



# INVESTIGATION GUIDELINE

## PLAYGROUND EQUIPMENT

August 2004

### I. INTRODUCTION

#### A. Background Information

An estimated 220,000 injuries associated with playground equipment were treated in U.S. hospital emergency rooms in 1997; approximately 87,000 of these injuries involved children under the age of six. Previous analyses of data revealed deaths and serious injuries resulting from falls, impact with moving equipment, entrapment and contact with protrusions, pinch points, sharp edges and sharp points.

In 1981, the Commission published a two-volume handbook set for public playground safety, ("A Handbook for Public Playground Safety," Volumes I and II). In 1991, these handbooks were superseded by a single "Handbook for Public Playground Safety" that was revised and republished in 1997 (see attached). In addition, there are ASTM voluntary standards for both home and public playground equipment. A third ASTM standard for Soft Contained Play Equipment (most commonly found in fast food restaurants and "pay-for-play" settings) is about to be published.

In FY 1999, CPSC will conduct a NEISS-based special study of playground equipment-related injuries to obtain current information on the products and circumstances involved. CPSC's last playground equipment injury study was conducted in 1988. Since that time, there have been changes in the types and usage of equipment in the United States, and a variety of actions have been taken to address playground hazards. The data for this study will be collected through both telephone and on-site investigations, and will be analyzed in FY 2000.

#### B. Product Description

Playground equipment is divided into several major groups:

1. **PUBLIC PLAYGROUND EQUIPMENT** - is usually found in schoolyards, public parks, amusement parks, licensed child care facilities, apartment complexes and other public recreational areas. The CPSC handbook contains recommendations for this type of equipment. There is also an ASTM voluntary standard for public playground equipment (ASTM F1487).
2. **PRE-SCHOOL PLAYGROUND EQUIPMENT** - is a sub-set of public playground equipment. Intended for children 2-5 years of age, it is usually found at licensed child care facilities, pre-schools, and in separate pre-school areas at public playgrounds. The CPSC playground handbook contains a number of specific recommendations for pre-school playground equipment (see Section 6.3 on pages 8 & 9 of current handbook).

3. HOME PLAYGROUND EQUIPMENT - is generally found in the backyards of private residences. It is usually of lighter weight and less durable than public playground equipment. There is an ASTM voluntary standard (ASTM F1148) for this type of equipment. Home playground equipment may also be found in childcare facilities that are being operated in private residences.
4. SOFT CONTAINED PLAYGROUND EQUIPMENT - is generally found in fast food restaurants, indoor shopping malls and facilities where children pay to play on the equipment. Typically it consists of plastic crawl tubes and slides, climbing nets, ball pits and other padded climbing apparatus. It is enclosed, generally by netting, to minimize the likelihood that a child can fall to the ground surface.

### **C. Specific Items of Interest**

In addition to providing a full description of the incident sequence, please describe any relationship there may have been between the injury and such factors as product design, installation, modification, maintenance, or failure. For example, equipment with appropriate and safe designs may be installed, repaired, or maintained improperly, thus contributing to injuries. Improper modifications such as inserting additional rungs in climbing apparatus could result in entrapment hazards. Poor design, such as improper placement of moving components or excessive step spacing could lead to impact with moving equipment or falls.

Multi-activity composite play structures (e.g., climber/slide/swing combinations) have become increasingly common in both home and public settings. If the incident involved such a structure, it is important to obtain a full description of the equipment, including any design features that may have contributed to the incident.

Playground equipment-related injuries have been reported as among the most common injuries that occur in daycare settings, but detailed information is lacking about the extent of the problem and the circumstances involved. Please determine whether the incident occurred while the child was in a daycare situation, such as in a school (e.g., before- and after-school care), home, church-sponsored center, corporate- or government-sponsored center, etc.

Be sure to include in the narrative any factors that were felt to have contributed to the incident even if they were not specifically mentioned in the guidelines.

### **D. Headquarters Contacts**

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## **II. INSTRUCTIONS FOR COLLECTING SPECIFIC INFORMATION**

**NOTE:** In the FY 1999 special study, each incident will be followed up by a telephone investigation conducted by a CPSC contractor, prior to reassignment for an on-site investigation. This is to ensure the timely collection of key data elements, improve the sample response rate, and obtain information on incidents for which an on-site investigation may not be possible. In order to avoid duplication of effort, it is not necessary to repeat all questions previously answered when conducting the on-site investigation. However, it is extremely important to "spot check" the accuracy of previously collected data and obtain the additional on-site information to the extent possible.

When documenting the on-site investigation, it is essential to provide a narrative description of the incident (in an in-depth investigation format) in order to obtain a clear understanding of the sequence of events and circumstances involved. However, it is also important to complete and attach a data-recording sheet with each investigation conducted. While the narrative portion of the investigation may duplicate some elements of the data-recording sheet, the data recording sheet IS NOT to be used in lieu of an in-depth investigation format. Rather, it is intended to enhance the investigation, facilitate coding of the investigation, and provide guidance for the investigator. Answer all questions using appropriate "unknown" or "not applicable" responses as needed.

**A. Synopsis**

Please describe the sequence of events, reporting the victim's activity during the incident; where the incident occurred (e.g., home, park, school, etc.); the specific type of equipment involved (e.g., swing, slide, climber, etc.); and whether the equipment was part of a multi-activity composite play structure (e.g., climber/slide combination). Include the victim's age and sex, and type of injury. Indicate whether the injury resulted from a fall to the ground or onto part of the equipment; impact with moving equipment, such as a swing; entrapment within the equipment; or other hazard. Please specify if the incident occurred in a daycare setting (e.g., before- or after-school care, church-sponsored center, community center, home daycare, corporate- or government-sponsored center, etc.).

For data retrieval from the computer, please include the following key words in the synopsis as appropriate: HOME playground equipment, PUBLIC playground equipment, SOFT CONTAINED playground equipment, PRESCHOOL playground equipment, FALL, IMPACT, ENTRAPMENT, DAYCARE.

**B. Description of the Product**

See Data Recording Sheet

**C. Description of the Incident**

See Data Recording Sheet

**D. Description of the Incident Environment**

See Data Recording Sheet

**E. Description of the Injured Person(s)**

See Data Recording Sheet

**F. Product Safety Standards**

1. While not a mandatory or voluntary standard, the CPSC publication, "Handbook for Public Playground Safety," has served as a playground safety guideline for parents and other officials overseeing playground use, as well as for manufacturers, installers, school and park officials and others interested in technical criteria for public playground equipment. A copy of the handbook has been attached to this investigation guideline.
2. In addition to the CPSC handbook, there is an ASTM voluntary standard, "Standard Consumer Safety Specification for Playground Equipment for Public Use, ASTM F1487-95." A copy is attached for your information. In 1997, a third-party certification program was established by the International Playground Equipment Manufacturers Association (IPEMA) in which most of the major manufacturers participate. Staff of an independent laboratory visits participants and the equipment is inspected at the manufacturer's plant to determine conformance to the ASTM standard. Conforming equipment may bear an IPEMA label.
3. A voluntary standard for home playground equipment was originally published by the department of Commerce in 1975 and has since been significantly revised and republished by ASTM as the "Standard Consumer Safety Specification for Home Playground Equipment, ASTM F1148-97a." A copy is attached for your information. No third-party certification program has been established for home playground equipment.
4. As previously stated, an ASTM voluntary standard for Soft Contained Playground Equipment is expected to be published shortly. A copy will be furnished at such time as the standard is published.
5. When performing an investigation, please determine, if possible, whether the injury occurred because the equipment did not conform to the CPSC guidelines or the applicable ASTM standard.

**III. INSTRUCTIONS FOR PHOTOGRAPHING AND/OR DIAGRAMING THE ACCIDENT SCENE AND FACTORS RELATED TO THE ACCIDENT**

- A. Photograph or diagram the entire play area, including the area under and around the equipment. Include all relevant measurements.
- B. Photograph the specific part of the equipment involved in the accident, showing areas of impact or entrapment, as well as any protrusions or sharp edges or points that may have contributed to the injury.
- C. Please diagram the position of the child in the equipment, if possible. This is particularly important in entrapment incidents.
- D. Be sure photographs or diagrams provide the dimensions of the equipment, especially areas directly involved in the accident. More specific instructions follow:

**Falls** - Determine the height and location of the component from which the victim fell. Determine (if possible) whether the component from which the child fell was not intended by the manufacturer to be a play surface or component (e.g. a roof or exterior of a tube slide). If the fall was to a loose-fill safety surface (e.g., gravel, sand, wood chips, shredded bark mulch, etc.), measure the depth of the material in the area where the child fell.

**Impact** - Where applicable, measure the distance between the components involved (e.g., between swing and stationary member of swingset).

**Entrapment** - Determine the height of the area of entrapment from the ground. Measure the width and height (or length) of the opening in which the child became entrapped. Determine (if possible) if the child entered the opening head-first or feet-first.

- E. Photograph any product labels, including warning labels and the manufacturer's name and address.

#### **IV. INSTRUCTIONS FOR OBTAINING DOCUMENTS RELATED TO THE INVESTIGATION**

- A. Obtain copies of any police, insurance company, or coroner's reports that are available.
- B. If possible, obtain copies of any maintenance checklists or any records regarding frequency of inspection, promptness of repair following inspection, and history of repairs (may need to contact parks department, school maintenance personnel, etc.).

**PLAYGROUND EQUIPMENT  
DATA RECORDING SHEET**

Date of Investigation: \_\_\_\_\_

Task Number: \_\_\_\_\_

**I. PRODUCT**

A. Describe the equipment involved in the incident, including whether the equipment was part of a multi-activity composite play structure. If possible, indicate whether the equipment was intended for home, public, or preschool use, or was soft contained playground equipment (attach photograph or sketch if possible):

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B. Location of equipment:

- schoolyard
- public park
- amusement park
- apartment complex
- home (including home daycare settings)
- institutional/commercial daycare setting
- commercial establishment (i.e., fast food restaurant, "pay-for-play," etc.)
- other, please specify: \_\_\_\_\_
- unknown

C. Manufacturer or architect (name and address):

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Brand:

Model (if available):

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D. Materials of construction (check one):

- wood
- metal
- plastic
- combination, please describe: \_\_\_\_\_
- unknown

E. If the victim slipped on the equipment, describe the surface texture of the part of

the equipment involved in the incident (e.g., smooth or rough):

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- F. Age of equipment (date of assembly or purchase; also indicate, if known, whether purchased new or used):

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- G. Age of intended users (may be specified by the product's manufacturers or the architect of custom-built equipment):

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- H. Were there any safety instructions or warnings on the product or accompanying literature?

yes. Please describe: \_\_\_\_\_

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no

unknown

- I. Indicate who installed the equipment (i.e. homeowner, contractor, etc.):

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- J. Describe the condition of equipment at the time of the incident; e.g., rusty, dirty, broken or other state of disrepair (photograph such areas, if possible):

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- K. Had the equipment been repaired or modified in any way prior to the incident?

yes. Please describe how repaired or modified and report by whom:

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no

unknown

## II. INCIDENT

Include the following information as appropriate:

A. Falls

If a fall occurred, report:

1. The cause of the fall (e.g. equipment broke or collapsed, victim jumped, slipped, collided with or pushed by another child, etc.):

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2. The part of the equipment from which the victim fell:

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3. The type of ground surface or equipment component upon which victim landed (see section III.A. of this data recording sheet):

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4. The height from which the victim fell: \_\_\_\_ feet \_\_\_\_ inches.

B. Impact with Equipment

If the victim struck or was struck by the equipment, report:

1. The parts of the equipment that were involved and how they were involved:

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2. The cause of the impact (e.g., child walked in front of swing, ran into climber, etc.):

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C. Structural Entrapment

If entrapment of the head of other body part was involved:

1. Explain how it occurred, indicating the position of the victim's head, limbs and body (please diagram, if possible):

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2. For incidents involving head entrapment, indicate whether the child went head- or feet-first into the opening (check one):

- head-first
- feet-first
- other, please specify: \_\_\_\_\_
- unknown

D. Other

Describe any protrusions (include dimensions) and sharp points or edges that may have contributed to the injury:

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**III. DESCRIPTION OF ENVIRONMENT AT TIME OF ACCIDENT**

A. Describe type(s) of material under equipment and how far the material extended beyond the perimeter of the equipment (check all that apply):

- shredded bark mulch; distance: \_\_\_ feet \_\_\_ inches
- wood chips; distance: \_\_\_ feet \_\_\_ inches
- sand; distance: \_\_\_ feet \_\_\_ inches
- gravel; distance: \_\_\_ feet \_\_\_ inches
- shredded tires; distance: \_\_\_ feet \_\_\_ inches
- manufactured mats; distance: \_\_\_ feet \_\_\_ inches
- seamless poured resilient surface; distance: \_\_\_ feet \_\_\_ inches
- synthetic turf; distance: \_\_\_ feet \_\_\_ inches
- concrete; distance: \_\_\_ feet \_\_\_ inches
- asphalt; distance: \_\_\_ feet \_\_\_ inches
- dirt; distance: \_\_\_ feet \_\_\_ inches
- grass; distance: \_\_\_ feet \_\_\_ inches
- other; please describe: \_\_\_\_\_
- unknown

B. Thickness or depth of surfacing materials (please note if there were any "bald spots" in the surfacing materials at the site of the incident):

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C. Describe any debris embedded in the surfacing material (broken glass, bottle tops, sticks, etc.), if this was a factor in the incident:

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D. Describe weather conditions prior to and during the incident; include any effects

the weather had on the equipment [e.g., water or mud on surfaces from rain; hot metal surfaces from exposure to sunlight (if burn was involved, indicate direction equipment was facing); etc.]:

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E. Time of day incident occurred (please include a.m. or p.m.): \_\_\_\_\_

F. Approximately how many children were present on the playground at the time of the incident? \_\_\_\_\_

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G. Describe the involvement of any other children in the incident, including ages, behavior and activities as they related to the incident:

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H. Who was caring for the victim at the time of the incident?

- \_\_\_ mother/stepmother
- \_\_\_ father/stepfather
- \_\_\_ legal guardian
- \_\_\_ sister/brother
- \_\_\_ aunt/uncle
- \_\_\_ grandparent
- \_\_\_ teacher
- \_\_\_ daycare worker (ask question I)
- \_\_\_ adult friend/neighbor (ask question I)
- \_\_\_ nanny/au pair (ask question I)
- \_\_\_ baby sitter/friend's child/neighbor's child (ask question I)
- \_\_\_ other; please specify: \_\_\_\_\_

I. If the person caring for the child when the injury occurred was a daycare worker, adult friend/neighbor, nanny/au pair, or baby sitter/friend's child/ neighbor's child, where did they take care of the child?

- \_\_\_ caregiver's home
- \_\_\_ victim's home
- \_\_\_ in a non-residential daycare center, school, church, or community center
- \_\_\_ somewhere else (please specify): \_\_\_\_\_
- \_\_\_ unknown

J. Describe the general nature of the supervision, including the number of adults

present and whether those supervising saw the incident happen (the ratio of supervisors to the number of children present may be a significant factor in some incidents):

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K. Did the equipment on the playground appear to be separated for different age groups (e.g. "tot-lot" separate from equipment for older children)?

yes. Please describe: \_\_\_\_\_  
 no  
 unknown

L. Were any instructional or warning signs (including intended age of users) installed in the play area?

yes. Please describe and indicate whether they could be seen from the equipment: \_\_\_\_\_  
 no  
 unknown

M. Describe any maintenance program used by the agency or group in charge of the playground, including maintenance checklists and information on frequency of inspection, promptness of repair following inspection and history of repairs actually made to the playground (see "Instructions for Obtaining Documents Related to the Investigation"):

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#### IV. DESCRIPTION OF INJURED PERSON(S)

A. Age at time of incident (it is important to include age in years and months, if possible):

\_\_\_\_ years \_\_\_\_ months

B. Sex (check one):

male  
 female  
 unknown

C. Height at time of accident: \_\_\_\_ feet \_\_\_\_ inches

D. Weight at time of accident: \_\_\_\_ pounds

E. Type of injuries, including part of body involved and location of injury:

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F. Describe the nature of treatment received, and long-term prognosis of the victim:

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G. Describe victim's familiarity with the equipment involved in the incident. Include frequency of use and when victim first started using it or similar equipment:

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H. Determine exactly what the child was attempting to do when the incident occurred (e.g., jump from swing):

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I. Describe any physical or developmental characteristics of the child that may have contributed to the accident and whether the equipment was designed to service a child with that special characteristic:

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