



Pediatric Health Disparities

Anna Abrams, MD (PGY V)

Partnership in Outstanding Pediatric Prehospital Care

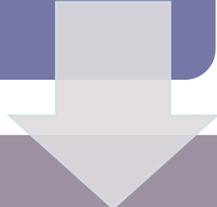
March 12, 2021

Objectives

WHAT: What do we know?



WHY: Why do we care?



HOW: What can we do about it?

Evidence

WHAT: What do we know?

- Prehospital/EMS
- Emergency Department
- Everywhere

Prehospital/EMS

Pain Management

Prehospital Pain Management and Race

Hilary A. Hewes , MD, Mengtao Dai, N. Clay Mann, Tanya Baca & Peter Taillac

Pages 189-197 | Received 22 Mar 2017, Accepted 31 Jul 2017, Published online: 28 Sep 2017

Racial/Ethnic Disparities in Pain Management: Evidence From Oregon Prehospital Agencies

Jamie Kennel

Prehospital Pain Management: Disparity By Age



Rate Your Pain Today

Socioeconomic disparities in prehospital stroke care in Hospital Arrival Time

Amanda Niklasson ¹, Johan Herlitz ², Katarina Jood ³
Affiliations + expand
PMID: 31046804

after
Mellanie V Springer
Affiliations + expand
PMID: 28439183 PMCID: PMC5398171 DOI: 10.1186/s13049-019-0630-6

stroke

Gender Differences in the Quality of Resuscitation
Nationwide for Chest Pain
Cardiac Arrest

Socioeconomic disparities in Rapid ambulance response for out-of-hospital cardiac arrest in a public emergency medical service system: A nationwide observational study

Quelly Mae Rivadillo Ramos ¹, Ki Hong Kim ², Jeong Ho Park ³, Sang Do Shin ⁴,
Kyoung Jun Song ⁵, Ki Jeong Hong ⁶

Affiliations + expand

DOI: 10.1016/j.resuscitation.2020.11.029

Emergency Department

Racial Disparities in Pain Management of Children With Appendicitis in Emergency Departments

Monika K. Goyal, MD, MSCE; Nathan Kuppermann, MD, MPH; Sean D. Cleary, PhD, MPH;
Stephen J. Teach, MD, MPH; James M. Chamberlain, MD

Appendicitis

Fractures

Racial and Ethnic Differences in Emergency Department Pain Management of Children With Fractures

Monika K Goyal ¹, Tiffani J Johnson ², James M Chamberlain ³, Lawrence Cook ⁴, Michael Webb ⁴, Amy L Drendel ⁵, Evaline Alessandrini ⁶, Lalit Bajaj ⁷, Scott Lorch ², Robert W Grundmeier ², Elizabeth R Alpern ⁸,

PEDIATRIC EMERGENCY CARE APPLIED RESEARCH NETWORK (PECARN)

Affiliations [+ expand](#)

PMID: 32312910 PMCID: PMC7193974 (available on 2021-05-01)

Variation in advanced imaging for pediatric patients with abdominal pain discharged from the ED

Kimberly B Horner ¹, Amy Jones ², Li Wang ³, Daniel G Winger ³, Jennifer R Marin ⁴

Affiliations + expand

PMID: 27613363 PMCID: [PMC5161552](#) DOI: [10.1016/j.ajem.2016.08.041](#)

Imaging

Racial/Ethnic Disparities in Triage Scores Among Pediatric Emergency Department Fever Patients

Jeff A Dennis ¹

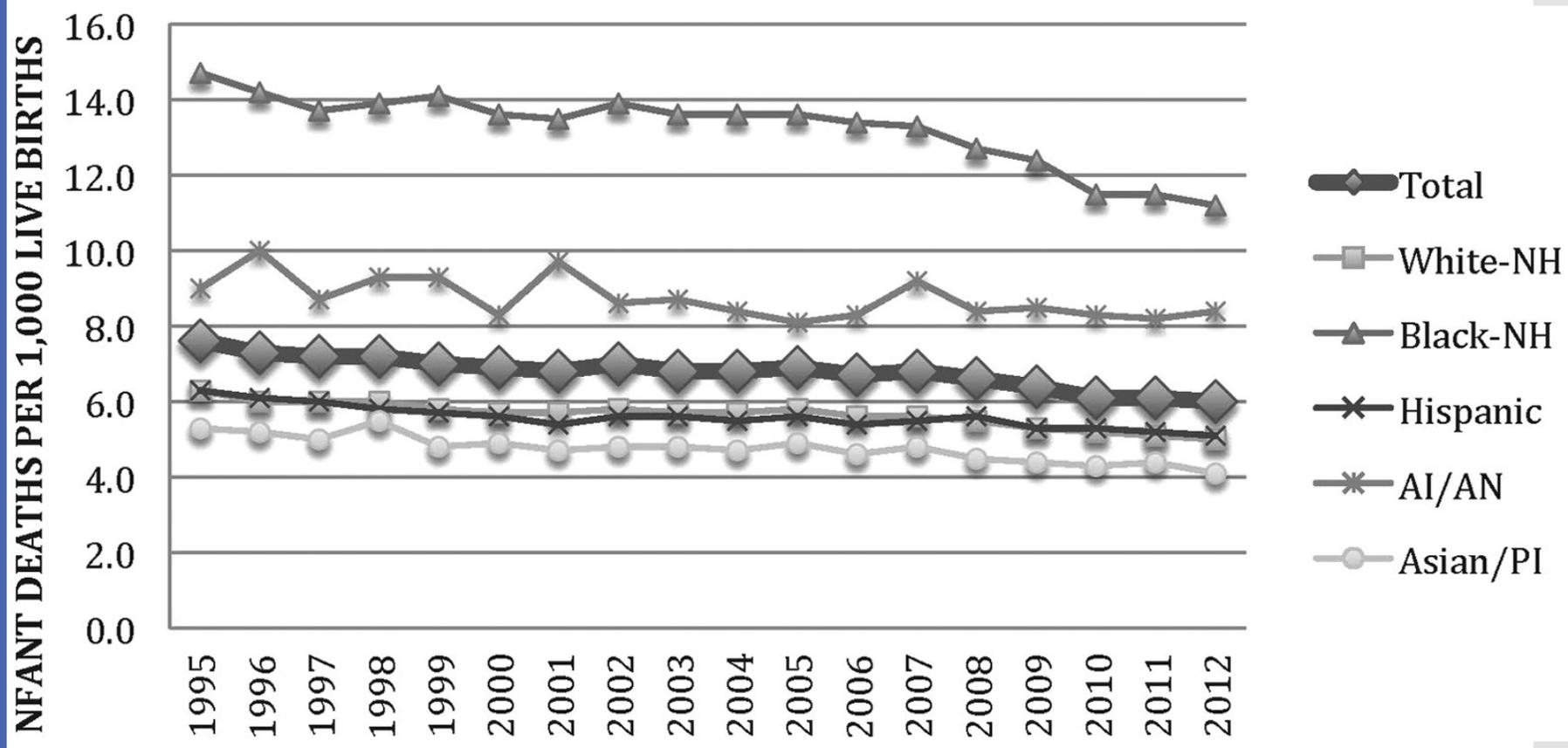
Affiliations + expand

PMID: 32150002 DOI: [10.1097/PEC.0000000000002072](https://doi.org/10.1097/PEC.0000000000002072)

Triage

Everywhere

Infant mortality

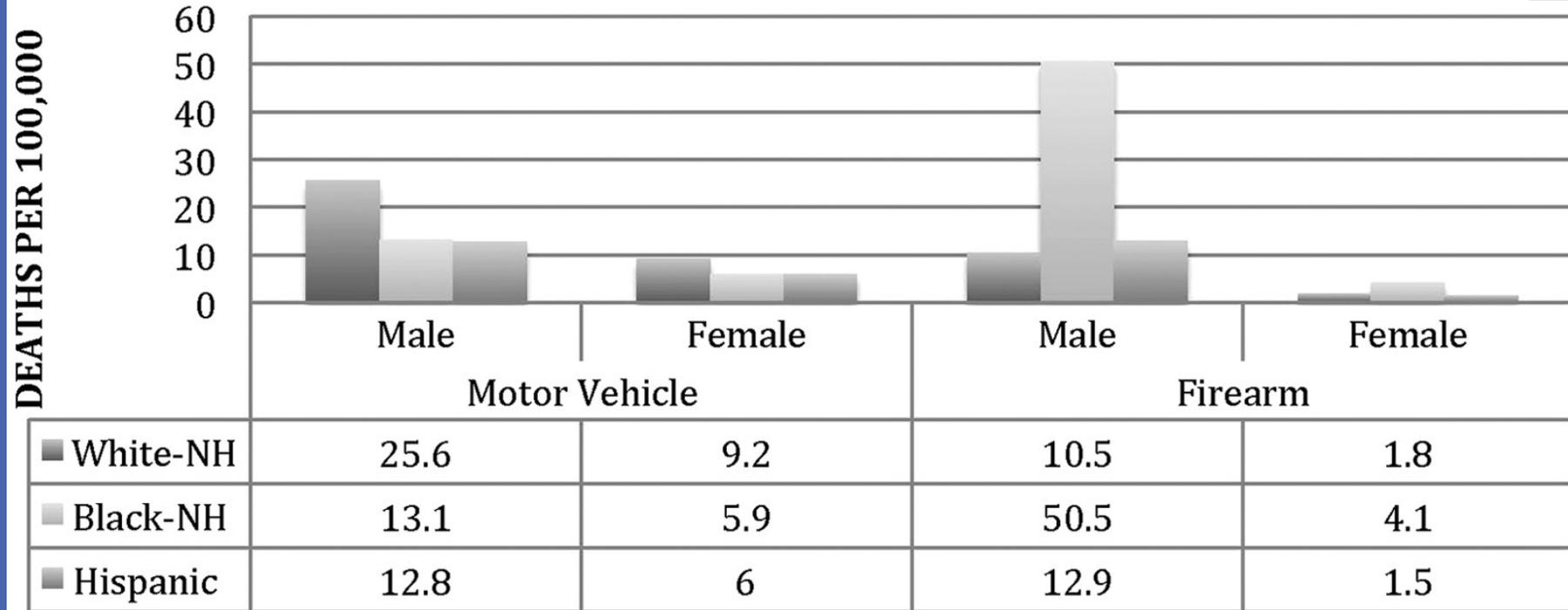


- 2010-2013 rate per 100,000
- American Indian/Alaska Natives: **190.5**
- Black non-Hispanic **171.8**
- White non-Hispanic **84.4**
- Hispanic **50.8**



SUID/SIDS

Childhood & Adolescent Mortality



Racial and Ethnic Disparities in ADHD Diagnosis and Treatment

Tumaini R Coker ¹, Marc N Elliott ², Sara L Toomey ³, David C Schwebel ⁴, Paula Cuccaro ⁵,
Susan Tortolero Emery ⁵, Susan L Davies ⁶, Susanna N Visser ⁷, Mark A Schuster ⁸

ADHD

Racial and Ethnic Disparities in Access to Care for Children With Special Health Care Needs

Paul W. Newacheck DrPH ¹, Yun-Yi Hung PhD ², Kara K. Wright MD, MPH ³

Access

Racial and Ethnic Disparities in Pediatric Mental Health-Related Emergency Department Visits

Anna H Abrams ¹, Gia M Badolato ², Meleah D Boyle ², Robert McCarter ^{2 3}, Monika K Goyal ^{2 3}

Mental Health

Pediatric disparities

- Asthma
- Obesity
- ADHD
- Appendicitis
- Antibiotic prescribing
- Mental Health
- Imaging
- Triage
- SIDS
- Infant mortality
- Morbidity
- Pain management
- Prehospital Care

Objectives

WHAT: What do we know?

WHY: Why do we care?

HOW: What can we do about it?

Pediatric disparities

- Asthma
- Obesity
- ADHD
- Appendicitis
- Antibiotic prescribing
- Mental Health
- Imaging
- Triage
- SIDS
- Infant mortality
- Morbidity
- Pain management
- Prehospital Care

Figure 1

Social Determinants of Health

Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social Integration	Health Coverage
Income	Transportation	Language	Access to Healthy Options	Support Systems	Provider Availability
Expenses	Safety	Early Childhood Education		Community Engagement	Provide Linguistic and Cultural Competency
Debt	Parks	Vocational Training		Discrimination	
Medical Bills	Playgrounds	Higher Education		Stress	Quality of Care
Support	Walkability				
	Zip Code/ Geography				

Health Outcomes
 Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Figure 1

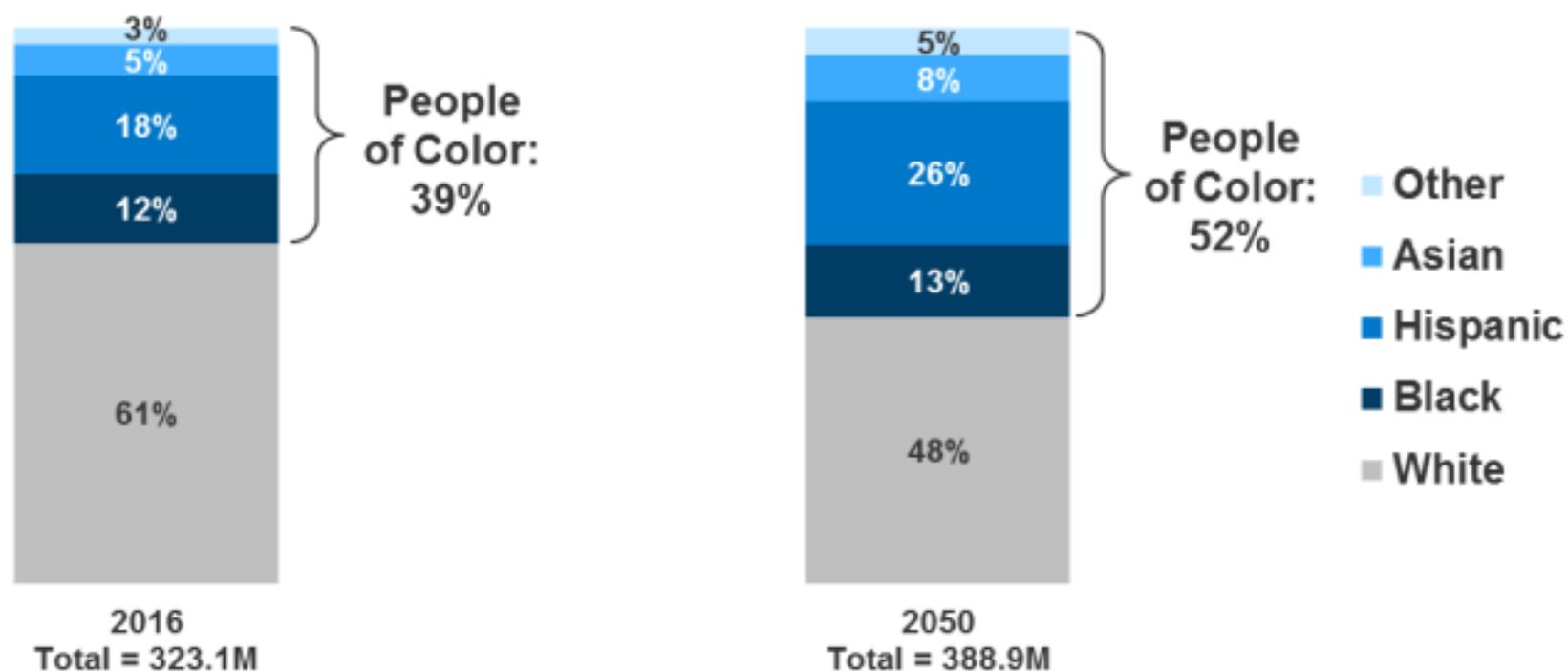
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Health Outcomes
 Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Figure 2

Distribution of U.S. Population by Race/Ethnicity, 2016 and 2050



NOTE: All racial groups are non-Hispanic. Other includes Native Hawaiians and Pacific Islanders, American Indian and Alaska Natives, and individuals with two or more races. Data do not include residents of Puerto Rico, Guam, the U.S. Virgin Islands, or the Northern Mariana Islands.

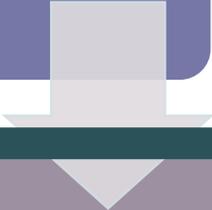
SOURCE: U.S. Census Bureau, 2017 National Population Projections, Race by Hispanic Origin, 2017-2060. Available at: <https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html>.

Objectives

WHAT: What does the data say?



WHY: Why do we care?



HOW: What can we do about it?

- Unconscious bias
- IAT (Implicit Association Test)
- Accountability
- Read, listen, learn

Unconscious bias

- = implicit bias
- Not limited to race
- EVERYONE has them
- Prevalent under stress or time constraints
 - Mental short cut



Project Implicit®

Implicit Association Test (IAT)

<https://implicit.harvard.edu/implicit/takeatest.html>

Gender-Science IAT

Gender - Science. This IAT often reveals a relative link between liberal arts and females and between science and males.

Asian IAT

Asian American ('Asian - European American' IAT). This IAT requires the ability to recognize White and Asian-American faces, and images of places that are either American or Foreign in origin.

Sexuality IAT

Sexuality ('Gay - Straight' IAT). This IAT requires the ability to distinguish words and symbols representing gay and straight people. It often reveals an automatic preference for straight relative to gay people.

Age IAT

Age ('Young - Old' IAT). This IAT requires the ability to distinguish old from young faces. This test often indicates that Americans have automatic preference for young over old.

Weapons IAT

Weapons ('Weapons - Harmless Objects' IAT). This IAT requires the ability to recognize White and Black faces, and images of weapons or harmless objects.

Presidents IAT

Presidents ('Presidential Popularity' IAT). This IAT requires the ability to recognize photos of Joseph Biden and one or more previous presidents.

Gender-Career IAT

Gender - Career. This IAT often reveals a relative link between family and females and between career and males.

Weight IAT

Weight ('Fat - Thin' IAT). This IAT requires the ability to distinguish faces of people who are obese and people who are thin. It often reveals an automatic preference for thin people relative to fat people.

Religion IAT

Religion ('Religions' IAT). This IAT requires some familiarity with religious terms from various world religions.

Skin-tone IAT

Skin-tone ('Light Skin - Dark Skin' IAT). This IAT requires the ability to recognize light and dark-skinned faces. It often reveals an automatic preference for light-skin relative to dark-skin.

Questionnaire

How warm or cold do you feel towards **Old people**?

10 - Extremely warm

9 - Very warm

8 - Moderately warm

7 - Somewhat warm

6 - Slightly warm

5 - Neither warm nor cold

4 - Slightly cold

3 - Somewhat cold

2 - Moderately cold

1 - Very cold

0 - Extremely cold

Implicit Association Test

Next, you will use the 'E' and 'I' computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

Category	Items
Good	Smiling, Beautiful, Love, Excitement, Delightful, Cherish, Appealing, Fantastic
Bad	Abuse, Selfish, Scorn, Bothersome, Pain, Failure, Poison, Ugly
Old people	
Young people	

Press "E" for

Old people

Press "I" for

Young people



If you make a mistake, a red **X** will appear. Press the other key to continue.

Accountability

- Leadership
- ALWAYS remember patient first
- Make the wrong thing the hard thing

Read, Listen,
Learn

- Implicit Association Test
 - <https://implicit.harvard.edu/implicit/takeatest.html>
- Healthy People 2020
 - <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>
 - Widget



Health Disparities

A health disparity is a health difference that is closely linked with social, economic, or environmental disadvantage.

View the latest disparities for Leading Health Indicators—critical health issues that, if tackled appropriately, will dramatically reduce leading causes of death and preventable illnesses.

Browse by

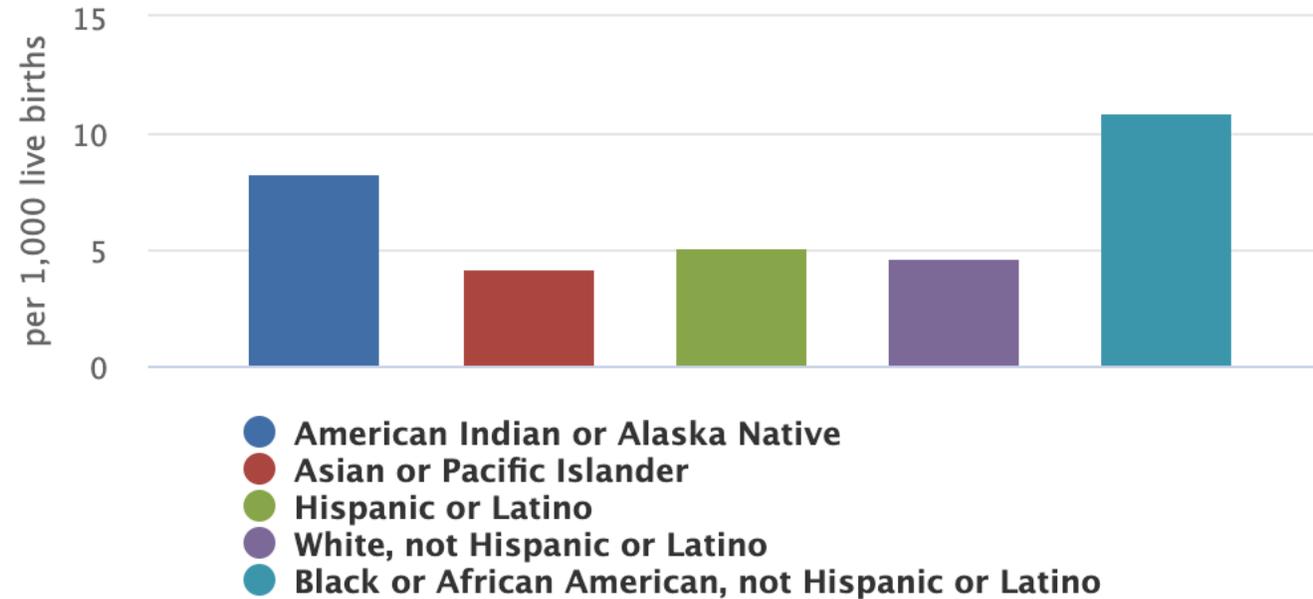
Leading Health Indicator ▼

or

Disparity type ▼

[Learn more about health disparities.](#)

MICH-1.3 Disparities Details by Race and Ethnicity for 2017



Data source: Linked Birth/Infant Death Data Set, CDC/NCHS



ODPHP

Office of Disease Prevention
and Health Promotion

Read, Listen, Learn

- Implicit Association Test
 - <https://implicit.harvard.edu/implicit/takeatest.html>
- Healthy People 2020
 - <https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities>
 - Widget
- KFF: Disparities in Health and Health Care: Five Key Questions and Answers
 - <https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-five-key-questions-and-answers/>
- Online Course: Roots of Health Inequity
 - <http://rootsofhealthinequity.org/>
- Conversations in Equity
 - <https://blogs.cdc.gov/healthequity/>



Conversations in Equity

Read, Listen, Learn

- Got kids?
 - AAP: <https://www.healthychildren.org/English/healthy-living/emotional-wellness/Building-Resilience/Pages/Talking-to-Children-About-Racial-Bias.aspx>
 - List of books: <https://www.embracerace.org/resources/20-picture-books-for-2020>
 - Podcast: [Fare of the Free Child podcast](#)



More resources

- **Educating yourself and your peers**
- An advocacy toolkit for fair, safe, and effective community policing. Found as a PDF [here](#).
- A great [comprehensive document](#) with articles to read, podcasts to listen to, books to read, videos and films to watch, etc.
- [A report with recommended reforms](#) intended to create accountability and build better relationships between law enforcement and communities of color. This is a product of President Obama's Task Force on 21st Century policing.
- [Sign the petition](#) at colorofchange.org calling for the end of police violence against Black people.
- An easy to digest look [at data and research-informed policy solutions](#) that communities can put in place to end police violence
- **Connect** with these organizations on the front lines:
 - [Black Futures Lab](#)
 - [Campaign Zero](#)
 - [Center for Policing Equity](#)
 - [Movement For Black Lives](#)
 - [National Black Justice Coalition](#)
 - [NAACP Legal Defense Fund](#)
 - [New York City Anti-Violence Project \(AVP\)](#)
- **[Center for Policing Equity—The Science of Justice: Race, Justice, and Police Use of Force](#)**: This detailed report delves into police administrative data to show disparities in the use of force. You can watch the director of the Center, Phillip Atiba Goff, deliver a [TED talk on fighting racism and improving policing here](#).

More resources

- [Talking to kids about race and racism](#)
- NPR "[Talking Race with Young Children](#)". A 20 minutes listen with links to additional resources
- Sesame street town hall: [Standing Up to Racism](#). At 0800 Saturday morning. My sister has used Sesame Street resources to talk to her foster daughter about grief, trauma, and other tough issues. It is an amazing resource. Find more [here](#).
- An [animated storytelling](#) of Something Happened in Our Town, an excellent children's book about racial injustice.
- AAP's Healthychildren.org has a [page specifically dedicated](#) to talking to children about racial bias and helping parents confront their own biases.
- Books:
 - [Coretta Scott King Book Award Winners: books for children and young adults](#)
 - [31 Children's books to support conversations on race, racism and resistance](#)
- Podcasts:
 - [Parenting Forward podcast episode 'Five Pandemic Parenting Lessons with Cindy Wang Brandt'](#)
 - [Fare of the Free Child podcast](#)
 - [Integrated Schools podcast episode "Raising White Kids with Jennifer Harvey"](#)
- Articles:
 - [PBS's Teaching Your Child About Black History Month](#)
 - [Your Kids Aren't Too Young to Talk About Race: Resource Roundup from Pretty Good](#)
- The Conscious Kid: follow them on [Instagram](#) and consider signing up for their [Patreon](#)

This is my
passion!

- PLEASE feel free to email me if you'd like more or different resources, have any questions, or are looking for opportunities to get involved!

Anna.Abrams@ChildrensColorado.org

ATVs and Trampolines: TBI in Pediatrics

ANNA ABRAMS PGY V

PARTNERSHIP IN
OUTSTANDING PEDIATRIC
PREHOSPITAL CARE

MARCH 12, 2021



Objectives

- Discuss epidemiology of TBI in pediatric patients
- Review optimal prehospital care of children with TBI
- Discuss initial emergency department care of children with TBI

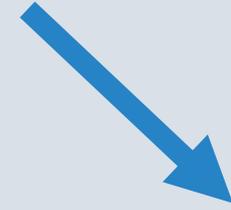


Fast Facts

650,000 – 1 million children/year



90% discharged from ED



>47,000 hospitalizations

- ~30,000 lifelong disability
- ~2,600 fatalities
- **½ of deaths occur before reaching hospital**

Causes

**MVCs and
Assault**

**Injuries &
MVCs**

**Abuse &
Falls**

Abuse



Pediatric Considerations

Thin cranial
cortex

Open sutures

Limited
history and
exam

Poor
coordination
and balance

Stronger
frontal bone

NAT

GCS

Glasgow Coma Score (GCS)
(Minimum 3, Maximum 15)

Eyes:

1. Does not open eyes
2. Opens eyes to pain
3. Opens eyes to voice
4. Opens eyes spontaneously

Verbal:

1. No sounds
2. Incomprehensible sounds
3. Inappropriate words
4. Confused, disoriented
5. Oriented

Motor:

1. No movement
2. Extension to painful stimuli
3. Flexion to painful stimuli
4. Withdrawal to painful stimuli
5. Localizes to painful stimuli
6. Obeys commands

Pediatric GCS
(Minimum 3, Maximum 15)

Eyes:

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Verbal:

1. No vocal response
2. Inconsolable, agitated
3. Inconsistently consolable, moaning.
4. Cries but consolable, inappropriate interactions.
5. Smiles, oriented to sounds, follows objects, interacts

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Classifications

- **Mild TBI (mTBI)** — LOC < 30 min, initial **GCS 13–15** (30min s/p injury) , and PTA for not greater than 24 hours
 - **Uncomplicated** — no abnormalities on imaging
 - **Complicated** — + abnormalities on imaging
 - **Moderate TBI** — +LOC x 1-24 hours, **GCS of 9–12**
 - **Severe TBI** — +LOC >24 hours, **GCS of 3–8**
-
- *PTA also used



Mechanisms

Blunt Trauma

Penetrating Trauma

Diffuse Axonal Injury

Concussion



Red Flags

- AMS
- Progressively declining GCS/Neuro exam
- Pupillary asymmetry
- Seizures
- Slurred speech
- Weakness/numbness in arms or legs



Red Flags in Kids

- Changes in nursing/eating
- Irritability, persistent crying, inconsolable
- Lethargy
- Unsteady walking/loss of balance



HYPERTENTION



BRADYCARDIA



RESPIRATORY
IRREGULARITY

What are we looking for?

- Concussion
- Epidural Hematoma
- Subdural Hematoma
- Diffuse axonal injury



What the ED
wants to know

Mechanism

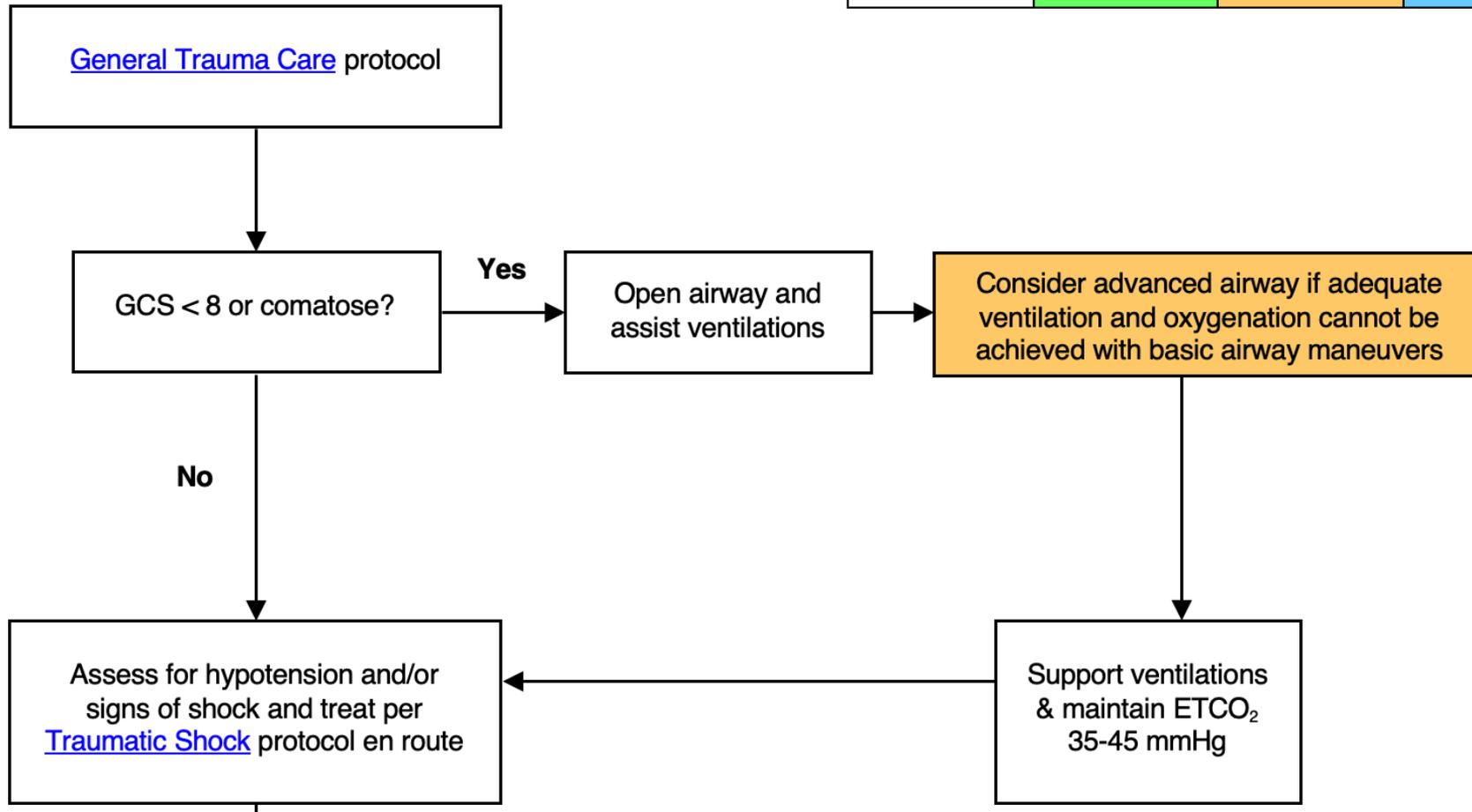
- Speed
- Height
- Surface

Witnesses/Supervision

LOC, Vomiting, Seizure

GCS changes

8060 HEAD TRAUMA PROTOCOL



- ↓
- Titrate SpO₂ to > 92%
 - Treat hypotension
 - Decrease ICP by elevating head 30° if possible. Use reverse Trendelenburg if spinal precautions needed
 - Complete Rapid Trauma Assessment en route to hospital
 - Treat other injuries per protocol

- ↓
- Monitor:
- ABCs, VS, mental status, ETCO₂
 - Rapid transport to appropriate trauma center
- Monitor cardiac rhythm
- Transport to Children's Hospital Colorado-Anschutz Campus for GCS < 8

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Goal in transport:
Prevent secondary
injury

AVOID

1. Hypotension
2. Hypoxia
3. Hypothermia
4. Hypoglycemia
5. Raised ICP





When to consider advanced airway

- GCS < 9 or deteriorating
- Hypoxemia
- Hypercarbia
- Signs of elevated ICP

Do We “Control” the Airway?

BMV Favored:

- Combativeness
- Strong gag reflex
- Presence of trismus
- Short on-scene and transport times

Advanced Airway Favored:

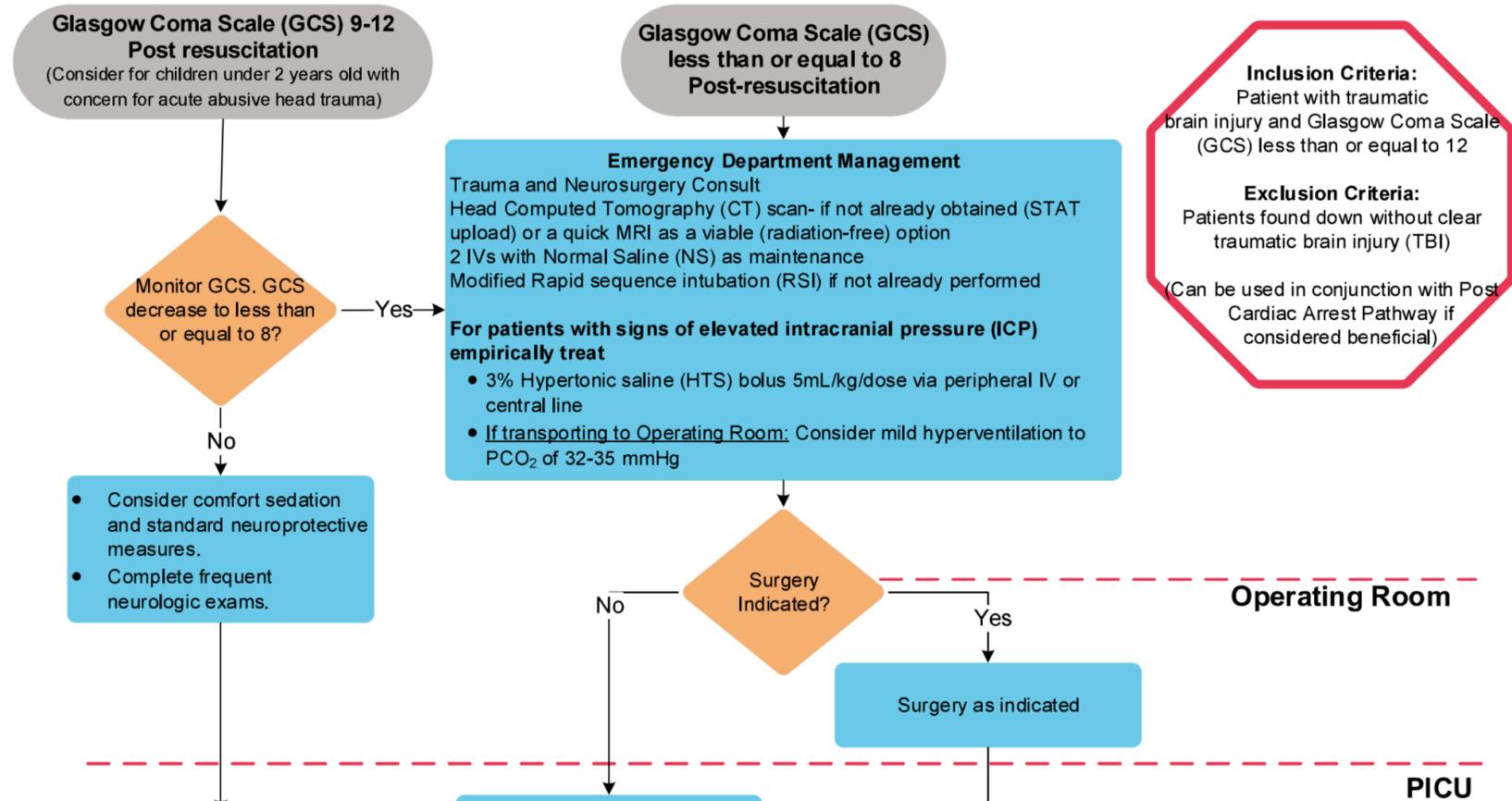
- Unresponsive
- Absent gag reflex
- Long extrication or transport
- Limited personnel to assist

ED Management

- ABCs
 - Protect airway, oxygenate
- Prevent secondary injury
 - Prevent hypotension
- CT, Neurosurgery, ICU
- Secondary Survey

Traumatic Brain Injury (TBI): Moderate/Severe

ALGORITHM 1: Post-Resuscitation

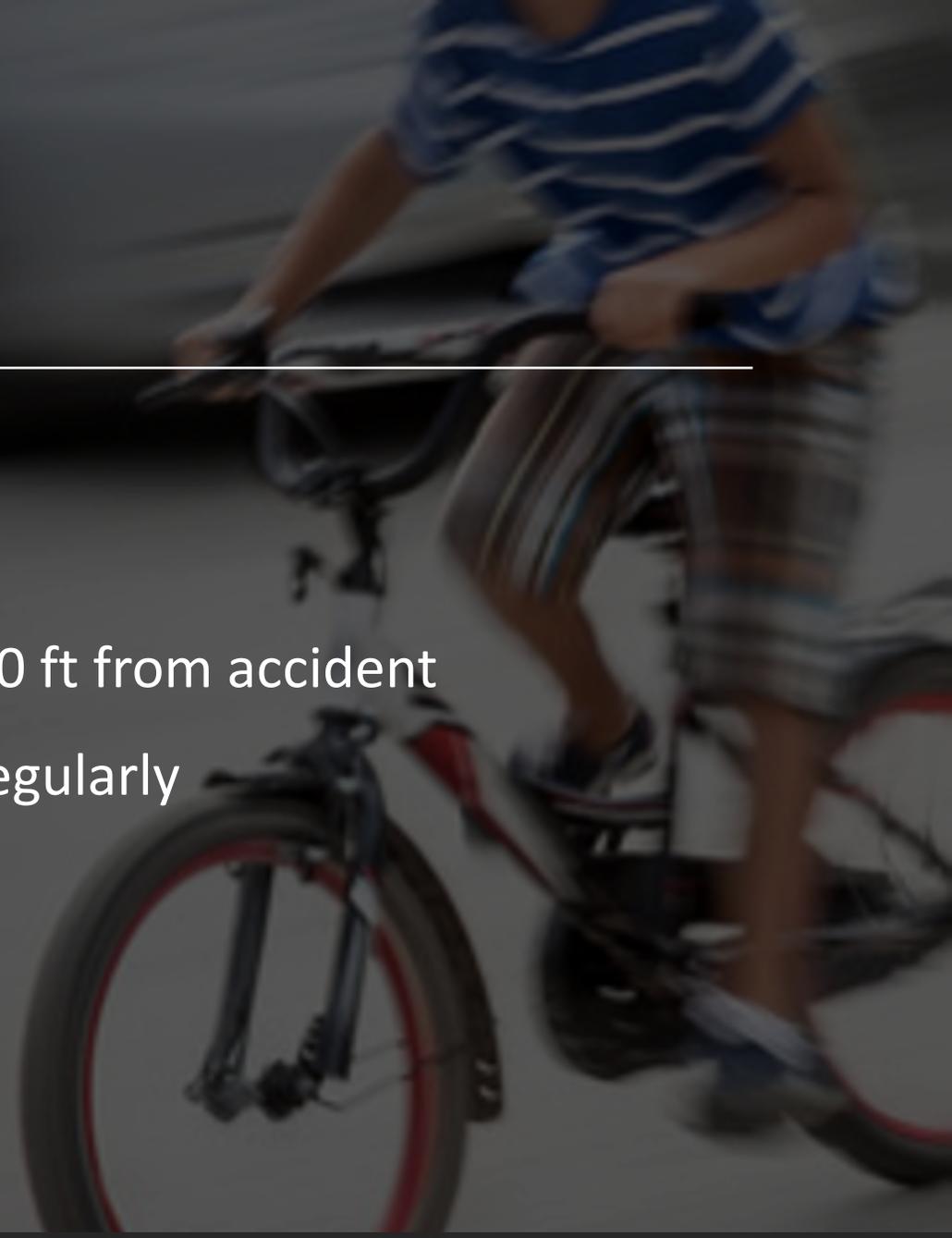




Cases

Case 1

- 5yo M
- Auto v. Bicycle
- Initial impression: Unresponsive on ground, 20 ft from accident
- Obvious R leg deformity. Breathing slowly, irregularly
- Pupils 4mm L, 6mm R, sluggish
- Good respiratory effort



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- 5yo M
- Auto v. Bicycle
- Initial impression: Unresponsive on ground, no response to pain
- Pupils 4mm L, 6mm R, sluggish
- Good respiratory effort

Case 2

- 2yo M
- Lethargic
- +vomiting
- Initial impression: lays limp during assessment, bruising on L ear, moans when touching L side of head

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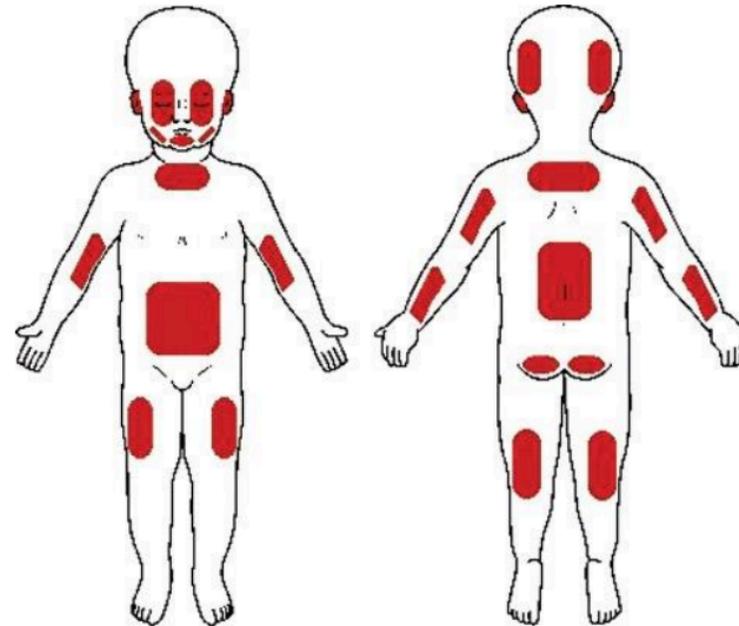
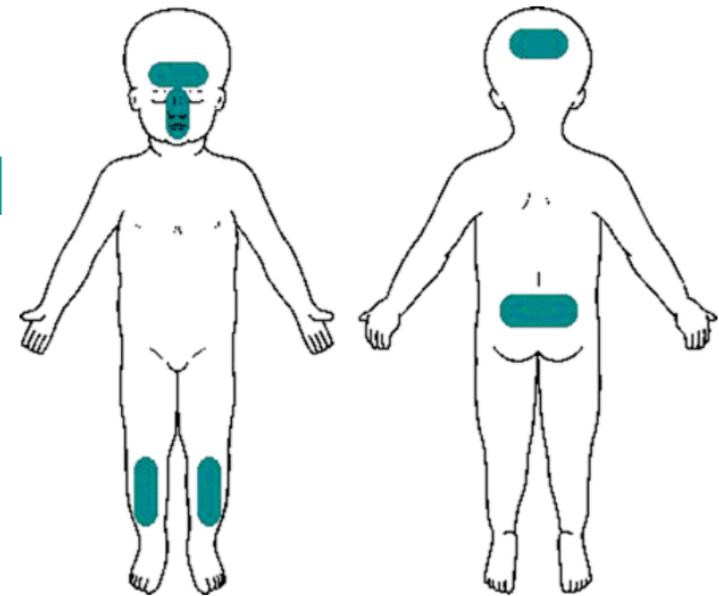
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**Accidental
Bruising
Patterns**



**Abusive
Bruising
Patterns**

QUESTIONS?

Anna Abrams

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