Psychotropic medications in foster youth: too much or too little?

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Drugging Our Kids

Foster kids given drugs at higher rate
Adolescent foster kids in California are 3.5 times more likely to be on psychotropic drugs than all adolescents in the U.S.

Foster kids 12-18 in California: 22%
All kids 12-19 in the U.S.: 6%

Sources: Centers for Disease Control and Prevention, National Health and Nutrition Examination Survey, California Department of Health Care Services

California prescribes more powerful drugs
Over the last decade, nearly $313 million was spent on the 10 most costly groups of drugs for foster kids. Most of the funds went to psychotropic drugs.*

Psychotropic drugs 72%
Antipsychotic drugs 50%
Other drugs 28%

*Based on fee-for-service Medi-Cal records

BAY AREA NEWS GROUP
# Psychotropic Drugs Given to Foster Children

Here are some of the main types of psychotropic drugs prescribed for treating mental illness — and often behavior issues — in foster children in California.

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
<th>FDA-approved for children with:</th>
<th>Other “off-label” uses</th>
<th>Some possible side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antipsychotics</strong></td>
<td>Abilify, Risperdal, Seroquel, Zyprexa</td>
<td>Schizophrenia, bipolar disorder, autism with irritability</td>
<td>Sometimes prescribed for behavior issues in children who are not psychotic</td>
<td>Weight gain, involuntary repetitive movements, sedation, diabetes</td>
</tr>
<tr>
<td></td>
<td>Abilify</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Antidepressants</strong></td>
<td>Prozac, Zoloft, Paxil, Lexapro</td>
<td>Major depression and obsessive-compulsive disorder</td>
<td>Certain drugs approved only for adults are sometimes given to children</td>
<td>Headache, agitation, nervousness, appetite loss, suicidality</td>
</tr>
<tr>
<td></td>
<td>Prozac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mood stabilizers</strong></td>
<td>Lithium, Depakote</td>
<td>Symptoms of bipolar disorder including alternating euphoria and depression</td>
<td>Sometimes prescribed for aggressive behavior, emotional problems</td>
<td>Weight gain, tremors, nausea, appetite disturbance, seizures</td>
</tr>
<tr>
<td></td>
<td>Lithium</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Stimulants</strong></td>
<td>Ritalin, Concerta, Adderall, Dexedrine</td>
<td>Attention deficit hyperactivity disorder, narcolepsy and exogenous obesity in children</td>
<td>Generally prescribed for approved uses</td>
<td>Decreased appetite, tics, mood swings, insomnia</td>
</tr>
<tr>
<td></td>
<td>Ritalin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Bay Area News Group reporting
The Real Questions:

• Who are we treating?
• What are we treating?
• What are we treating with?
• Is it working?
• How might we do better?
Take home points:

Foster children are a unique group of kids

• Trauma-altered physiology
• Often lack resilience; “empty toolbox”
• “Fish out of water” – We (providers and parents) can’t expect simple and quick adaptation
Psychopharmacology

NSCAW II data, 2008-10:
Of children in out-of-home, non-relative care, 29.1% were taking one or more meds, and 13% were taking three or more

Too much or too little?
## Psychopharmacology

**NSCAW II data, 2008-10:**

<table>
<thead>
<tr>
<th>Age</th>
<th>Psych meds</th>
<th>3 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5yo</td>
<td>3.5%</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>6-11yo</td>
<td>18.8%</td>
<td>4.7%</td>
</tr>
<tr>
<td>12-17yo</td>
<td>16.1%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
Psychotropic Medication Patterns Among Youth in Foster Care
Zito et al., Pediatrics, 2008

• Random, 1mo sample of foster youth; n= 472
• Foster children used 3x as many psychotropics as matched kids on welfare
  • Antidepressants (57%)
  • ADHD meds (56%)
  • Antipsychotics (53%)
• Use increased with age:
  • 0-5: 12.4%
  • 6-12: 55.3%
  • 13-17: 66%
What are meds prescribed for?

- Bedwetting
- Anxiety
- Attention Deficit Anxiety Disorder
- Obsessive-compulsive disorder
- Depression
- Eating disorders
- Bipolar disorder
- Psychosis
- Severe aggression
- Sleep problems
- …
Foster care: Intake

- ~ 2.6M referrals to CPS each year
  - 4.5M children
  - 1.8M accepted for investigation
  - 800K substantiated
- 408,425 in foster care 2010
  - ~ 1/200 children in the US
  - 254,375 entered care that year
  - Median stay 14mo, 50% returned to parents

AFCARS 2010 data
Trauma: California

• Between July 1, 2006 and June 30, 2007, alone, 41,875 children entered California's child welfare-supervised foster care system.

• The most common reasons why children were removed and entered child welfare-supervised foster care were:
  • Neglect: 79.6%
  • Physical abuse: 11.7%
  • Sexual abuse: 3.7%
  • “Other”: 5.9%

Development and behavior

NSCAW data on CPS-involved children, 2003

• Developmental delays, 0-5: 23-61%
  • General population 10-12%

• Behavioral issues, 0-6: 25-40%
  • General population 3-6%
Development and behavior

- High developmental and behavioral needs
  - Toddlers 41.8%
  - Preschoolers 68.1%
- Low use of D&B services
  - Overall 22.7%

Stahmer et al., Pediatrics 2005
Development and behavior

NSCAW II data, 2008:

• 36% of sample showed emotional or behavioral health problems
  • Significant scores on validated tests
• Many did not receive services
  • In-home placement: 58% received no care
  • Out-of-home placement: 30% received no care
• “care” includes school-based and primary care behavioral services
Trauma in Child Welfare Population

• > ½ of children in dependent care report depression, PTSD, anxiety/panic, drug dep.
  
  Congressional Briefing on Mental Health Services and Former Foster Youth, 2005

• 54% of children in public sectors in San Diego dx’d with ADHD/disruptive disorders, anxiety disorders
  
  Garland et al., 2001
Trauma in Child Welfare Population

• A national study of adult “foster care alumni” found higher rates of PTSD (21%) compared with the general population (4.5%). This was higher than rates of PTSD in American war veterans.¹

• Nearly 80% of abused children face at least one mental health challenge by age 21.²


Foster Care in California

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>58,343</td>
<td>78,278</td>
</tr>
<tr>
<td>Average age</td>
<td>11yr</td>
<td>N/A</td>
</tr>
<tr>
<td>Length of stay</td>
<td>16.4mo</td>
<td>39mo</td>
</tr>
<tr>
<td>Reunification</td>
<td>56.7%</td>
<td>62%</td>
</tr>
<tr>
<td>Foster homes</td>
<td>7,211</td>
<td>12,160</td>
</tr>
</tbody>
</table>
Trends in Maltreatment and Emotional Problems

- Multiple Maltreatment preceding OOH care: 65% (2000) to 77% (2009)
- Emotional Disrurbance in OOH care: 10% (2000) to 17% (2009)
The Real Questions:

- Who are we treating?
- What are we treating?
- What are we treating with?
- Is it working?
- How might we do better?
prenatal factors
maltreatment
deficient attachment opportunities

Genetic endowment
Maltreatment and the brain...
In a nutshell...

- Abused and neglected kids
- Suffer a wide variety of insults including
  - Prenatal exposures,
  - Chronic activation of the threat response, and
  - Lack of parental support to provide
  - Coping tools (self-regulation) that enable
  - Cognitive and interpersonal learning
Neuroscience: what we’ve learned

- The brain is not mature at birth
- Experience determines its architecture
- Timing can be critical
- Relationships are critical for social and emotional development
- Effects of adversity
Fight, Flight, or Freeze?
Neuroendocrinology

Stress

Hypothalamic / pituitary stimulation

Feedback

Adrenal cortisol release
Neuroendocrinology

Studies show abuse victims have:

- Enhanced pituitary sensitivity
  - Duval, 2004

- Cortisol spikes w/ trauma reminders
  - Elzinga, 2003

- Higher cortisol levels, abnl variation
  - Ciccetti, 2001

- Cortisol spikes, higher baseline
  - Bugenthal, 2003

- Heightened inflammatory response
  - Altemus, 2003
Symptoms of “stress response”:

- Irritability
- Hyperarousal
- Dysregulation of affect

AKA: “Behavior problems”
The Brain: Targets of Stress

- Cerebral cortex
  - EEG changes
  - smaller callosum
- Limbic system
  - neuronal changes
  - decreased size
- Brainstem/Cerebellum
  - altered transmitters
On the front lines...

- fMRI study of children from violent homes showed hyperactivity in amygdala and insula in response to threat (angry face)
- Similar to findings in active combat soldiers

(McCrory, 2011)
Stick or snake?
Post Traumatic Stress Disorder (PTSD)

Criteria include:

• Intrusive memories
• Persistent arousal
• Avoidance of “trigger” events

…after an event that aroused fear, horror, helplessness
Post Traumatic Stress Disorder (PTSD)

Trigger events may include:

• Sights, sounds or smells
• Places
• Emotional states

…and will be different for each child
Post Traumatic Stress Disorder (PTSD)

- Persistent reminders generate new triggers
- Pervasive triggers result in generalized anxiety, hypervigilance
Neuroendocrine: Adrenergic Effects

• Arousal may lead to:
  • Hypervigilance
  • Hyperactivity
  • Exaggerated perception of/response to threat

• Diagnosed as:
  • Attention Deficit Hyperactivity Disorder
  • Oppositional Defiant Disorder
  • Bipolar Disorder

After H. Forkey
Neuroendocrine: Dopaminergic Effects

• Too much stimulation may lead to:
  • Dissociation/fantasy
  • Numbing of affect

• Diagnosed as:
  • Depression
  • Autistic Spectrum Disorder
  • Developmental delays

After H. Forkey
Neuroendocrine Effects of Arousal

- Body functions:
  - Sympathetic nervous system hyperactivity, enuresis/encopresis (urine and stool soiling)
  - Reticular Activating system hyperactivity leads to sleep difficulties
  - Inhibition of the brain’s satiety center disturbs appetite; leads to overeating, hunger, hoarding or stealing food

After H. Forkey
Effects of Toxic Exposures
Building resilience
Types of Traumatic Stress

Stress can be:

• **Positive**
  • Encourages and directs healthy growth

• **Tolerable**
  • Can be overcome with help

• **Toxic**
  • Results in unhealthy change

Support networks can make the difference!
Development results from an on-going, re-iterative, and cumulative dance between nurture and nature

“The Contingent Co-Regulatory Dance”
- Stanley Greenspan, 2001

“Serve and return”
- Shonkoff, 2013
Goals of Development
(after Von Horn)

• Attachment
• Regulation
• Cognition
Predictable Environment?

- Multiple caregivers (even before removal)
- Housing instability
- Parents
  - unemployed, poorly educated
  - single parent homes (limited social supports)
  - 1/3 parents were maltreated as children
- High incidence of drug abuse, mental illness, domestic violence, criminal justice involvement

After Szylagyi
Maltreated kids may have...

- Persistent fear/alert state
- Hyperarousal
- Dysregulation of affect
- Poor coping skills
  - Linguistic, cognitive, emotional

…and thus may be hard to parent!
One Positive Feedback Cycle

Parent Stress

child maltreatment

Attachment problems

challenging behaviors
Kids who have lived with toxic stress may have:

- “Hair trigger” emotional responses
- Difficulty regulating their arousal
- Reluctance to turn to others for help (trust)
- Inability to discuss their emotional feelings
- Insecurity over food, safety, or relationships
Take home points

- Toxic stress alters perceptions and responses, producing maladaptive behaviors.
- Medications can control behavioral symptoms.
- Controlling symptoms improves social interactions, and
- Social interactions enhance resilience
The Real Questions:

• Who are we treating?
• What are we treating?
• What are we treating with?
• Is it working?
• How might we do better?
Patients age 5-12: Evidence and experience indicates that psychopharmacologic treatments for children cannot be extrapolated from the studies conducted in adult patients. Children and Adolescents have different central nervous system development, exhibit different cognitive, behavioral and affective ”norms” and are exposed to different environmental influences. All these factors influence the response to psychopharmacological treatment, efficacy as well as tolerability. As a result, physicians should use prudence in prescribing psychiatric medications to young children. It is imperative that informed consent be obtained prior to initiation and following dosage recommendations followed unless clinical situation warrants otherwise.

“non-FDA approved” means the use of the medication is currently not approved by the FDA. In general, many psychotropic agents are not approved for use in the pediatric population. Prescribing of psychiatric medications for children up to age 12 or adolescents up to age 17, unless otherwise specified by the FDA, is limited to child psychiatrists or in consultation with a child psychiatrist.
DRUG COMPANIES’ SPENDING
Of the companies that reported payments, these are the ones that gave the most to doctors who prescribed psychotropic medications to California foster kids, 2010-13.

<table>
<thead>
<tr>
<th>Company</th>
<th>Number of foster care prescribers paid</th>
<th>Average payment</th>
<th>Total paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eli Lilly</td>
<td>312</td>
<td>$20,861</td>
<td>$6,508,584</td>
</tr>
<tr>
<td>Pfizer</td>
<td>440</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest Laboratories</td>
<td>233</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Merck</td>
<td>303</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>389</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GlaxoSmithKline</td>
<td>79</td>
<td></td>
<td></td>
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<tr>
<td>Novartis</td>
<td>211</td>
<td></td>
<td></td>
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<tr>
<td>UCB</td>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>363</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cephalon</td>
<td>178</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MOSTLY FOR RESEARCH
Most of the pharmaceutical money given to foster care prescribers went to research, though the spending category affecting the most doctors was meals.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of foster care prescribers paid</th>
<th>Average payment</th>
<th>Total paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>30</td>
<td>$379,134</td>
<td>$11,374,007</td>
</tr>
<tr>
<td>Speaking</td>
<td>58</td>
<td>$34,412</td>
<td>$1,995,921</td>
</tr>
<tr>
<td>Travel</td>
<td>64</td>
<td>$2,414</td>
<td>$154,474</td>
</tr>
<tr>
<td>Consulting</td>
<td>18</td>
<td>$2,358</td>
<td>$42,450</td>
</tr>
<tr>
<td>Meals</td>
<td>862</td>
<td>$485</td>
<td>$418,061</td>
</tr>
</tbody>
</table>

Source: Bay Area News Group analysis of data from the California Department of Health Care Services and drug company reports compiled by ProPublica

BAY AREA NEWS GROUP
Medication classes

• ADHD medications
  • Stimulants, Non-stimulants

• Antidepressants
  • SSRIs, SNRIs, Atypical, Tricyclics

• Antipsychotics
  • First- and second-generation

• Mood stabilizers

• Anti-anxiety medications

• Sleep aids

• …
Medication classes

Psychiatric Medications

A
- Abilify
- Adapin
- Adderall
- Alprazolam
- Amantadine
- Amitril
- Amitriptyline
- Amitriptyline/Perphenazine

B
- Benztropine
- Bupropion
- BuSpar
- Buspirone
Psychotropic medication review

**Format:**

- **Action**
  - What is the medication intended to do?

- **Evidence base**
  - How well do we know that it works?

- **Side effects**
  - Do the risks outweigh the benefits?
What constitutes evidence?

**EBM (Evidence-Based Medicine) criteria:**

- **Class A:**
  - Randomized, controlled trials
- **Class B:**
  - Large open trials
  - Large population comparison studies
  - Record reviews
- **Class C:**
  - Smaller open trial
  - Case studies
  - Consensus reports
ADHD meds: stimulants

• *Action:* improve concentration, decrease distractability
• *Examples:*
  - methylphenidate, amphetamines
• *Evidence:*
  - A+ (in general population)
• *Side effects (common):*
  - decreased appetite, sleep difficulties
• *Side effects (rare):*
  - psychosis, personality change
ADHD meds: non-stimulants

- **Action:** improve concentration, decrease distractibility
- **Examples:**
  - atomoxetine, guanfacine, clonidine, bupropion, antidepressants
- **Evidence:**
  - **B/C** for attention
  - **A** for youth aggression (clonidine)
- **Side effects:**
  - lower blood pressure
  - diminished stress response (usually not significant clinically)
Antidepressants

• **Action:** Relieve depression

• **Selective serotonin reuptake inhibitors**
  • Examples: fluoxetine, sertraline, citalopram, escitalopram
  • Evidence: A for anxiety disorders in youth, A/A+ for depression
  • Side effects: Disinhibition, suicide risk

• **Tricyclics**
  • Examples: imipramine, clomipramine
  • Evidence: A for OCD (clomipramine)
  • Side effects: poisoning risk, cardiotoxic in excess
Antidepressants

- **Action:** Relieve depression

  Selective serotonin reuptake inhibitors

  - **Examples:**
    - fluoxetine, sertraline, citalopram, escitalopram

  - **Evidence:**
    - A for anxiety disorders in youth, A/A+ for depression

  - **Side effects:**
    - Disinhibition, suicide risk

Tricyclics

  - **Examples:** imipramine, clomipramine

  - **Evidence:** A for OCD (clomipramine)

  - **Side effects:** poisoning risk, cardiotoxic in excess
Mood stabilizers: anticonvulsants

- **Action:** to prevent serious mood swings
- **Examples:**
  - lamotrigine, quetiapine, olanzapine, divalproex
- **Evidence:**
  - **A** for aggression in youth, **B** for mania in adolescents (divalproex)
  - **A+** for depression in bipolar disorder in adults (lamotrigine, quetiapine, olanzapine + fluoxetine)
- **Side effects:**
  - Negligible
  - Weight gain, hair loss
Mood stabilizers: lithium

• *Action*: to prevent serious mood swings

• *Examples*:
  • Lithium carbonate

• *Evidence*:
  • A for mania in adolescents, A for youth aggression
  • No evidence for any med in depressive phase of bipolar d/o in adolescents

• *Side effects*:
  • Tremor
  • Nausea
Mood stabilizers: gen 1 antipsychotics

- **Action:** to prevent serious mood swings
- **Examples:**
  - Haloperidol, chlorpromazine
- **Evidence:**
  - A+ for youth aggression (poor studies?)
- **Side effects:**
  - Sedation
  - Dyskinesias (movement disorders)
Mood stabilizers: gen 2 antipsychotics

- **Action:** to prevent serious mood swings
- **Examples:**
  - risperidone, aripiprazole, olanzapine, quetiapine, ziprasidone
- **Evidence:**
  - **A+** for adolescent mania, youth aggression (risperidone)
  - **A** for adolescent mania, **B/C** youth aggression (aripiprazole, olanzapine, quetiapine, ziprasidone)
- **Side effects:**
  - Significant weight gain
  - Metabolic disturbance
Interstate Variation in Trends of Psychotropic Medication Use Among Medicaid-Enrolled Children in Foster Care

Rubin et al., *Children and Youth Services Review*, 2012

- Medicaid data files from 47 states and DC
- 686,000 children, aged 3-18
- Compared data from 2002 with 2007
- Found a significant increase in use of second generation antipsychotics (9% – 12%)
- No significant increase in polypharmacy
The Real Questions:

- Who are we treating?
- What are we treating?
- What are we treating with?
- Is it working?
- How might we do better?
Too much or too little?

Needy population, useful medications

*BUT*...

Potential for danger, difficult to supervise effectively
The foster care medical home

• Specialized care for special patients
• Familiar with trauma sequelae, behaviors
• Familiar with foster care system
  • Social work and court requirements
  • Paperwork, paperwork, paperwork…
• Interface with mental health and social
  • Co-locate?
AACAP guidelines for PTMs

*Foster kids deserve:*

- to be screened and monitored for emotional and/or behavioral disorders
- continuity of care, effective case management, and longitudinal treatment planning
- access to effective treatments
- ...after a rational consent procedure
- treatment, ongoing monitoring for response, and screening for adverse effects
AACAP guidelines for states

Domains:
- Consent
- Oversight
- Consultation
- Information

Minimal, Recommended, or Ideal
AACAP guidelines for states

**Minimal:**

- Identify parties empowered to consent
- Establish a mechanism to obtain assent from minors where possible
- Establish guidelines for PTM use
AACAP guidelines for states

Recommended:

• Obtain clear educational materials and medication information sheets
• Maintain an ongoing record of diagnoses, height and weight, allergies, medical history, medical problem list, and a list of psych medications and adverse med reactions
• …that is accessible 24hr a day.
AACAP guidelines for states

*Ideal:*

- Establish training requirements for child welfare, court, and foster care personnel
- Establish a program to oversee the use of PTMs
  - Administered by child and adolescent psychiatrists
  - Advisory committee oversight
  - Monitor use
  - Review non-standard, unusual, or experimental uses
  - Collect and analyze data
Santa Clara County Mental Health Department Medication Practice Guidelines

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- Section F: Alzheimer's Agents 6/2009
- Section G: Anti-anxiety Medications 8/23/2013
- Section H: Anti-depressants 9/2014
- Section I: Atypical Antipsychotics 08/2013
- Section J: Conventional Antipsychotics 3/2013
- Section K: Fixed Ratio Combo 6/2009
- Section L: Agents for Medication Induced Movement DO 6/2009
- Section M: Psychostimulant 1/2014
- Section N: Mood Stabilizers 06/2014
Beyond medications...

Programs with a Scientific Rating of 1 - Well-Supported by Research Evidence

• Trauma-Focused Cognitive Behavioral Therapy (TF-CBT)

Programs with a Scientific Rating of 2 - Supported by Research Evidence

• Child Parent Psychotherapy for Family Violence (CPP-FV)
Beyond medications...

Programs with a Scientific Rating of 3 - Promising Research Evidence

- Abuse-Focused Cognitive Behavioral Therapy (AF-CBT)
- Eye Movement Desensitization and Reprocessing (EMDR)
- Sanctuary Model SITCAP-ART
Beyond medications…

Programs with a Scientific Rating of 6 - Not Rated

- Forensically Sensitive Therapy (FST)
- Structured Psychotherapy for Adolescents Responding to Chronic Stress (SPARCS)
- Trauma Affect Regulation: Guidelines for Education and Therapy (TARGET)
- Trauma-Focused Play Therapy
Mental health problems are costly

- Unstable foster care placements
- Poorer prospects for
  - reunification
  - adoption
- Longer stays in the system
- Re-entry to dependency
Questions to ponder…

• Why so much polypharmacy?
• Why is it so difficult to get families mental health services?
• Is “mental health” the right term?
• Is there a better one?
• DSM-V: friend or foe?
• Are there cases where pharmacologic therapy is adequate by itself?
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San Jose, CA 95112
AAP Healthy Foster Care America
www.aap.org/fostercare

AAP Mental Health Initiatives
www.aap.org/mentalhealth

AAP Early Brain and Child Development
www.aap.org/ebcd

AAP Medical Home for Children and Adolescents Exposed to Violence
www.aap.org/medhomecev

AAP National Center for Medical Home Implementation
www.medicalhomeinfo.org

AAP Web Site for Parents
www.healthychildren.org

National Child Traumatic Stress Network
www.nctsn.org