U.S. CONSUMER PRODUCT SAFETY COMMISSION
5 RESEARCH PL
ROCKVILLE, MD 20850

June 9, 2023

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Thank you for contacting the U.S. Consumer Product Safety Commission (CPSC) regarding the ***Public Playground Safety Handbook*** (the *Handbook*). With more than 200,000 children visiting hospital emergency rooms each year due to playground related injuries, we are pleased to hear that you are taking playground safety seriously in your community.

Your inquiry was forwarded to me for response. Please note that, unless otherwise indicated, the views expressed in this letter have not been reviewed or approved by, and may not reflect the views of, the Commission. Additionally, the *Handbook* is a set of recommendations, but it is not a federal regulation. State or local jurisdictions are free to use the guidance in the *Handbook* as they wish, and local codes and regulations should always be followed. CPSC technical staff is providing the following responses based solely on the information in the e-mail you sent.

On October 10, 2017, you wrote (numbers inserted for reference):

1) I'd like to understand why there is an overlap in age groups (2-5 and 5-12) when designating playground equipment size for children. These age categories are also called out in ASTM F1487; however, I'm interested in the basis for these age groups, which I did not find in either the CPSC Public Playground Safety Handbook or the ASTM standards. 2) Specifically, how is one to determine if the 2-5 year or the 5-12 year old equipment is appropriate for a child who is 5 years old? As stated in the handbook, child development is fluid and the overlap gives parents and supervisors some flexibility when choosing which playground is most appropriate, but how does one decide which is appropriate? How would a care-giver know which set of equipment is right for the child? What should he/she look for? 3) Are there developmental or physical

milestones that a 5 year old should reach before playing on equipment designated for 5-12 year olds and if so, how is the general public supposed to know this?

CPSC Human Factors staff welcomes the opportunity to clarify the recommendations contained in the *Handbook* as they relate to specific questions (numbers inserted above for reference). I will address these questions sequentially.

1) As discussed in the 1990 COMSIS report, *Development of Human Factors Criteria for Playground Equipment Safety*, available at: **https:/www.cpsc.gov/Regulations-Laws--Standards/Voluntary-Standards/Topics/Public-Playground-Equipment/**, age designations for playground equipment arose based on children's size and physical development, as well as social and cognitive developmental factors (see "Developmental Considerations", p. 4-1). Age designations for preschool (2-5 years) and school-age (5-12 years) equipment are intended to minimize mismatch between equipment and skills developed to date, thereby reducing risk of injury. Children develop at individual rates across cognitive, motor, and social/emotional domains and their advances are not always in sync. Furthermore, development is a continuum without a sharp delineation in children's skills between 59 and 60 months The overlap between the preschool and school-age designations is "realistic in terms of playground equipment use, as well as reasonably conservative with respect to design criteria (*COMSIS report,* p. 5-1)," and "provides for a margin of safety" (*Handbook*, §1.6). Additionally, as the *Handbook* states: "in areas where access to the playground is unlimited or enforced only by signage, the playground designer should recognize that since child development is fluid, parents and caregivers may select a playground slightly above or slightly below their child's abilities, especially for children at or near a cut-off age (*e.g*., 2 years old and 5 years old). This could be for ease of supervising multiple children, misperceptions about the hazards a playground may pose to children of a different age, advanced development of a child, or other reasons. For this reason, there is overlap at age 5." *(Handbook,* §2.2.3 "Age group").

2) The *Handbook* at §2.2.7 "Supervision" provides recommendations for playground supervisors to determine what equipment is appropriate for children of different ages. "Supervisors may also use the information in Table 1. [EXAMPLES OF AGE-APPROPRIATE EQUIPMENT] to determine the suitability of equipment for the children they are supervising." The table provides specific examples of equipment appropriate for the different age designations for whom public playground equipment is designed: 6-23 months (Toddlers), 2-5 years (Preschool), and 5-12 years (Grade school). These examples are intended to be used as rough guides, taking a child's unique capabilities and needs into account, as well as the availability of adult supervision. For discussion of the skills needed to use "Climbing and upper body equipment," see the *Handbook* §5.3.2. For example, § 5.3.2.4 states: *"four-year-olds are generally the youngest children able to use upper body devices"* . . . like horizontal (overhead) ladders.

3) There are no set motor milestones a child needs to meet before switching to a playground with more advanced equipment. However, older preschool children (*i.e*., 4 and 5 year olds) tend to be more proficient at certain motor skills than young preschool children, particularly in the areas of "balance, coordination, and upper body strength." (the *Handbook* §5.3.2,

"Climbing and upper body equipment"). A more detailed explanation of the development of these motor skills is available in the *COMSIS Report*, p. 5-1:

> Preschoolers build their motor skills, especially strength, balance, and coordination, through experimentation with ever more challenging situations (Aronson, 1988). When they begin jumping from low heights of about one foot and have the ability to use the "lock grip" (i.e., fingers and thumb wrapped around the handhold part of the equipment) around 2 1/2 to 3 1/2 years, and demonstrate proficiency in stair climbing (i.e., alternating feet, rarely needing a railing) around 3 to 3 1/2 years, young children can be allowed access to more challenging playground equipment (Aronson, 1988; Makolin and Denham, 1976). Balance develops considerably from 3 to 6 years: children can not be expected to climb up to the top of a 5-foot slide until 3 1/2 to 4 years old or to climb rung ladders until 4 1/2 to 5 years (Makolin and Denham, 1976). However, coordination is not fully developed in even most older preschoolers, so falls must be expected. Upper body strength develops continuously. Toddlers are probably not ready for most upper body devices, such as overhead ladders; and although 4- and 5-year-olds will begin experimenting with upper body devices, most children probably won't master the combination of upper body strength and coordination needed for such equipment until their school-age years.

Because children develop at different rates, it is helpful to gauge what a particular child is capable of achieving in the motor domain and other skill areas when making decisions about what playground equipment is most appropriate for their use.

I hope this information answers your questions. Please let me know if you have any additional questions.

Sincerely,

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