Murphy K, Moore KA, Redd Z, Malm K. Trauma-informed child welfare systems and children's well-being: a longitudinal evaluation of KVC's bridging the way home initiative. *Child Youth Serv Rev*. 2017;75:23–34

205. Schiff DM, Zuckerman B, Hutton E, Genatossio C, Michelson C, Bair-Merritt M. Development and pilot implementation of a trauma-informed care curriculum for pediatric residents. *Acad Pediatr*. 2017;17(7):794–796

206. Substance Abuse and Mental Health Services Administration. *The Integration of Behavioral Health into Pediatric Primary Care Settings*. Washington, DC: Substance Abuse and Mental Health Services Administration; 2017

207. Kolko DJ, Perrin E. The integration of behavioral health interventions in children's health care: services, science, and suggestions. *J Clin Child Adolesc Psychol*. 2014;43(2):216–228

208. Garg A, Toy S, Tripodis Y, Silverstein M, Freeman E. Addressing social determinants of health at well child care visits: a cluster RCT. *Pediatrics*. 2015;135(2):e296–e304

209. Sun J, Patel F, Rose-Jacobs R, Frank DA, Black MM, Chilton M. Mothers' adverse childhood experiences and their young children's development. *Am J Prev Med*. 2017;53(6):882–891

210. Feder KA, Letourneau EJ, Brook J. Children in the opioid epidemic: addressing the next generation's public health crisis. *Pediatrics*. 2019;143(1): e20181656

211. West CP, Tan AD, Habermann TM, Sloan JA, Shanafelt TD. Association of resident fatigue and distress with perceived medical errors. *JAMA*. 2009;302(12):1294–1300

212. Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. *Mayo Clin Proc*. 2017;92(1): 129–146

213. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*. 2012;172(18):1377–1385

214. Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014 [published correction appears in *Mayo Clin Proc*. 2016;91(2):276]. *Mayo Clin Proc*. 2015;90(12):1600–1613

215. Shanafelt TD, Gorringe G, Menaker R, et al. Impact of organizational leadership on physician burnout and satisfaction. *Mayo Clin Proc*. 2015;90(4): 432–440

216. Shanafelt TD, Dyrbye LN, Sinsky C, et al. Relationship between clerical

burden and characteristics of the electronic environment with physician burnout and professional satisfaction. *Mayo Clin Proc*. 2016;91(7):836–848

217. Sinsky CA, Willard-Grace R, Schutzbank AM, Sinsky TA, Margolius D, Bodenheimer T. In search of joy in practice: a report of 23 high-functioning primary care practices. *Ann Fam Med*. 2013;11(3):272–278
218. Wallace JE, Lemaire J. On physician well being-you'll get by with a little help from your friends. *Soc Sci Med*. 2007;64(12):2565–2577
219. Horn DJ, Johnston CB. Burnout and self care for palliative care practitioners. *Med Clin North Am*. 2020;104(3):561–572
220. Ofei-Dodoo S, Cleland-Leighton A, Nilsen K, Cloward JL, Casey E. Impact of a mindfulness-based, workplace group yoga intervention on burnout, self-care, and compassion in health care professionals: a pilot study. *J Occup Environ Med*. 2020;62(8):581–587
221. Forkey H, Griffin J, Szilagyi M. *Childhood Trauma and Resilience: A Practical Guide*. Itasca, IL: American Academy of Pediatrics; 2021
222. Roelofs K. Freeze for action: neurobiological mechanisms in animal and human freezing. *Philos Trans R Soc Lond B Biol Sci*. 2017;372(1718):20160206
223. Shonkoff JP, Boyce WT, McEwen BS. Neuroscience, molecular biology, and the childhood roots of health disparities: building a new framework for health promotion and disease prevention. *JAMA*. 2009;301(21):2252–2259
224. Taylor SE, Klein LC, Lewis BP, Gruenewald TL, Gurung RA, Updegraff JA. Biobehavioral responses to stress in females: tend-and-befriend, not fight-or-flight. *Psychol Rev*. 2000;107(3):411–429
225. Taylor SE. Tend and befriend: biobehavioral bases of affiliation under stress. *Curr Dir Psychol Sci*. 2006;15(6):273–277
226. Bartz JA, Zaki J, Bolger N, Ochsner KN. Social effects of oxytocin in humans: context and person matter. *Trends Cogn Sci*. 2011;15(7):301–309
227. Romano A, Tempesta B, Micioni Di Bonaventura MV, Gaetani S. From autism to eating disorders and more: the role of oxytocin in neuropsychiatric disorders. *Front Neurosci*. 2016;9:497
228. Cardoso C, Valkanas H, Serravalle L, Ellenbogen MA. Oxytocin and social context moderate social support seeking in women during negative memory recall. *Psychoneuroendocrinology*. 2016;70:63–69
229. Shamay-Tsoory SG, Abu-Akel A. The social salience hypothesis of oxytocin. *Biol Psychiatry*. 2016;79(3):194–202
230. Bethlehem RAI, Baron-Cohen S, van Honk J, Auyeung B, Bos PA. The oxytocin paradox. *Front Behav Neurosci*. 2014;8:48
231. Chen J, Evans AN, Liu Y, Honda M, Saavedra JM, Aguilera G. Maternal deprivation in rats is associated with corticotrophin-releasing hormone (CRH) promoter hypomethylation and enhances CRH transcriptional responses to stress in adulthood. *J Neuroendocrinol*. 2012;24(7):1055–1064
232. Weaver ICG, Cervoni N, Champagne FA, et al. Epigenetic programming by maternal behavior. *Nat Neurosci*. 2004;7(8):847–854
233. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. Washington, DC: American Psychiatric Publishing; 2013
234. Koita K, Long D, Hessler D, et al. Development and implementation of a pediatric adverse childhood experiences (ACEs) and other determinants of health questionnaire in the pediatric medical home: a pilot study. *PLoS One*. 2018;13(12):e0208088
235. Wade R Jr, Cronholm PF, Fein JA, et al. Household and community-level adverse childhood experiences and adult health outcomes in a diverse urban population. *Child Abuse Negl*. 2016;52:135–145
236. Child and Adolescent Health Measurement Initiative. 2019 National Survey of Children's Health: guide to topics and questions. Data Resource Center for Child and Adolescent Health supported by the US Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. 2020. Available at: https://www.childhealthdata.org/learn-about-the-nsch/topics_questions. Accessed April 21, 2021
237. National Child Traumatic Stress Network. Complex trauma. Available at: www.nctsn.org/trauma-types/complex-trauma. Accessed January 11, 2021
238. Schmid M, Petermann F, Fegert JM. Developmental trauma disorder: pros and cons of including formal criteria in the psychiatric diagnostic systems. *BMC Psychiatry*. 2013;13:3. DOI: https://doi.org/10.1186/1471-244X-13-3
239. Shah AN, Jerardi KE, Auger KA, Beck AF. Can hospitalization precipitate toxic stress? *Pediatrics*. 2016;137(5):e20160204
240. Rzucidlo SE, Campbell M. Beyond the physical injuries: child and parent coping with medical traumatic stress after pediatric trauma. *J Trauma Nurs*. 2009;16(3):130–135
241. National Child Traumatic Stress Network. Effects. Available at: https://www.nctsn.org/what-is-child-trauma/trauma-types/medical-trauma/effects. Accessed January 11, 2021
242. US Department of Health and Human Services, Administration for Children and Families. Secondary traumatic stress. Available at: https://www.acf.hhs.gov/trauma-toolkit/secondary-traumatic-stress. Accessed January 11, 2021
243. The National Child Traumatic Stress Network. Families and caregivers. Available at: https://www.nctsn.org/audiences/families-and-caregivers. Accessed January 11, 2021
244. US Department of Health and Human Services, Administration for Children and Families. Resources on trauma for caregivers and families. Available at: https://www.childwelfare.gov/topics/responding/trauma/caregivers/. Accessed January 11, 2021
245. American Academy of Pediatrics. Parenting After Trauma: Understanding Your Child's NeedsAvailable at: https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/healthy-foster-care-america/Documents/FamilyHandout.pdf. Accessed June 24, 2021

246. Porges S, Lewis GF. The polyvagal hypothesis: common mechanisms mediating autonomic regulation, vocalizations and listening. In: Brudzynski SM, ed. *Handbook of Mammalian Vocalization: An Integrative Neuroscience Approach*. New York, NY: Elsevier; 2009:255–264

247. Bethell C, Gombojav N, Solloway M, Wissow L. Adverse childhood experiences, resilience and mindfulness-based approaches: common denominator issues for children with emotional, mental, or behavioral problems. *Child Adolesc Psychiatr Clin N Am*. 2016;25(2):139–156