

OCCUPATION

- 20 + yrs (9)
- retired (6)
- blue collar (6)
- housewife (2)
- white collar (2)
- out of school but (2)
- unemployed (1)
- managerial (1)
- student (1)
- ng (6)

GENHEALTH

- 0 - 1 yrs (4)
- dizziness (3)
- mobility problem (2)
- accident prone (1)
- awareness problem (5)
- 20 - 64 yrs (3)
- drunk/drinking (3)
- other drug present (3)
- dizziness/weakness (3)
- mobility problem (1)
- awareness problem (1)
- sensory problem (1)
- serious gen. illness (1)
- circulatory prob. (2)
- less serious illness (1)
- 65 + yrs (4)
- mobility problem (3)
- dizziness (3)
- awareness prob. (2)
- serious gen. illness (2)
- less serious illness (1)
- other drugs (1)
- circulatory prob. (1)

ENVIRONMENT DESCRIPTION

- CRITPROD (4)
- 0 - 19 yrs (4)
- ng (1)
- slippery tub bottom (1)
- slippery tub edge (1)
- bathroom rug slips (1)
- 20 - 64 yrs (6)
- ng (9)
- slippery tub bottom (1)
- rug slips (1)
- stair floor slippery (1)
- rubber mat slippud (1)
- 65 + yrs (6)
- ng (5)
- slippery rub bottom (1)
- rug slips (1)
- tile floor slippery (1)

- (1)
- (2)
- (6)
- (1)
- (2)
- (2)

- 2
- 3
- 4
- 5
- 6
- 7

ENVIRONMENT DESCRIPTION USER DESCRIPTOR

Victims range from 2 to 65 years and over with a predominance of those in the 65 and over grouping. The majority over 20 are females. They all suffer from some form of incapacity with dizziness and mobility problems accounting for almost 1/2 of all cases. The frequency (43) represents 16.5% of all cases.

All accidents involved the bathtub shower environment.

In addition to incapacities, 30% (13 of 42) of the victims under 65 indicated that they were in a hurried state. Those over 65 indicated that they were not hurried. 62% (26 of 42) of the victims had known incapacities and in spite of this condition, only 3 were attended by another person

There were no special physical provisions in the bathroom nor bathtub shower environment for the victims

Almost half (20 of 42) of the victims slipped and lost their balance.

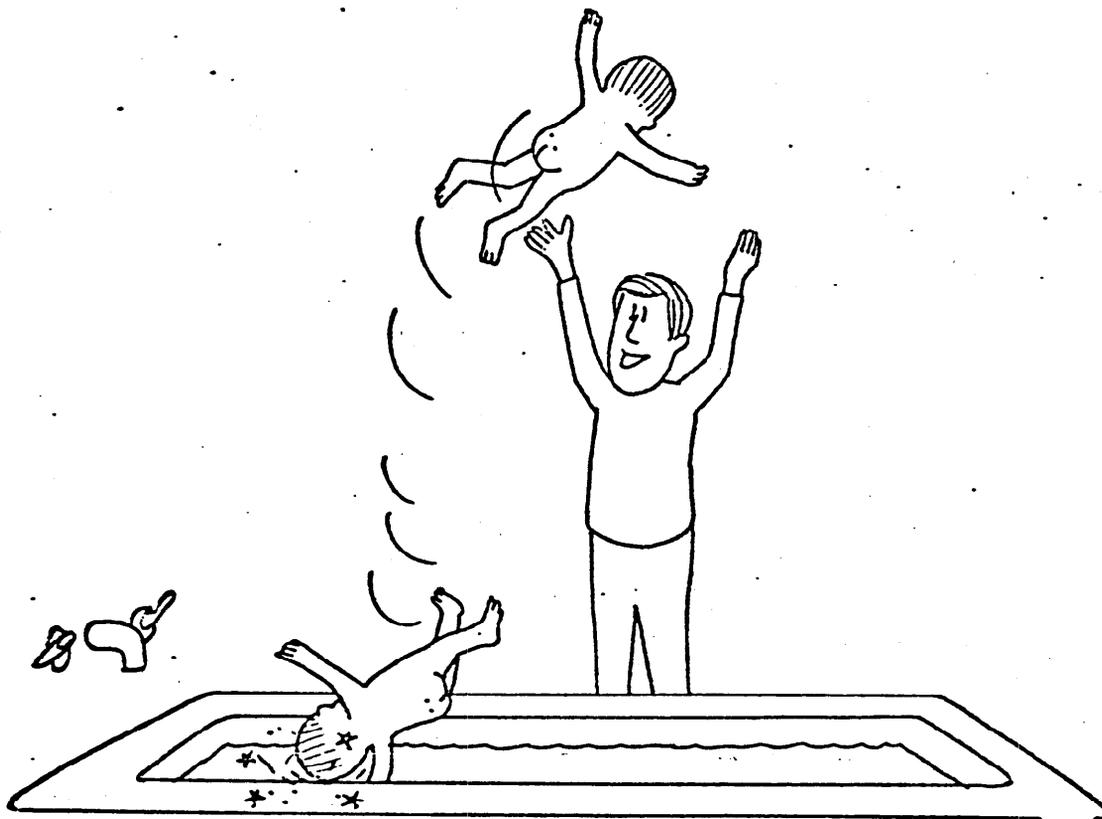
Almost half (20 of 42) of the victims slipped on the tub or shower surfaces.

Of the total case studies (43), 16 involved contusions and lacerations of the head, 15 involved various injuries to the mid-section and 6 involved fractures and dislocation of limbs. Of the two deaths involved, one was by drowning due to loss of consciousness and the other by burning due to a fall into hot water. 3/4 of the injuries fall into the 3 to 5 severity range.

3/4 of the victims were treated and released the same day while 1/4 required hospitalization. A high percentage (6 of 15) case in the 65 and over group required extended hospitalization.

SCENARIO 2

FREQUENCY 12



DIRECT ACTION BY A SECOND PARTY

Bathtub and shower area related accidents are directly or indirectly the responsibility of human capabilities. Misjudgement, incapacities or other miscalculations are at the core of the accident evolution and also at the core of the solution.

These errors can occur in product design or in education of the user; and as such, these accidents are indirectly the responsibility of those charged with design or information dissemination.

As seen in Scenario 1, educating the incapacitated user may have increased his care in the use of the bathroom and reduced accident incidence. In a more direct sense, the lack of responsible judgement in the continuity of attendance of those charged with the care of minors lead directly to fatalities as seen in Scenario 4.

When a second party is actually involved in the injurious sequence through willfull action, the most direct errors in judgement are evident. In reviewing the case studies, this direct involvement of a second party in the accident evolution was present in the twelve case studies. It is possible that injury would have occurred to the victim in other environments if the actions of the other party had taken place.

These cases would have been placed in other related scenarios had the other party not been an active participant; thus, intervention strategies applicable to these scenarios will cover those cases in Scenario 2.

SCENARIO 2 FREQUENCY 12

DIRECT ACTION BY A SECOND PARTY

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 2 - 4 yrs (6) 5 - 9 yrs (3) 10 - 19 yrs (2) 65+ yrs (1)</p> <p><u>SEX</u> male (6) female (5) ng (1)</p> <p><u>RACE</u> white (6) black (1) other (1) ng (4)</p> <p><u>GENHEALTH</u> normal - good (11) ng (1)</p>	<p><u>UPSETTIED</u> upset (1) fired (1) ng (10)</p> <p><u>PRECAUTION/HISTORY</u> history (3) ng (9)</p> <p><u>GOAL</u> bathing/playing (8) leaving tub after bath (2) playing in shower (1) washing dog (1)</p> <p><u>DISTRACTION</u> shaved (3) splashed w/cold water (1) dog jerked (1) ng (7)</p> <p><u>ATTENDANCE</u> parent (4) other relative (1) sibling (1) ng (6)</p> <p><u>CONTINUITY</u> continuous + assisting (5) continuous (1) ng (6)</p> <p><u>PRESENCE</u> child (7) ng (5)</p> <p><u>PRELOC</u> in tub (4) out of tub (2) in shower stall (1) ng (5)</p> <p>PRECRIT B</p>	<p><u>CRITUSER</u> slip + lose balance (9) burned (3)</p>	<p><u>POSTIA</u> falling down (5) falling backward (2) falling forward (1) burned (2) glass fall into tub and broke (1)</p>	<p><u>FIRST DIAG</u> laceration (8) burns (3) contusions/abrasions (1)</p> <p><u>FIRST BODY PART</u> head (7) legs (2) ribs (1) back (1) 25 - 50% of body (1)</p> <p><u>SEVERITY</u> 2 (1) 3 (1) 4 (1) 5 (7) 6 (1) 7 (1) 8 (2)</p>	<p><u>DISPOSITION</u> treated + released (1) hospitalized for 10+ days (1)</p>

USED DESCRIPTION:

ENVIRONMENT DESCRIPTION

	<p><u>PRECIT B</u> standing in tub (4) helped out of tub (2) jumped up (1) playing (1) reaching for dog (1) knocked glass off shelf above tub (1) struggling w/father placed in tub (1)</p>				
<p><u>DAY WEEK</u> ng (1) Sunday (2) Monday (2) Tuesday (1) Thursday (1) Friday (2) Saturday (3)</p> <p><u>PHYSICAL</u> tub or tub/shower combination (11) shower at pool club (1)</p> <p><u>AGETUB</u> ng (11) 10+ yrs (1)</p> <p><u>DETAILED</u> hot water heater (1) bath mat (1) ng (10)</p>	<p><u>AREA</u> in tub (9) just outside tub (1) on edge of tub (1) inside shower stall (1)</p> <p><u>LIQUID</u> tub full (8) tub water running (1) shower stall water running (1) ng (2)</p>	<p><u>CRITPROD</u> none/ng (7) very hot water (2) slippery tub bottom (1) slippery tile floor (1) soap dish broke (1)</p> <p><u>ADDITIONAL</u> ng (8) no control over water temp. (1) water heating on high (1) father dropped (or missed him) (1) glass on nearby shelf (1)</p>	<p><u>POSTPROD</u> broken glass in tub (1) ng (1)</p> <p><u>ENERGY</u> tub side/edge/rim (5) hot water faucets/other hardware (3) broken glass (1)</p>		

USER DESCRIPTION

The persons involved range in age from 2-65 and over with a predominance (6 of 11) in the 2 to 4 year age group. Of the ten known sex categories, 6 were male. The general health of all the victims is good. 10 of the 11 cases involve two persons while the other involves a person and a dog.

ENVIRONMENT DESCRIPTION

The product involved in 10 of 11 cases is a tub or tub shower combination while the remaining incident takes place in a public shower.

The victim was a passive participant in the accident. Someone else was the protagonist of the critical incident.

- Parent or relative (4)
- Peer (2)
- Sibling (5)
- Dog (1)

Most areas (9 of 11) were inside the tub and in 8 of 11 cases the tub was full of water.

In all cases the victim's involvement was the result of another persons action.

- being placed in tub (2)
- being chased by peer (1)
- being removed from tub (4)
- being antagonized by sibling (4)
- being pulled by dog (1)

3 incidents involved hot water and one a glass on a nearby shelf.

- Burned by hot water
- Slipped from grasp + fell
- Fell + knocked off bottle
- Pulled forward fall

Neiss Index severity levels range from 2 to 6 with over 50% at level 4.

- Burn (3)
- Resulted in 8 lacerations, 1 contusion/abrasion, 6 of which were to the head

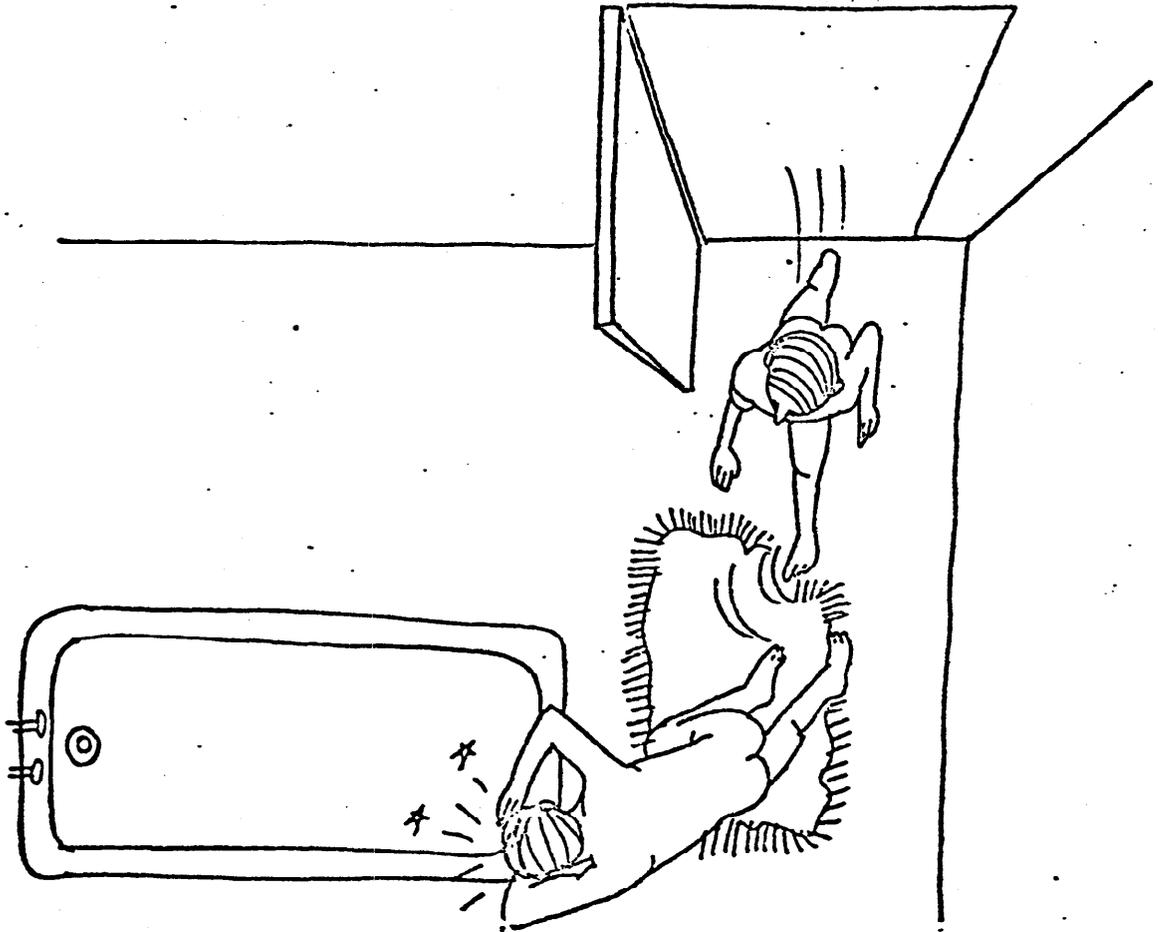
The injuring agents were:

- tub side edge tim (5)
- hot water (3)
- faucets/hardware (3)
- broken glass (1)

In (11) cases, the victim's were treated + released while one case required hospitalization for 10 or more days.

SCENARIO 3

FREQUENCY 20



BATHROOM ACTIVITY WITH SLIPS AND FALLS AGAINST TUB

Activity within or entering or leaving the tub or shower area was found to be only one way in which the user might enter into an accident sequence that involved the tub.

A variety of bathroom activity was found to result in tub injury when tub related injuries were examined. These patterns were seen as unique since the user may not have been planning to shower or bathe and was interacting from outside the tub or shower area, usually from the bathroom floor where he slipped and fell against the outer tub.

Given these considerations, a field of intervention strategies emerged particular to this sequence.

SCENARIO 3 FREQUENCY 20

BATHROOM ACTIVITY WITH SLIPS AND FALLS AGAINST TUB

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
AGE 0 - 1 ym (1) 2 - 4 ym (6) 5 - 9 ym (1) 25 - 44 ym (2) 45 - 54 ym (3) 55 - 64 ym (5) 65 + ym (2)	UPSETTIED tired (3) ng (17) upset (1) ng (19)	CRITUSER slip + lose balance (17) lose balance (3)	POSTA falling to side (3) falling down (17)	FIRST DIAG/ FIRST BODY lacerations head (11) fracture ribs (3) fracture back (1) contusion/abrasion back (1) wrist (1) head (1) sprain or strain lower back (2) (1)	DISPOSITION treated + released (18) hospitalized 1 day (2)
SEX male (13) female (7)	GOAL bathrooming/ toileting (8) playing in bathroom (3) bathing/playing (2) enter/leave tub (2) shower (1) cleaning tub (1) getting jar across tub (1) entering bathroom (1) ng (1)			SEVERITY 1 (1) 2 (1) 3 (3) 4 (10) 5 (4) 6 (1)	
RACE black (3) white (11) other (6)	ATTENDANCE ng (19) parent (1)				
MARITAL 18 + ym (4) married (8) ng (8)	CONTINUITY ng (19) continuous + assisting (1)				
OCCUPATION ng/not applicable (12) housewife (3) laborer (1) professional (2) managerial (1) retired (1)	PRESENCE ng (19) parent (1)				
DAYWEEK Sunday (5) Monday (2) Tuesday (3) Wednesday (2) Thursday (1) Friday (2) Saturday (2) ng (3)	PRELOC ng (19) In tub (1)				
	PRECRIIT B running into bath-room (4) standing (3) placed 2nd foot onto bathroom rug (3) enter/leave bath-room (2) leaned over edge (2)				

USER DESCRIPTION

ENVIRONMENT DESCRIPTION

	<p>of tub (1) reached across tub (1) for jar (1) playing (1) walked to tub (1) kicked metal can (1) stepped on toy car (1) ng (2)</p>				
<p><u>PHYSICAL</u> tub or tub/shower combination (18) old fashion tub w/ feet (1) standard mfg. (1)</p> <p><u>AGETUB</u> ng (16) 0 - 3 yrs (1) 4 - 6 yrs (1) 7 - 10 yrs (1) 10+ yrs (1)</p>	<p><u>AREA</u> bathroom floor (8) outside tub + shower (5) just outside tub (2) bathroom entrance on bathroom rug (2) ng (1)</p> <p><u>PREPRODUCT</u> toy (2) waste can (1) jar (1) throw rug (1) ng (17)</p> <p><u>LIQUID</u> tub or stall empty (12) + dry (3) tub full (3) ng (5)</p>	<p><u>CATPROD</u> slippery floor (8) bathroom rug (4) tile floor (2) slipped mat (1) ng (5)</p> <p><u>ADDITIONAL</u> wet floor (4) lights out in room (2) waxed floor (1) rug wet (1) no rubber backing (1)</p>	<p><u>ENERGY</u> tub side/edge/rim (15) tub (4) scoopish (handrail) (1)</p>		

USER DESCRIPTION

The persons involved range in age from 0 to 65 and over with peaks at 2 - 4 (6) and 55 - 64 (5)

ENVIRONMENT DESCRIPTION

All cases involve bathroom activity outside the tub or tub/shower combination unit.

Seven of the twenty victims indicated that they were hurried at the time of the accident and four were running into the bathroom.

In four cases the floor was noted as being wet, in six cases a rug was present and in three cases foreign objects were present on the floor.

In seventeen instances, the victim slipped and lost balance and in the remaining three lost balance

The bathroom floor was noted as being slippery in eight cases at the time of the critical incident. Six cases involved slipping on a toy or foreign object.

All cases involved falling down (17) or falling to the side (3).

After falling, the victim struck the tub side, edge or rim (15), the tub (4), and fell over the tub striking a metal soap dish and knocking it off the wall (1).

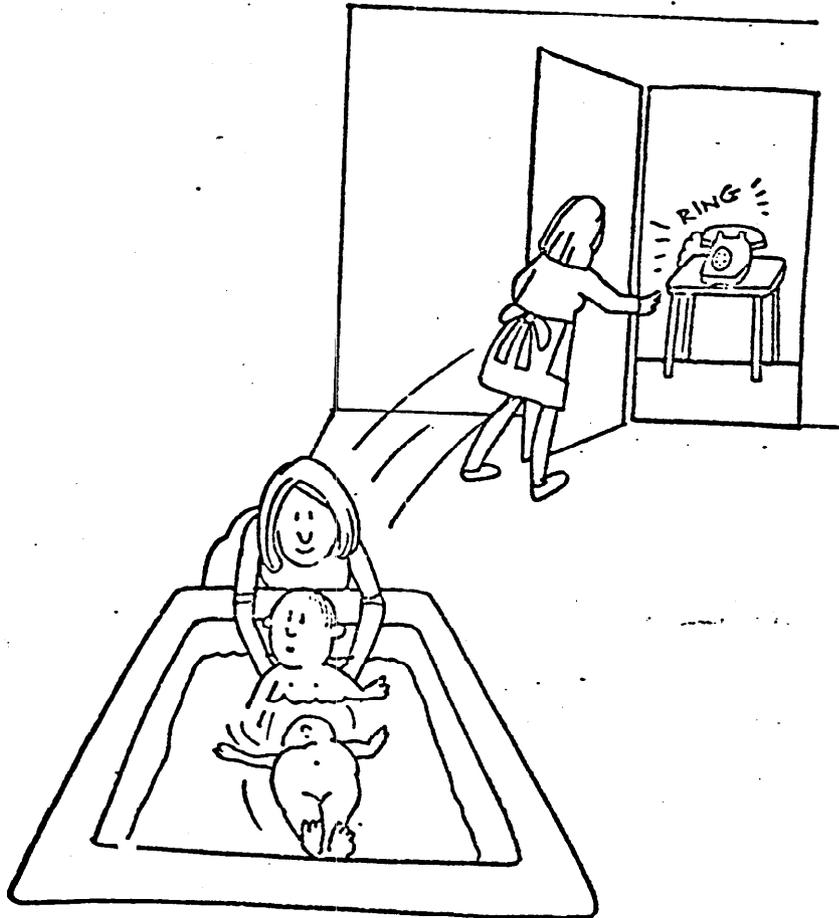
The majority (11) of the the injuries resulted in lacerations to the head, while there were three fractured ribs and two contusion/abrasions to the head.

NEISS Severity Index levels ranged from one to six with 50% at level four.

Eighteen of the victims were treated and released from the hospital while two required one day of hospitalization.

SCENARIO 4

FREQUENCY 4



TUB BATHING OF UNDER-ATTENDED CHILDREN UNDER TWO RESULTING IN DROWNING

Factors of attendance and continuity of attendance of responsible persons often had little bearing on accidents relating to children, particularly with regard to slips and falls.

Within the drownings, the correlation of attendance to continuity in the drownings of children indicated a pattern which emerged as a scenario describing the circumstances and conditions of this fatal consequence.

SCENARIO 4 FREQUENCY 4

TUB BATHING OF UNDER-ATTENDED CHILDREN UNDER TWO RESULTING IN DROWNING

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p>AGE 0 - 1 (4)</p> <p>SEX male (3) female (1)</p> <p>RACE Black (4)</p> <p>GEN HEALTH normal - good (2) not given (2)</p>	<p>GOAL to take bath (3) not given (1)</p> <p>ATTENDANCE not given (1) mother (3)</p> <p>CONTINUITY not given (1) longer interruptions (3)</p> <p>PRESENCE not given (1) older children (1) older child (2)</p> <p>PRESLOC in tub (2) not given (2)</p>		<p>POSTCRIT A falling down striking right side (1) Submerged (1) ng (2)</p>	<p>SEVERITY severity (4)</p>	<p>DISPOSITION asphyxiated (4)</p>

2000

ENVIRONMENT DESCRIPTION

	<p><u>PHYSICAL</u> bathrub (4)</p> <p><u>AGETUB</u> 10+ yrs (1) 0 - 3 yrs (1) ng (2)</p> <p><u>DETAILED</u> bathseat (1) without straps (3) ng (3)</p>
	<p><u>AREA</u> tub (4)</p> <p><u>LIQUID</u> tub full (2) tub partially full (2)</p> <p><u>PRECRIT A B</u> bathing (2) sitting in seat (1) sucking on (1) washcloth (1)</p>
	<p><u>CRITPROD</u> bathseat (1) without straps (3) ng (3)</p>
	<p><u>ENERGY</u> drowning (4)</p>

USER DESCRIPTION

All victims involved are under the age of two.

In all cases, the baby was in some process of being bathed. The baby was attended; in three cases by the mother. The continuity of attendance was known to be discontinuous in three of four cases.

As no responsible attendant was present at the time of the critical incident, the factors are unknown.

One child was found submerged. Drowning resulted in all four cases.

All four children drowned. NEISS severity index was seven (death) in all four cases.

Disposition:
Expired (4)

ENVIRONMENT DESCRIPTION

All cases involve the bathtub with one containing a bathseat.

In two cases the tub was full and in the other two cases partially full. Two babies were noted as bathing, one sitting in a bathseat without straps and one sucking on a washcloth.

One case cited as a bathseat without straps.

SCENARIO 5

FREQUENCY 13



TUB BATHING OF CHILDREN UNDER FIVE
WITH HEATED WATER RESULTING IN BURNS

Following the lead of age severity categories similarities and burn injuries, burns of children emerged as a correlated subgroup of injury and age group.

When other conditions of these subgroups were analyzed, what emerged was a pattern of hot faucet water and tub filled with heated water scalding very young children who were often briefly left alone.

SCENARIO 5 FREQUENCY 13

TUB BATHING OF CHILDREN UNDER FIVE WITH HEATED WATER RESULTING IN BURNS

ACCIDENT SETTING FACTORS	PRECRIITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 2 - 4 yrs (7) 0 - 1 yrs (6)</p> <p><u>SEX</u> male (9) female (4)</p> <p><u>RACE</u> black (6) white (2) not given/other (5)</p> <p><u>GENHEALTH</u> normal = good (13)</p>	<p><u>UPSETTIED</u> neither (13)</p> <p><u>HURRIED</u> no (13)</p> <p><u>GOAL</u> bathing + playing (5) bathing (3) returning to bath (2) playing in bathroom (1) waiting for return of responsible person (1) hanging up towel (1)</p> <p><u>ATTENDANCE</u> parent (9) no one (2) sibling (1) not given (1)</p> <p><u>CONTINUITY</u> discontinuous (10) not given (3)</p> <p><u>PRESENCE</u> not given (10) child (3)</p> <p><u>PRESLOC</u> not given (10) in tub (3)</p> <p><u>PRECRIIT B</u> faucet turned on by victim (4) (1 climbed over side) faucets turned on by another (5) (all climbed or leaned over side) faucets not turned on tub full (4) (all climbed or fell over side)</p>	<p><u>CRITUSER</u> burned (6) lose balance (5) slip + lose balance (1) hand slipped (1)</p>	<p><u>POSTA</u> burned (4) falling down (4) not given (2) falling down into tub (1) falling backwards (1) trapped in tub (1) not given (1)</p>	<p><u>FIRST DIAG</u> burns (5)</p> <p><u>FIRST BODY</u> forehead (1) arms (4) back (2) side (1) lower trunk (1) buttocks (2) legs (2)</p> <p><u>SEVERITY</u> 5 (5) 6 (5) 7 (3)</p> <p>Severity of faucet water related burns 5 (3) 6 (1)</p> <p>Severity of tub water 5 (2) 6 (4) 7 (3)</p>	<p><u>DISPOSITION</u> treated + released (5) hospital for: 1 day (1) 5 - 10 days (2) 10+ days (4) expired after 1 day (1)</p>

USER DESCRIPTION

ENVIRONMENT DESCRIPTION

<p><u>PHYSICAL</u> tub in bath (2x5')</p> <p><u>AGETUB</u> no 7 - 10 yrs 10 + yrs</p>	
<p><u>AREA</u> inside/outside tub inside tub just outside tub</p> <p><u>LIQUID</u> hub water running hub full or part full hub wet + empty hub empty + dry not given</p>	
<p><u>CRITPROD</u> very hot water soap film on tub bottom slippery tub edge bath stool slippery tub bottom</p>	

(12)
(1)
(10)
(1)
(2)

(8)
(3)
(2)
(7)
(3)
(1)
(1)
(1)

(8)
(2)
(1)
(1)
(1)

USER DESCRIPTION

The children are all in the 0 to 4 age group. 9 of the 13 are males. They are all reported to be in normal/good health.

ENVIRONMENT DESCRIPTION

All incidents involve a tub with one being a tin bath.

None of the victims are hurried or upsettired. Activities involve pre bathing or bathing.

The bathtub is either being filled or filled with hot water previous to entry. The bathtub is empty with hot water running or not.

The child is burned (6), loses his balance (5), slips and loses balance (1), or has his hand slip (1).

He enters the tub with very hot water by 1) slipping on edge and falling in, 2) climbing over edge, 3) placed in by other person. The hot water faucet is turned on. He is placed in tub or has been in previously. He is standing near stream of hot water from faucet which he may have turned on himself.

The victim is generally burned having fallen down or backwards or trapped in the tub.

He is totally or partially immersed in the hot water, is severely burned, falls down, is trapped. He is burned over a large area of his body. He is rescued shortly. He is severely burned over particularly the feet and legs and wrists by falling, slipping backward, screaming. He is rescued immediately.

He is injured in the back (2), arms (4), buttocks (2) or legs (2). NEISS Severity Index levels were:
Severity 5 (5)
Severity 6 (5)
Severity 7 (3)

Severity is greatest due to degree of submersion.

5 (2)
6 (4)
7 (3)

Severity is high but not fatal due to burn/total

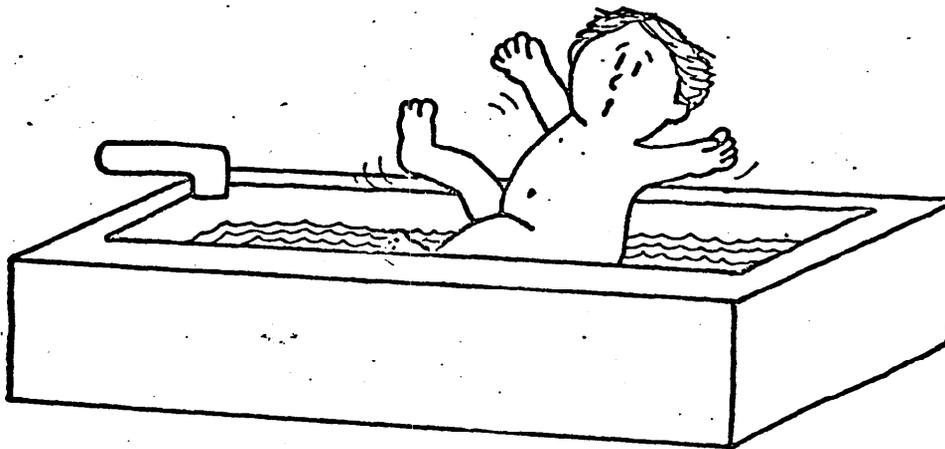
nature of burns:

5 (3)
6 (1)

5 victims were treated and released from the hospital, 1 required (1) day hospitalization, 2 required (5-10) days hospitalization, 4 required (10+) days hospitalization and 1 expired after (1) day.

SCENARIO 6

FREQUENCY 38



TUB BATHING OF CHILDREN UNDER TEN
WITH SLIPS AND FALLS RESULTING IN
LACERATIONS OR CONTUSIONS TO THE HEAD

While adults of a variety of ages engaged in shower activity, children under ten rarely showered.

When the tub bathing activities of these children were correlated against critical incidents and postcritical incident factors, a pattern of bathing with slips and falls against the tub edge developed.

Height of this user and tub appeared to interact to produce a high frequency of injuries to the head.

Perhaps a chin injury sub-scenario would have been justified considering the frequency of this body part injured.

SCENARIO 6 FREQUENCY 38

TUB BATHING OF CHILDREN UNDER TEN WITH SLIPS AND FALLS RESULTING IN LACERATIONS OR CONTUSIONS TO THE HEAD

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 0 - 1 yrs (10) 2 - 4 yrs (24) 5 - 9 yrs (4)</p> <p><u>SEX</u> male (25) female (13)</p> <p><u>RACE</u> white (23) black (8) Am. Indian (1) other (1) hg (5)</p> <p><u>GENHEALTH</u> normal - good (38)</p>	<p><u>UPSETTIED</u> tired (3) not given (35)</p> <p><u>PRECAUTION/HISTORY</u> history (1) ng (37)</p> <p><u>DISTRACTION</u> other person (1) ng (37)</p> <p><u>GOAL</u> bathing (19) leaving tub (10) bathing + playing (3) entering tub (2) entering tub to join mother (1) ng (3)</p> <p><u>ATTENDANCE</u> 0 - 1 no one (1) w/parent (6) ng (3) 2 - 4 w/parent (15) other child (1) ng (1) 5 - 9 ng (4)</p> <p><u>CONTINUITY</u> 0 - 1 continuous (5) continuous + assisting (1) ng (4) 2 - 4 less than 1 min. (2) interruption continuous w/longer (7) interruption continuous but engaged (3)</p>	<p><u>CRITUSER</u> slips and loses balance (35) ng (3)</p>	<p><u>POSTA</u> falling down (26) falling backward (5) falling forward (4) ng (3)</p>	<p><u>FIRST DIAG</u> lacerations contusion/abrasion (33) ng (5)</p> <p><u>FIRST BODY</u> head (38)</p> <p><u>SEVERITY</u> 3 (5) 4 (31) 5 (2)</p>	<p><u>DISPOSITION</u> treated + released (38)</p>

USER DESCRIPTION:

ENVIRONMENT DESCRIPTION

<p>continuous but engaged ng (3) 5-9 ng (9) ng (4)</p>	<p>PRESENCE children in tub (14) parent (1) ng (23)</p> <p>PRESTLOC tub (14) out of tub (1) in shower stall (1) ng (22)</p> <p>PRECRIT 8 standing (30) leaving tub (3) jumping (2) turned on water (1) reached down to pick up soap (1) ng (1)</p>	<p>CRITPROD tub bottom slippery (28) slippery mat (1) slippery bath seat (1) plastic toy (1) ng (7)</p> <p>ADDITIONAL soapy tub (8) ng (30)</p>	<p>ENERGY tub side/edge/rim (28) back (2) tub bottom (3) tub (3) soap dish (1) ng (3)</p>		
<p>PHYSICAL tub/tub shower combination (36) tub w/ steeply sloped floor (1) fiber glass tub (1)</p> <p>AGETUB ng (19) 0-3 yrs (5) 4-6 yrs (3) 7-10 yrs (2) 11-15 yrs (1) over 20 yrs (4) over 10 yrs (4)</p>	<p>AREA in tub (32) inside + outside tub (4) on edge of tub (1) ng (1)</p> <p>PREPROD small object (3) bath seat (1) ng (34)</p> <p>LIQUID full or part full (24) draining (3) empty/wet (1) empty/dry (1) running (1) not given (8)</p> <p>SAFETY bath mat or non-slip surface (6) none or not given (32)</p>				

ENVIRONMENT DESCRIPTION

USER DESCRIPTION

The children involved range in age from 0-9 with a predominance (24) in the 2-4 year age group. 68% (25 of 38) are male. The general health of all the victims was reported normal/good.

The bathtub is involved in all of the cases

In the majority of cases the victims goal is bathing or leaving or entering after or before bathing. (30 of 38) In the 0-1 age category the victim is more often (6 of 10) attended by a parent; in the 2-4 age category by a parent or other child (16 of 24). The continuity of attendance is constant for the 0-1 age group, however, drops off in the upper age groups. In most cases (30 of 38) the child is standing in the tub.

In 84% (32 of 38) of the cases the children are inside the tub, 63% (24 of 38) of the time the tub is full or partially full.

The victim generally slips and loses balance (35 of 38).

In 73% of the cases, the tub bottom was cited as being slippery and in 8 cases the tub was noted to be slippery.

The victim either falls down, falls backward or falls forward.

The fall results in hitting the tub side, edge, back or rim in 77% of the cases

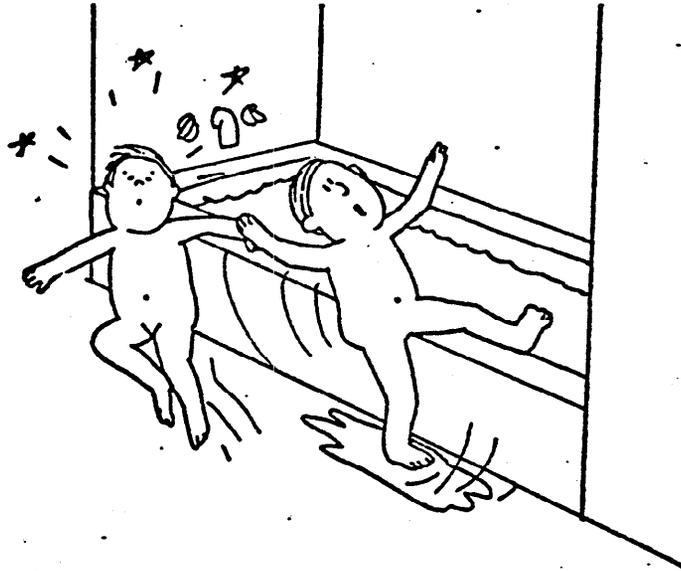
Lacerations accounted for 33% of the injuries with contusions/abrasions accounting for the remaining 5.
In all cases the head was the injured portion of the body. NEISS Severity Index data placed most injuries (31 of 38) in the severity level 4 category.

Severity 3 (5)
Severity 4 (31)
Severity 5 (2)

All 38 victims were treated at the hospital and released.

SCENARIO 7

FREQUENCY 4



TUB LEAVING ACTIVITY OF CHILDREN UNDER TEN WITH SLIPS ON FLOOR

By closely analyzing the transition between the tub interior and exterior, a special vulnerability and class of accidents to children under ten emerged.

It is probable that many more of these children might have had similar injuries had they not been injured while attempting to leave and still within the tub.

The sides of the tub formed a formidable barrier on the inside (see Scenario 6) while the floor of the bathroom in this scenario was found to be a hazard on the opposite side of the tub wall.

SCENARIO 7 FREQUENCY 4

TUB LEAVING ACTIVITY OF CHILDREN UNDER TEN WITH SLIPS ON FLOOR

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 3 yrs (1) 6-7 yrs (3)</p> <p><u>SEX</u> male (3) female (1)</p> <p><u>RACE</u> other (1) ng (3)</p>	<p><u>GOAL</u> Leave tub after bath (4)</p> <p><u>ATTENDANCE</u> ng (3) parent (1)</p> <p><u>CONTINUITY</u> ng (3) In tub (1)</p> <p><u>PRESENCE</u> child (1) ng (3)</p> <p><u>PRESLIP</u> tub (1) ng (3)</p> <p><u>PRECIT B</u> not given (2) placed right foot out of tub (1) knocked glass on floor (1)</p>	<p><u>CRITUSER</u> slip + lose balance (4)</p>	<p><u>POSTA</u> falling down (4)</p>	<p><u>FIRST DIAG/ FIRST BODY</u> laceration head (3) laceration hip (1)</p> <p><u>SEVERITY</u> 4 (4)</p>	<p><u>DISPOSITION</u> treated + released (4)</p>

USER DESCRIPTION:

ENVIRONMENT DESCRIPTION

<p><u>DAYWEEK</u> Saturday (3) ng (1)</p> <p><u>PHYSICAL</u> tub or tub/shower combination (4)</p> <p><u>AGETUB</u> ng (3) over 10 yrs (1)</p>	<p><u>AREA</u> inside + outside tub (3) in tub (1)</p> <p><u>LIQUID</u> ng (3) tub full (1)</p> <p><u>SAFETY</u> ng (2) none (1) non slip surface (1)</p>	<p><u>CRITPROD</u> slippery tub edge (2) tile floor slippery (1) slippery tub bottom (1)</p> <p><u>ADDITIONAL</u> ng (2) wet floor (2)</p>	<p><u>ENERGY</u> broken glass (1) tile floor (1) tub (1) toilet seat (1)</p>		

ENVIRONMENT DESCRIPTION

USER DESCRIPTION

The environment is the bathtub.

The victim is a child between the ages of three and seven, in good health and in every way normal.

The tub interior is wet, the child having finished his bath. The bathroom floor is also wet in most cases. In one case, there is a non-skid surface treatment on the tub bottom, but in all cases none on the floor.

The child has finished his bath and is in the process of climbing out of the bathtub. It is presumed that his whole body is wet. He is more than halfway out of the tub, placing his foot on the floor outside. In the case involving the three year old, the mother was in attendance.

The tub and floor surfaces are slippery, especially so since they are wet.

In the transition of leaving the tub, with one foot in and one foot out, the child slips and loses his balance.

He hits his head (3) or hips (1) on the bathroom floor (1), tub edge (1), or plumbing fixture adjacent to the tub, e.g. toilet seat (1). In one case, he falls on broken glass on the bathroom floor.

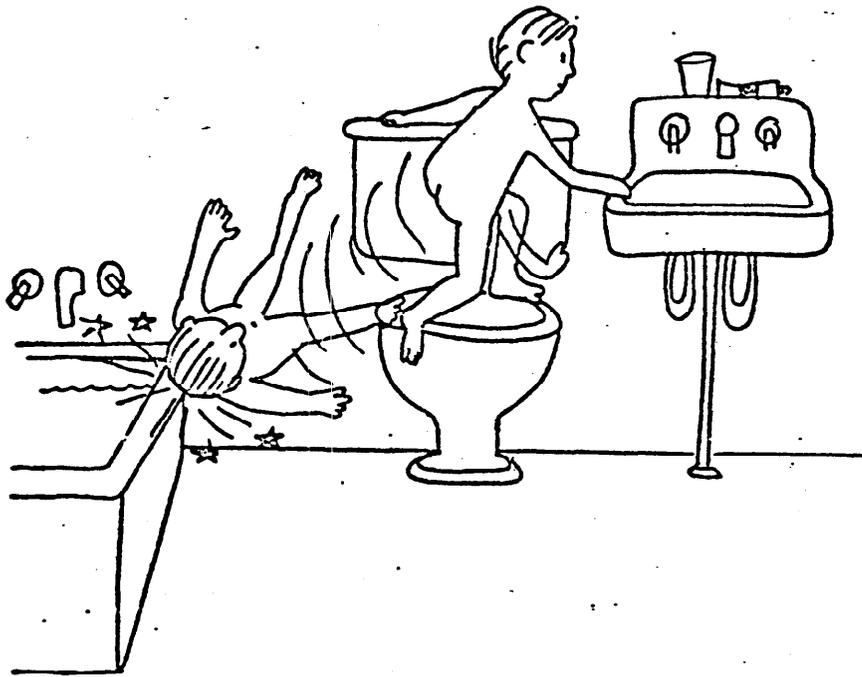
The child falls, unable to grab anything within reach. He falls forward toward the outside of the tub (3) or downward (1).

The resulting injury is a laceration to the head (3) or hip (1) with a NEISS severity index of four.

All the lacerations required stitching, however, because the severity of the injury was not serious, the victim was treated and released from the emergency ward on the same day.

SCENARIO 8

FREQUENCY 3



PLATFORM POSITION (OTHER THAN TUB EDGE)
OF CHILDREN UNDER FOURTEEN
WITH FALLS AGAINST TUB EDGE

Activity related to accidents in the bathroom area took a distinct turn when data review showed that not all losses of balance or slips and falls were from the floor of tub edge.

Review of these cases showed that while the user was old enough to climb, he was not old enough to perceive the danger of his position.

While there are few cases representing this scenario, it appears a unique and vulnerable condition of the user in relation to the tub requiring special intervention considerations.

SCENARIO 8 FREQUENCY 3

PLATFORM POSITION (OTHER THAN TUB EDGE) OF CHILDREN UNDER FOURTEEN WITH FALLS AGAINST TUB EDGE

USER DESCRIPTION

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 3 yrs (1) 5 yrs (1) 13 yrs (1)</p> <p><u>SEX</u> male (2) female (1)</p> <p><u>RACE</u> white (2) other (1)</p> <p><u>GENHEALTH</u> good/normal (3)</p>	<p><u>GOAL</u> washing hands + feet (1) playing in bathroom (1) tollieing (1)</p> <p><u>ATTENDANCE</u> ng (3)</p> <p><u>CONTINUITY</u> ng (3)</p> <p><u>PRESENCE</u> ng (2) child (1)</p> <p><u>PRESTLOC</u> ng (3)</p> <p><u>PRECRIT B</u> standing on right foot + washing left (on toilet) standing on toilet playing (1) (1) (1) (1)</p>	<p><u>CRITUSER</u> slip + lose balance (1) lose balance (2)</p>	<p><u>POSTIA</u> falling down (2) falling backwards (1)</p>	<p><u>FIRST DIAG/ FIRST BODY</u> laceration head (2) confusion/obstruction head (1)</p> <p><u>SEVERITY</u> 3 (1) 4 (2)</p>	<p><u>DISPOSITION</u> treated + released (3)</p>

ENVIRONMENT DESCRIPTION

	<p><u>DAYWEEK</u> Monday Wednesday</p> <p>(2) (1)</p> <p><u>PHYSICAL</u> hub</p> <p>(3)</p> <p><u>AGETUB</u> ng</p> <p>(3)</p>		<p><u>AREA</u> on roller on shelf of cabinet</p> <p>(2) (1)</p> <p><u>LIQUID</u> ng hub empty</p> <p>(1) (2)</p>		<p><u>ENERGY</u> hub side/edge/rim</p> <p>(3)</p>	

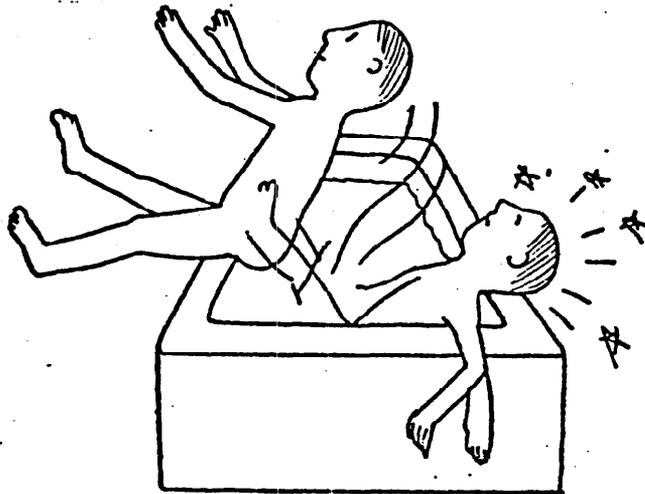
ENVIRONMENT DESCRIPTION

USER DESCRIPTION

<p>These are platform structures, toilet (2), and shelf (1), located adjacent to the bathtub.</p>	<p>A child is between the ages of three and thirteen, of normal health.</p>
<p>The activity requires that he stand on the toilet seat (2) or in playing, sit on a shelf. Although there is no liquid in the bathtub, in all cases, there is a possibility that the toilet seat (2) is wet due to his washing his feet or howling urinated on it.</p>	<p>He is attempting to carry out a task, either washing his feet on the toilet (1) or flushing the toilet (1) or is playing (1).</p>
<p>The surface of the toilet seat and shelf are slippery.</p>	<p>He slips and loses his balance while on the platform surface (toilet seat or shelf).</p>
<p>His head hits the side/edge of the bathtub which is located next to the platform structure.</p>	<p>He falls from the platform elevation downward and outward, or backward toward the bathtub.</p>
<p></p>	<p>The injury sustained is a laceration (2) or contusion/abrasion (1) to the head. The severity of the injury, by the NEISS index is three (1) and four (2).</p>
<p></p>	<p>All cases (3) were treated and released on the same day.</p>

SCENARIO 9

FREQUENCY 12



TUB EDGE POSITION WITH FALLS

While particular factor options often separated the child and the adult in accident sequences that otherwise may have been similar, the area of the tub edge position of all users correlated with a significant number of balance problems.

Standing or seated positions were both related to cases of falls into the tub.

SCENARIO 9 FREQUENCY 12

TUB EDGE POSITION WITH FALLS

USER DESCRIPTION

ACCIDENT SETTING FACTORS	PRECITICAL INCIDENT FACTORS	CRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT FACTORS	POSTCRITICAL INCIDENT CONSEQUENCES	INCIDENT RECOVERY CONSEQUENCES
<p><u>AGE</u> 2 - 4 yrs (4) 5 - 9 yrs (7) 45 - 54 yrs (1)</p> <p><u>SEX</u> male (6) female (6)</p> <p><u>RACE</u> white (7) black (3) ng (2)</p> <p><u>GENHEALTH</u> normal - good (4) ng (8)</p>	<p><u>GOAL</u> to enter/leave tub (4) to sit on the tub edge (7) to watch mother/ shave legs/look in mirror (1) playing in bathroom (1) wading feet (1) bathing + playing (2)</p> <p><u>ATTENDANCE</u> ng (10) parent (2)</p> <p><u>CONTINUITY</u> ng (10) continuous but engaged (2)</p> <p><u>PRESENCE</u> ng (7) child (3) children (1) alone (1)</p> <p><u>PRELOC</u> ng (8) in tub (2) out of tub (2)</p> <p><u>PRECRIIT B</u> sitting on edge of tub (3) sitting on edge of tub, reaching (1) standing on edge of tub (1) standing on edge of tub, reaching (1) jumping from tub edge (3) climbing on edge of tub (1) placed leg, both hands on tub edge (1) ng (1)</p>	<p><u>CRITUSER</u> slip + lose balance (7) lose balance (4) other (1)</p>	<p><u>POSTA</u> falling down (7) falling backward (4) legs slipped backwards, body fall forward (1)</p>	<p><u>FIRST DIAG/ FIRST BODY</u> lacerations head (8) lacerations lower back (1) dislocation chest (1) hematoma right lower leg (1) contusion/abrasion head (1)</p> <p><u>SEVERITY</u> 3 (2) 4 (9) 6 (1)</p>	<p><u>DISPOSITION</u> treated + released (11) hospitalized 1 day (1)</p>

ENVIRONMENT DESCRIPTION

DAYWEEK

Sunday (2)
 Monday (2)
 Thursday (3)
 Friday (1)
 Saturday (2)
 ng (2)

PHYSICAL

tub or tub/shower
 combination (9)
 standard mfg. (1)
 porcelain tub (1)
 old fashion type on
 4 legs (1)

AGE/TUB

7 - 10 yrs (1)
 11 - 15 yrs (1)
 over 10 yrs (1)
 ng (9)

AREA

on edge of tub (11)
 inside + outside tub (1)

LIQUID

tub wet + empty no
 water running (3)
 tub full (2)
 tub water running (1)
 tub empty + draining (1)
 ng (5)

SAFETY

ng (9)
 none (2)
 bath mat (1)

CRITPROD

slippery tub edge (6)
 slippery floor (1)
 ng (5)

ADDITIONAL

ng (9)
 wet tub edge (2)
 wet floor (1)

ENERGY

tub side/edge/rim (4)
 soap dish/hand
 rail (2)
 linoleum or tile
 floor (2)
 bath stool (2)
 faucets/other
 hardware related
 to faucets (1)
 broken radiator
 valve (1)

ENVIRONMENT DESCRIPTION

USER DESCRIPTION

The product involved is always bathtub whose edge is being used for sitting, standing, or climbing.

Almost all of the persons involved were children between 2 and 9 years old (11) of normal health. Half of them were males and half females.

Since 9 of the persons had finished taking a bath, it is assumed that in those cases, either the person and/or the tub edge was wet. In all cases, the tub edge was being used for a principal support of the body of the person. In no cases were there any special surface treatments on the edge.

Most of the children (8), adult (1), had finished taking their bath. The other children (3) were in the bathroom engaged in a non-bathing activity. In only 2 cases was a parent attending the child. They were standing or jumping from the edge of the tub (5), sitting on the edge (4), or climbing over on the edge (2).

In half of the cases (6), the tub edge was described as being "slippery".

Almost all of the victims (11) slipped or lost their balance while using the tub edge as a support surface.

All of the children (11), adult (1) fell. The direction of their fall relative to their initial position was downward (7), backward (4) or forward (1). They fell on the tub edge (4), into the tub against an accessory (3) or outward hitting an object in the bathroom (5).

All of the children (11), adult (1) fell. The direction of their fall relative to their initial position was downward (7), backward (4) or forward (1). They fell on the tub edge (4), into the tub against an accessory (3) or outward hitting an object in the bathroom (5).

Of the children, the head was the part of the body most injured (8), the midsection of the body was next. Lacerations were the most frequent type of injury. The adult suffered a dislocated shoulder. The severity of the injuries according to the NEISS Index were concentrated on 4. The adult whose shoulder was dislocated was recorded as severity 6.

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All of the children (11) were treated and released on the same day. The adult (1) was hospitalized for 1 day.

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