

Acetaminophen Overdose Among Children

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Characterization of Key National Drug Use Scenarios

Aims

- **Aim 1:** Qualitatively explore knowledge, attitudes, beliefs and practices regarding parental administration of OTC acetaminophen to children
- **Aim 2:** To establish which circumstances (error, intentional overdose) led to events of acetaminophen overdose in children visiting the Emergency Room
- Study was conducted in Houston, TX

OTC: Over the counter

ER: Emergency Room

Aim 1: Qualitative Study

- Focus groups and in-depth interviews to examine:
 - Administration of acetaminophen to children
 - Self-administration of acetaminophen
- Stratified groups:
 - Parents of children ≤ 8 years old
 - Adults 21-65 and adults >65
 - Adolescents 13-20 (individual interviews)
- Setting- Houston
 - Private outpatient clinic: Kelsey-Seybold
 - Public: Harris County Hospital District, People's Clinic

Participants' Characteristics

Setting	Kelsey	People's	People's	TOTAL
Number of participants	3	8	4	15
Age, yrs, mean	35	33	38	35
Gender				
Female	3	8	3	14 (93%)
Race				
Hispanic	2	3	1	6 (40%)
White	0	2	0	2 (13%)
African American	1	3	3	7 (47%)
Education				
High school	0	1	1	2 (13%)
Some college/Trade school	1	2	2	5 (33%)
Bachelor's/Advanced degree	2	5	1	8 (53%)

Qualitative Content Areas

- Knowledge
- Beliefs and benefits
- Patterns/frequency of use
- Sources of information
- Related experiences in peers
- Views about labeling, packaging and legislation

Salient Findings

- Positive views about benefits
- Public setting more concerned about risks
- Used for fever, teething and shots
- Parents were proactive obtaining medication
- Concerns about labeling

Suggestions to Modify Labels/Information

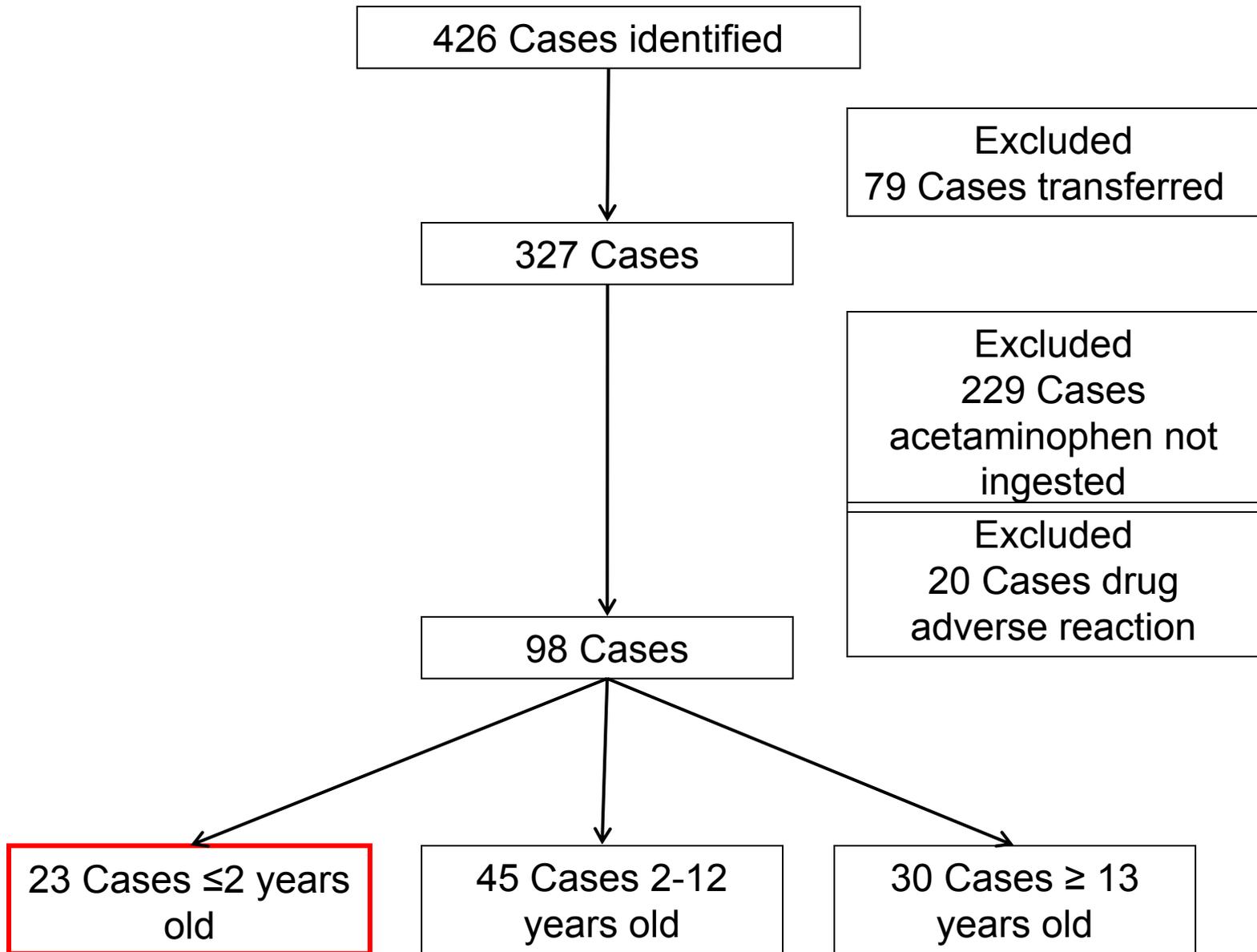
- Larger/bold print
- Highlight important information
- Make warnings clearer
- Make information consistent
- Include dropper or cup in all preparations for children

Aim 2: Children Visits to the Emergency Room (ER)

- Texas Children's Hospital - Houston
- Date of admission 01/01/2008 to 12/31/2010
- Primary or secondary diagnosis with predetermined ICD9 codes
- Excluded transfers from outside hospital
- Any ingestion or suspicion of ingestion of acetaminophen as per review of medical record
- Excluded adverse drug reactions

Identification of ER Visits: ICD9 Codes

- E850 - Accidental poisoning by analgesics antipyretics and antirheumatics
- E935 - Analgesics antipyretics and antirheumatics causing adverse effects in therapeutic use
- E950.0 - Suicide and self-inflicted poisoning by analgesics antipyretics and antirheumatics
- E950.5 - Suicide and self-inflicted poisoning by unspecified drug or medicinal substance
- 965 - Poisoning by analgesics antipyretics and antirheumatics
- E858 - Accidental poisoning by other drugs
- E947 - Other and unspecified drugs and medicinal substances causing adverse effects in therapeutic use
- 977 - Poisoning by other and unspecified drugs and medicinal substances



Patient Demographics

Age (mean)	1.5 yrs
< 6 months	1
6 months-1 year	1
1 year-2 years	21
Males, n(%)	12 (52%)
Race/Ethnicity, n(%)	
White	13 (56%)
Hispanic	8 (35%)
Black	1 (4.4)
Asian	1 (4.4)
ICD9 Codes	
965.4	17 (74)
965.7	2 (9)
965.09	1 (4)
962.7	1 (4)
977.9	1 (4)
780.8	1 (4)

Clinical Outcomes

Serum acetaminophen (mcg/ml), n(%)	
<10	17 (89%)
10-20	1 (5%)
20-30	0
30-40	0
40-50	1 (5%)
Lab not performed, n	4
AST	
≤40	1 (8%)
41-50	7 (58%)
51-60	4 (33%)
Lab not performed, n	11
ALT	
≤35	12 (100%)
Lab not performed, n	11
NAC administration	1 (4%)
Admission to hospital	0
Liver failure	0
Death	0

Circumstances Surrounding Possible Overdose

Accidental	23 (100%)
Person involved in overdose	
Unknown	2 (9%)
Child	16 (70%)
Child found with medication	12
Not sufficient details	4
Caregiver	5 (22%)

Circumstances Surrounding Possible Overdose

Medication form	
Tablets	12 (52%)
Liquid	10 (43%)
Meltaways	1 (4%)
Unknown	7
Ingredient	
Single	15 (65%)
Combination	8 (35%)
Type of ingestion	
Single acute ingestion	
<1 hour	3 (13%)
1-2 hours	12 (52%)
Multiple acute ingestions	
48 hours	2 (9%)
72 hours	1 (4%)
Unknown	5 (22%)

Caregiver Dosing Error – Suspension Liquid

- Difficulty understanding dosing as per record
 - 6m. 30ml over 2 days
 - 15m. 500mg in 2hrs (41mg/kg)
 - 23m. 3 'bottles' over 3 days, given whenever baby cried.
Administered NAC
- Not stated
 - 4m. 16ml over 2 days
 - 23m. Error in dosing for 2 days – children's dose for infant

Conclusions

- In qualitative study participants had concerns and suggestions about acetaminophen labeling
- 22% of ER admissions were caused by errors in dosing by caregiver
- Caregivers had difficulty understanding labeling
- No serious adverse outcomes were observed