by Susan S. Aronson, MD

Center Directors Express These Health Concerns about Biting and Bleach:

Ask Dr. Sue

Among the issues that are "hot topics" this year are biting and safe use of bleach to sanitize and disinfect surfaces in child care. During the past year or so, well-intended health professionals have given seemingly authoritative, but differing, opinions on both of these topics. The opinion offered in this column is consistent with the current view of the Centers for Disease Control and the American Academy of Pediatrics.

Biting

Much has been made of the potential medical consequences of biting in child care. Research on biting in child care was reported by Solomon and Elardo from Iowa in the July-August 1991 issue of the **Journal of Pediatric Health Care**. The data show that nearly half of all children enrolled in child care are bitten. Toddlers are bitten more often than infants or preschool age children.

Toddlers are working on language acquisition and seeking independence. Oral expression of aggression through biting occurs when a frustrated child cannot express feelings in words. During infancy, children explore the world with their mouths. The conversion of the mouth from a sensory tool to a means of expressing pent up aggression is natural and predictable.

Bites are most frequent on the upper extremities, the next most frequent are on the face. More bites occur in the middle of the morning and in August and September. These are times when children's activity levels are usually high, transitions to new situations are occurring, and close supervision may be difficult.

The risk of transmission of infection by biting is related to whether or not the skin is broken. The teeth are loaded with bacteria that can cause infection if a bite breaks the skin. Thorough and prompt washing of bite wounds will help reduce this risk.

Worries about the transmission of the AIDS virus (HIV) by biting have not been supported by any responsible medical authority. Transmission of HIV infection from one child to another by biting has never been documented. HIV transmission requires transfer of blood from an infected to an uninfected person or sexual contact with an infected person.

Transmission of hepatitis B virus occurs when surfaces are contaminated by saliva or other body fluids or by direct contact of body fluids. When young children carrying the virus are in child care, preventing contact with infectious fluids is difficult. Children in programs with hepatitis B carriers should be immunized against this disease. A new recommendation for all infants to begin to receive hepatitis B vaccine at or soon after birth should help to control this disease.

Some health experts have recommended that child care providers screen children to exclude those who bite until this behavior is controlled. Given the high frequency of biting behavior and low risk of serious consequences of biting among toddlers, this recommendation is impractical. A persistent biter needs behavioral management to stop the biting.

Caregivers can discourage biting by providing a developmentally appropriate curriculum with suitable outlets for aggression. Room arrangements should break up the space into activity areas to foster play by small groups of children and limit competition between children. Care-givers who sense tension building can intervene and redirect activity with positive suggestions for alternative behavior. When children bite, victims should get more attention than the biters. Letting parents of toddlers know at enrollment that biting occurs and tends to be more common at the beginning of the

school year helps reduce their dismay when the tell-tale tooth marks appear on their child.

Bleach

Another topic where health experts have been confusing early childhood professionals is how to use bleach for disinfecting and cleaning. Bleach can be used to sanitize / disinfect **visibly clean surfaces** in a concentration of 1:64 (one tablespoon of bleach in one quart of water). Stronger solutions of 1:10 have been suggested by some health experts. A 1:10 dilution is **not necessary** as long as the surface to which the bleach is applied is clean.

Stronger concentrations of bleach are irritating to skin and other body tissues, and damage surfaces to which they are applied. The routine should be: (1) soap and water cleaning until the surface is visibly clean, (2) clear water rinsing to remove soap residues, (3) application of the 1:64 bleach solution, and (4) air drying. The soap and water cleaning and water rinsing steps may be skipped if there is no visible soil at the start. If a dilute bleach solution is used to clean up visible amounts of body fluids or potentially infectious material, a separate application of bleach after the clean up is completed must be used to sanitize the surface.

For routine cleaning, some surfaces need more frequent attention than others. In studies of the amount of bacteria on surfaces in child care, the most contaminated surfaces are diaper and toilet areas, tables used by two and three year old children, kitchen counters and sinks, and reusable eating plates. These surfaces should be cleaned before and after use, with thorough cleaning at least daily to remove all visible soil, followed by wiping, spraying, or dipping the object to coat the surface with the 1:64 dilute bleach solution. Other commercially available disinfectants or combination disinfectant cleaners can be used. However, most are more expensive and some are toxic if kids drink them.

A separate disposable paper towel should be used for each type of surface each time the surface is cleaned and sanitized. For example, one paper towel should be used to clean up kitchen counters, another to spread the bleach around if it is not sprayed on. Another paper towel should be used for children's table tops, and another for each diaper changing table clean up. Air drying of the bleach-moistened surface is essential to complete the process.

Even undiluted, bleach is a relatively safe chemical product to have around children. Although it is irritating to tissues in more concentrated solutions, household forms of bleach are not poisonous if ingested. However, **bleach should never be mixed with other cleaning products** unless the mixture comes pre-made in a commercially prepared product. Mixing bleach with some acidic cleaners will result in the release of chlorine gas and other chemical byproducts that cause significant illness. Bleach does not need to be rinsed off the surfaces to which it is applied. It evaporates, leaving no residue.

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This issue of **Exchange** contains the 55th health column written by "Dr. Sue." For updated information on topics covered in the previous 54 columns, the paperback book, **Health and Safety in Child Care** (Susan Aronson, MD, HarperCollins, 1991), is available from college book stores and from the publisher (800-782-2665). This health column will continue to focus on questions given to Dr. Sue Aronson by the early childhood profession. Please keep your questions coming!