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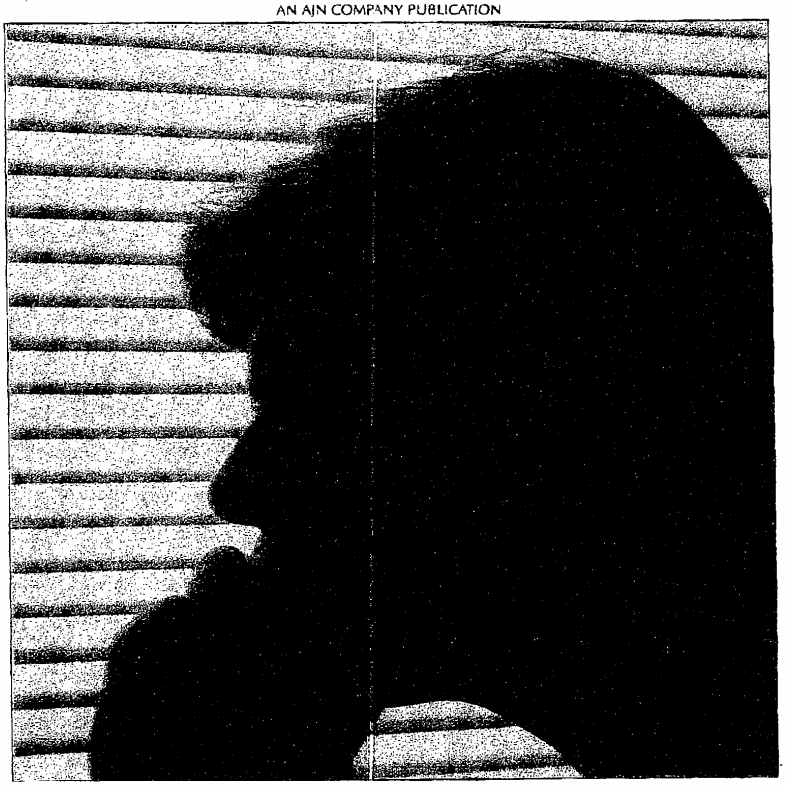
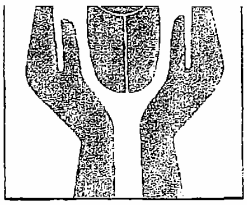


SEPTEMBER/OCTOBER 1990

Grieving Fathers Have Unique Anxieties
A New Device Makes Gastrostomy Feedings Easier
An Onerous Supply Of Disposable Diapers: A Health Concern



Cost of Disposable Diapers

Nurses in Seattle, concerned about the effects of disposable diapers on the environment and the potential risks of infection from fecal material, effectively influenced community action.

JANET PRIMOMO/ANNA M. BRUCK/PATRICIA K. GREENSTREET/LINDA A. LEADERS
LAURIAN PENNYLEGION/MARY K. SALAZAR/ALMA MILLER WARE

A policy statement adopted by the American Public Health Association on the health and environmental hazards of disposable diapers cites as concerns both the crisis of enormous garbage volume and the potential infectious risk of disposable diapers containing human waste in the solid waste stream (1). Solid wastes (garbage) are defined as discarded materials arising from human and animal life and activities. Community education projects are now in place about diapering alternatives. For their part, nurses can teach about diapering alternatives so that informed choices about diapering can be made by parents and others in the community. Nurses can also lead in this environmental activity by encouraging the appropriate persons in hospitals to use cloth diapers.

The Environmental Effects

About two years ago, a task force of the Seattle-King County Nurses Association (Washington) began to investigate diapering options and to examine the health and environmental issues related to disposable diapers. As professionals and as parents, members were concerned about the environment that future generations would inherit.

Years ago families had only one option when it came to diapering babies: home-laundered cloth diapers fastened with diaper pins and covered with rubber or wool pants. Diaper services were available but they were considered a luxury. Now, of course, a variety of methods are available.

Disposable diapers were introduced in the United States almost 30 years ago and met with rapid public acceptance. Now, the annual income of the disposable diaper industry is more than $3 billion (2). More than 16 billion disposable diapers are sold each year in this country, accounting for approximately 80 percent of diaper changes (2). Before becoming toilet trained, an average child uses between 8,000 and 10,000 diapers. Furthermore, the sale of products for incontinent elderly adults is growing (3). Clearly, disposable diapers contribute significantly to our solid waste problem.

Across the United States, disposable diapers compose between 2 and 3 percent of the municipal waste stream (2). The hidden cost for disposal is estimated at eight cents for every dollar spent on disposable diapers; almost $300 million dollars is spent annually to discard disposable diapers. The diapers and their contents, along with most of our garbage, are buried in landfills. Not surprisingly, landfill space is becoming increasingly scarce. A further limitation is that now communities frequently oppose landfill construction in their backyard.

Experts in solid waste management agree on the following hierarchy of methods to manage our garbage (most desirable is listed first, least last): reducing waste at its source; reusing products; recycling; waste-to-energy incineration; and landfill (4). It is striking that landfill—the least desirable option for disposal—is used for most of our garbage; but it is unfortunate indeed that most of the innovative solutions for solid waste management focus on recycling or incineration, excluding the most desirable options—source reduction and reuse. An alternative to disposable diapers that reduces the volume of garbage at its source is readily available in reusable cloth diapers.

The Health Effects of Disposable Diapers

Diapers disposed of in the garbage are a potentially serious health problem. Of concern to many professionals is the risk of transmitting disease through the feces that are left on diapers (5). More than 100 enteric viruses are excreted in human feces, including those that cause hepatitis and

JANET PRIMOMO, R.N., P.H.D., *is a senior research fellow at the University of Washington, School of Nursing, Department of Community Health Care Systems, Seattle. She has conducted research on the relationship of the environment to health and illness and is a member of Diaper Task Force.* ANNA M. BRUCK, A.D.N., B.S., PATRICIA K. GREENSTREET, J.D., B.S.N., LINDA A. LEADERS, R.N., B.S.N., LAURIAN PENNYLEGION, R.N., B.S.N., MARY K. SALAZAR, R.N., M.N., *and* ALMA MILLER WARE, R.N., M.N., *are also members of the Diaper Task Force that coordinated the educational project of the King County Nurses' Association.*

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polio if live vaccine is used for immunizations (6). Viruses can live for months after stool is passed from the body, creating a risk of disease transmission to sanitation workers (7). Similarly, groundwater could become contaminated by feces if landfills are not properly constructed.

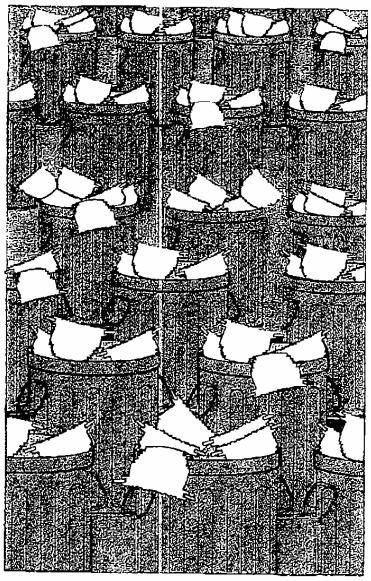
The World Health Organization advocates adequate disposal of human excrement (8). Positively, in many localities disposing of human excrement in residential trash is unlawful. A prudent, although rarely practiced, approach is to empty feces into the toilet before putting a disposable diaper in the trash. In that way the human waste is properly treated through the community's sewage system.

An Education Project About Diapering Alternatives

In response to one recommendation of the American Public Health Association to educate consumers about alternatives to disposable diapers, the task force of the Seattle-King County Nurses Association began its work. In developing the educational project, the nursing process was applied in the community (9). First, a thorough assessment of the problem was undertaken. When a literature search was completed, key persons were interviewed in order to gain an in-depth understanding of the potential problem. A position paper was written and disseminated to elected officials and interested community members (10). When a request for proposals was publicized by the Seattle Solid Waste Utility, the task force was in a position to apply for a grant to fund its project and to carry out some recommendations in the position paper.

Funding was obtained from the city of Seattle. An advisory board was then selected. Representatives included such specialists as a nurse epidemiologist, pediatrician, virologist, an occupational health physician, environmental health specialist, and representatives from diaper services and from the disposable diaper industry.

In addition to educating new parents and health care providers working with those parents about alternative methods of diapering, the project also sought to instruct users of disposable diapers to put feces into the toilet before disposing of the diaper. A multifaceted approach to achieve these goals was implemented.



First, a brochure was designed for new parents, and published in Spanish, Vietnamese, and English so that a variety of ethnic groups could be reached. The brochure was distributed through newborn nurseries, childbirth education classes, clinic sites, and physicians' offices. A table was included showing the convenience, cost, and health and environmental effects of each diapering method. Although at least one company has developed completely biodegradable diapers, they are nevertheless put into the garbage, adding to household solid waste volume and increasing garbage costs.

Information on how to deal with the fecal contents of disposable diapers is also in the brochure. In addition to reviewing instruction about putting solid fecal material into the toilet, parents are encouraged to wrap the diaper tightly before throwing it away. The importance of proper hand washing technique after handling diapers is also reviewed.

The task force produced a 15-minute videotape featuring a parent education group discussion of diapering methods. Professionals or parents may use the video, which includes the same information the brochure does.

Inservice programs using the videotape were conducted for staff in newborn nurseries, clinics, and childbirth education classes to give them the information they needed to educate parents. Finally, widespread radio and newspaper coverage coincided with brochure distribution and the classes.

Project Evaluation

The final phase of the project was evaluation, which was ongoing, beginning with feedback from the advisory board during the planning phase. Also early in the project, drafts of the brochure were field tested among parent groups, and their recommendations were incorporated into the brochure's final version.

When a survey was completed of parents and health care professionals concerning the brochure and educational programs, the response was overwhelmingly positive. Of additional consequence was that diaper services in Seattle estimated that their service requests increased between 22 and 35 percent during the project (12).

Another positive indicator of the effectiveness of the project is that five of the six major institutions in the Seattle area where babies are delivered now use cotton diapers. The reasons cited for switching to cloth diapers included increased concern about the problems of disposal of medical wastes and incineration. A final measure of our efforts was the responsiveness of the disposable diaper industry. For example, Seattle is now a Proctor

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and Gamble test site for diaper recycling. We are watching the test carefully, because additional energy is consumed by washing and separating disposable diapers and by producing new products from the recycled plastic and cellulose. Furthermore, we already have a reusable diaper in cloth diapers.

Taking Up the Cause

It is time that people consider the ramifications of so-called "convenience" products on the environment. We have reached a point where we must question not only whether the issue of alleged "convenience" justifies tossing 18 billion single-use diapers into the solid waste stream annually, but also whether the responsibility for safe disposal rests with the manufacturer or with the consumer (2). A convincing argument may be made that indeed every one of us—consumers, health care providers, manufacturers, and policymakers—must take responsibility for the garbage crisis that we face today.

We need, too, to look carefully at the infectious risks. The risk to our garbage handlers, for example, must be explored. Another area of concern is the safe handling of all types of diapers in child care settings outside the home.

Currently, the American Academy of Pediatrics and the American Public Health Association are collaborating in an Out-of-Home Child Care Standards Project to develop national health and safety standards for day care settings. One area being examined is prevention and control of infectious disease, including diapering facilities and waste disposal. This task is made more difficult by the variety of diapers used in day care settings. In the Seattle area, for example, many day care settings use only cloth diapers, others allow only disposable diapers, and some permit parents to choose the type of diapers.

To date, very little research has been done on diapering practices or the infectious risks of either type of diaper to guide the development of diapering standards in day care settings. Although instructions on disposable diaper packaging caution consumers to "dump the solid material in the toilet before disposing of the diaper," workers in most child care settings are advised not to follow this practice because of the presumed infectious risk. Is the risk of infectious disease transmission less in day care settings if feces are not emptied into the toilet before the diaper is thrown in the trash? If so, is there any infectious risk posed to the solid waste worker who picks up the trash? We need to clarify scientifically the best method of disposing of human solid waste from diapers in these settings. Realistic standards must protect the health of children and staff and, at the same time, take into account the environmental impact of diapering methods.

REFERENCES

1. *Health and Environmental Hazards of Disposable Diapers.* Policy statement 8910. *Am.J.Public Health* 80:230, Feb. 1990.
2. LEHRBURGER, C. *Diapers in the Waste Stream: A Review of Waste Management and Public Policy Issues.* Sheffield, MA, National Association of Diaper Services, 1988.
3. WILLIAMS, M. F., AND PANNILL, F. D., 3d. Urinary incontinence in the elderly: physiology, pathophysiology, diagnosis, and treatment. *Ann.Intern.Med.* 97:895-907, Dec. 1982.
4. U. S. ENVIRONMENTAL PROTECTION AGENCY. *The Solid Waste Dilemma: An Agenda for Action.* Washington, DC: The Agency, Sept. 1988.
5. PETERSON, M. L. Soiled disposable diapers: a potential source of viruses. *Am.J.Public Health* 64: 912-914, Sept. 1974.
6. WARE, S. A. *A Survey of Pathogen Survival During Municipal Solid Waste and Manure Treatment Processes.* (EPA Report 600/8-80-034) Washington, DC, Ebon Research Systems, 1980.
7. TURNBERG, W. *An Examination and Risk Evaluation of Infectious Waste in King County, Washington.* Seattle-King County Department of Public Health, March 18, 1988.
8. WORLD HEALTH ORGANIZATION. *Health for All.* Geneva, Switzerland, WHO, 1987.
9. ANDERSON, F. T., AND McFARLANE, J. M. *Community as Client: Application of the Nursing Process.* Philadelphia, J. B. Lippincott Co., 1988.
10. KING COUNTY NURSES' ASSOCIATION. *Hazards Posed by the Improper Disposal of Disposable Diapers.* (Health Issue Position Paper) Seattle, WA, The Association, 1989.
11. CHING, J. Baby boom: environmental concerns are a boon for diaper services. *Seattle Times,* Aug. 22, 1989.