Session No. 778

Call to Action! Addressing Workplace Reproductive and Developmental Hazards

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Introduction

In May 2007, nearly 200 leading international scientists in the fields of environmental health, chemistry, biology, epidemiology, and paediatrics examined the state-of-the-art in human health effects of developmental exposure to chemicals in the environment. Their conclusions, in the form of a published statement (Faroes Statement 2007), is a strong "call to action" warning that human health effects of developmental exposure to chemicals in the environment are real, serious and require a prompt attention on research and prevention. According to the Faroes Statement, "Prevention should not await definitive evidence of causality when delays in decision-making would lead to the propagation of toxic exposures and their long-term, harmful consequences." The Faroes Statement calls for a paradigm shift in science and public policy to encourage health interventions at the earliest stages of life where timing of chemical exposure is just as important as the magnitude of exposure.

The last decade has seen remarkable advances in the understanding of reproductive and developmental health. The National Research Council (NRC 2000) reports that between 1995 and 2000 the number of new discoveries in the field of developmental biology and genomics were "staggering" and future discoveries were expected to be even more "explosive." These new advances now allow a man to measure the quantity of his sperm with a home test kit or pregnant women to clearly see the development of her unborn child with advanced 4D ultrasound. New discoveries and understandings are altering how the reproductive and developmental health hazards should be addressed in the workplace. The paper explores whether or not U.S. safety and health pros are ready, willing, and able to take action.

For the purposes of this paper, reproductive simply means the process where a man or woman is capable of producing a child. Developmental refers to the stages of child development from conception to adolescence.

Key Question

Should U.S. employers provide their workers with a risk assessment for workplace reproductive and developmental hazards? The answer to this question will have a profound impact upon safety and health pros that may be called upon to conduct and communicate this risk assessment. The answer to the question is predicated upon answers to other questions. Is the assessment conducted to help protect the reproductive capacity of workers or to protect the developmental health of an unborn child (i.e. during pregnancy) or a child of a worker (e.g. take-home toxics or breast feeding)? Is there a regulatory obligation or legal duty to conduct the assessment? Is there a moral responsibility? Is there a business incentive? Has science and knowledge advanced sufficiently enough to perform a valuable assessment? And, if the risk assessment is not conducted, what are the pitfalls? This paper will explore answers to these and other questions through the author's journey with this topic over the past decade.

Snapshot of Answers

A snapshot of answers to the above questions is as follows: U.S. employers have a tort duty (as opposed to no legislative requirement) to conduct and communicate workplace developmental risk to employees. If this activity is not conducted it is difficult for an employer to prove they performed due diligence if there is a negligence claim (and there is a growing possibility of this) for work related prenatal injury. Workplace prenatal injury claims (for a single claim) have reached the $100 million level - big enough to get any company's attention.

The author has learned that the language in the introduction and the snapshot of answers above are contentious and controversial enough to warrant the following disclaimer: The author is not an attorney and the information in this paper should not be viewed as legal advice. In all matters where workplace reproductive or developmental concerns are present, legal counsel competent in these matters should be sought.

Definition of "Child"

The limited scope of this paper does not allow a through discussion of the various legal and social definitions of "child." This paper, however, defers to two new risk assessment guidance reports that describe the scientific principles to be considered in assessing health risks to children. These reports are: "A Framework for Assessing Health Risk of Environmental Exposures to Children", issued by the USEPA in October 2006; and, "Principle for Evaluating Health Risks in Children Associated with Exposure to Chemicals" released July 2007 as Environmental Health Criteria 237 from the World Health Organization. Both the USEPA and WHO reports define "child" and "children" as life-stages that begin at conception.

Demographics

The above definition of child places a substantial burden on the workplace with regard to developmental exposures. While the concern for reproductive health of men is important, pregnancies hold a special concern because of its contribution to developmental health.
More than one-half of all U.S. children are born to working mothers and more than 70% of U.S. women of reproductive age are in the workforce (McElhatton, 2003). All adult workers, however, may now be considered to be of reproductive age due to advances in medical science and fertility treatments. For example, in recent years, a 90 year old man fathered a child and a 66 year old lady gave birth. Under the old concept, "reproductive age" is generally reported as between the ages of 15-45 years for both men and women.

Approximately four million children are born annually in the U.S. Therefore, approximately 2 million of these children are born to working mothers. Due to pregnancies that were not carried to term (about one in every two conceptions are not carried to term), this number underestimates the number of women who may be pregnant while at work.

The length and type of exposures to pregnant workers has changed significantly over the past few decades. During1961-1965, 35% of women worked within one month of giving birth. Latest census data (Census 2008) shows that during 2001-2003, 64% of women worked within one month of giving birth. Women now hold jobs in all occupations; even those once thought of as the exclusive domain of men (BLS 2007). Over 2.4 million women hold productions jobs today. About 10% of construction workers are women. Three of every 10 manufacturing jobs are held by women. One in every 25 fire fighters is a woman.

Concerns

Although most children are born healthy, there are concerns to having successful reproductive and developmental health outcomes. Concerns include (NRC 2000a):

- between 5-10% of couples are infertile;
- about 50% of all pregnancies are unsuccessful;
- major birth defects occur in 2-3% of newborns;
- minor developmental defects 14-22%;
- autism spectrum disorders have shown a 10-fold increase over the last decade,
- preterm birth has increased 30% the last 25 years;
- sperm counts are decreasing and male birth defects are on the rise; and,
- on the rise, too, are childhood asthma, acute lymphocytic leukemia in children, and childhood brain cancer.

Hazards

All hazards including chemical, biological, physical, and psychological may impact reproductive and developmental health.

The European Guidelines on the assessment of the chemical, physical and biological agents and industrial processes considered hazardous for the safety or health of pregnant workers and workers who have recently given birth or are breastfeeding (Council Directive 92/85/EEC) includes the following hazards and situations:

- mental and physical fatigue and working hours;
- postural problems connected with the activity of new or expectant mothers;
- work at heights;
- working alone;
- occupational stress;
- standing activities;
- sitting activities;
- lack of rest and other welfare facilities;
- risk of infection or kidney disease as a result of inadequate hygiene facilities;
- hazards as a result of inappropriate nutrition;
- hazard due to unsuitable or absent facilities;
- shocks, vibration or movement;
- noise;
- ionizing radiation;
- non-ionizing electromagnetic radiation;
- extremes of cold or heat;
- work in hyperbaric atmosphere;
- biological agents; and,
- chemical agents.

Costs

The costs for reproductive and developmental problems are enormous. Preterm birth alone is estimated to cost the U.S. $26 billion a year in medical care and lost productivity.

Apportioning these costs to workplace exposures is a difficult challenge, but data is building in this regard. Consider, for example, the research article “Work Activity in Pregnancy, Preventive Measures, and the Risk of Delivering a Small-for-Gestational-Age Infant” that appeared in the May 2006 issue of the American Journal of Public Health. The research, conducted in Quebec, Canada, found that the occupational conditions of: night hours; irregular or shift-work schedule; prolonged standing; lifting loads; noise; and high psychological demand combined with low social support, increased the risk for having a low birth weight (LBW) infant. The research concluded that, “Elimination of these conditions before 24 weeks of pregnancy reduced the risks close to those of unexposed women.”

How much money may be saved if there was intervention to control the workplace conditions above that increased the risk for a LBW infant? Costs of delivery and care for a LBW infant may range from $10,000 to over $100,000 more when compared to costs for a child born of normal weight. LBW infants are more prone to mortality in their first year of life. Chronic health conditions including asthma, high blood pressure and poor cognitive development have been

associated with LBW infants. Chronic health problems can greatly increase a LBW infant's lifetime health care costs.

Tipping Points

The social and political landscape for protecting children's health in the United States has changed dramatically within recent years. New social and legislative activities focus on child health protections beginning at pre-conception. An example of these changes include the CDC's April 2006 "Recommendations to Improve Preconception Health and Health Care --- United States." This report advises all women to treat themselves as pregnant even if they do not plan to conceive. The reasons for these changes are complex but include advancements in science along with changes in political and legal views. An example of a newer political/legal view includes the U.S. Supreme Court's April 18, 2007, decision to uphold the federal ban on "partial birth" abortions – heralded in some circles as a glimpse into a new era of greater fetal rights.

The first significant tipping point experienced by this author, was when he was contacted by a writer from the USAToday newspaper. The writer was developing a front page cover story "Workers take employer to court over birth defects" for the paper's February 26, 2002, issue. The article described the growing tort liability for workplace prenatal injuries. This author contributed his views to the article in part saying that U.S. employers generally shy away from the topic. Tim Fisher, from the ASSE, contributed to the article stating, "This is a huge issue that will continue to grow in importance as more women move into jobs traditionally the domain of men." William DeProspo, a plaintiff lawyer representing families who filed lawsuits, was quoted in the article saying, "This is a very, very serious problem, and it's the tip of the iceberg." In March 2004, the employer being sued settled the $100 million dollar claim (claim for just one child) before it went to the jury.

The issue of children's health now includes workplace exposures to both parents prior to conception, exposures to the mother/unborn child during pregnancy, and exposures during the early prenatal period when an infant is being breastfed. The European Union (EU) issued guidelines for member states to develop legislation to address these exposures in 2000. Countries such as the England now have clear laws in this regard. Government authorities in the U.S. e.g. NIOSH have not issued any comparable guidelines. These exposures, however, will be examined in the U.S. during the early stages of the National Children's Study (the study will examine environmental exposures to more than 100,000 pregnant women and follow their children to the age of 21) that received FY 07 funding approval for implementation.

Global pressures are stimulating U.S. legislation to address reproductive and developmental health protection from workplace exposures. Legislative initiatives include the Department of Labor's September 2006 ANPR for changes to the OSHA Hazard Communication standard to address global harmonization of chemical hazards. Expected changes to HazCom include lowering the threshold to 0.1% from 1% by product weight for reporting reproductive and mutagen hazards on safety data sheets (SDS) and include a new hazard category of "effects on or via lactation." Terms such as "may cause harm to the unborn child" or "may cause harm to breastfed babies" are expected to begin appearing on U.S. SDS to conform to standardized risk phrases used internationally, but predominantly used in the EU.

The EU REACH (Registration, Evaluation, and Authorization of Chemicals) legislation, in force June 2007, is expected to have a dramatic impact on U.S. chemical manufacturers. REACH identifies carcinogens, mutagens and reproductive toxicants (CMR) chemicals to be of "very high concern." Reproductive toxicants are defined within REACH as those that "… interfere with normal human development, either before or after birth, resulting from exposures of either parent, or exposure to the developing offspring to the time of sexual maturation." REACH's "precautionary principle" approach when dealing with CMR chemicals and persistent bioaccumulative toxicants (PBTs) i.e. chemicals are not safe until proven otherwise is already altering world markets.

Moms are an integral part of a new "Emerging Market Model" more so than an at risk population. The Emerging Market Model is described by Richard MacLean in the April 2007 issue of Environmental Protection as being characterized "by increased global (versus U.S.-dominated) public concern over long-term EHS social responsibility issues."

An example of the new emerging market is Wal-Mart's October 2006 implementation of its "Preferred Chemicals Principles" for product ingredients. Wal-Mart implemented the principles to drive the development of more sustainable products "for mother, child and the environment." The principles call upon suppliers to Wal-Mart to screen chemical ingredients in their products with the intent to eliminate selected CMR chemicals and PBTs. If suppliers do not eliminate some chemicals from their products, the products won't be sold in Wal-Mart stores. Wal-Mart is not alone in taking this approach, but their huge presence (more than 6,600 stores worldwide) gives them the clout by themselves to fundamentally alter how business is conducted globally.

Moms, children and the environment are central to the modern view of disease causation which considers that children (beginning at conception) are more vulnerable to environmental exposures; and, early in life exposures to environmental hazards increase the risk of acute illness and chronic diseases. The U.S. EPA's 2005 cancer risk guidelines e.g. children under 2 years of age are 10 times more vulnerable to carcinogens than and adult, illustrates this new position.

Recent actions by market leaders such as Wal-Mart and EU legislation to take a precautionary approach with CMR and BPTs chemicals will change the role of mom (and dad) in addressing health concerns for new and future generations through greater transparency of chemical exposure risks at work or elsewhere. More than individual and industry action, however, is the monetary might of this issue. EU REACH is expected to have an enormous impact upon the $2.5 trillion global chemical industry. Innovest Strategic Value Advisors report "Cross Cutting Effects of Chemical Liability from Products" (January 2007) clarifies the driving force of money. Innovest reports that shareholder resolutions on toxics in products reached an all-time high in 2006 and will be bested in 2007. Part of the drive includes actions of investing organizations representing more than $22 billion in assets under management to seek better disclosure from companies with regarding capital at risk to toxics, such as CMR chemicals, in products.

In 2005, the US was next to dead last, just ahead of Latvia, for having the worst infant mortality rate among the world's 33 major industrialized nations, according to Save the Children, a global NGO. There are all kinds of explanations on why the US fares so poorly in regards to infant mortality. One reason is that the US health care system greatly favors treatment over prevention. This may change with a change in the political landscape. See further discussion below.

Social concerns for children are additional tipping points. In February 2007, UNICEF's (United Nations Children's Fund) Innocenti Research Center released Report Card 7 "An Overview of child wellbeing in rich countries" The Report Card ranked child wellbeing in six categories. In the health and safety category, the United States ranked at the very bottom among 25 rich countries. Components for the health and safety rank were child health at age 0-1, preventative heath services, and safety (i.e. deaths from accidents and injuries).

The United States also fared very poorly in other categories. In the category of behaviors and risks, the U.S. was next to last. In the measurement of "relative income poverty" (i.e. percent of children in households with income less than 50% of the median), the U.S. was so outside the norm for last place that it didn't seem to belong at all with the ranking of rich countries. The poverty measurement was perplexing. The U.S. was ranked among the top five countries for having a child live with an employed parent. Did the measurement imply that some working parents in the U.S. had very meager incomes?

One of the stated purposes of UNICEF's Report Card is to "stimulate discussion and development of policies to improve children's lives." The question that is raised is: How does the United States measure up? The Institute for Health and Social Policy at McGill University addressed that very question in the February 2007 report "The Work, Family and Equity Index." The report compared public policies for working families in 177 countries. A key finding of the report states, "When it comes to ensuring decent working conditions for families, the latest research shows many U.S. public policies still lag dramatically behind all high-income countries, as well as many middle- and low-come countries."

Lesotho, Liberia, Papua New Guinea, and Swaziland – you may not be familiar with these countries but add the United States to the list. These are the only countries in the world that "do not guarantee any paid leave for mothers in any segment of the work force" according to the McGill study. Other findings in the equity index report that may reflect poorly on the social policies in the United States are:

- 66 countries ensure that fathers either receive paid paternity/parental leave. The U.S. has no guarantees in this area.
- 107 countries protect working women's right to breastfeed; in 73 of these countries breaks are paid. The U.S. does not guarantee the right to breastfeed.
- 137 countries mandate paid annual leave. The U.S. does not require employers to provide paid annual leave.
- 134 countries have laws that fix the maximum length of the work week. The U.S. does not have a law for the maximum length of the work week or a limit on mandatory overtime per week.
- 126 countries require employers to provide a mandatory day of rest each week. The U.S. does not guarantee workers this 24-hour break.
- 145 countries provide paid sick days for short- or long-term illness. The U.S. provides only unpaid leave for serious illness through FMLA, which does not apply to all workers.

The McGill report claims that lack of social policies, such as not providing paid leave for childbearing or no paid leave for illness and family care, eventually impacts the health and wellbeing of children. This brings us back to the UNICEF report where we find that the U.S.

ranks last among rich countries in children's health and safety. And it brings us to the thought on what policies the United States may develop to improve children's lives.

It's difficult to have policies without politics. And the politics on these issues are heating up. Is the UNICEF report correct in ranking U.S. children's health and safety so low? The U.S.'s National Children's Study would answer this question. President Bush's proposed Federal FY 2007 budget did not provide any funding for the study and, in an unusual move, went further to order that the study be shut down. In come the Democrats who redo the budget. There's general agreement among politicians that the budget process should avoid earmarking funds for any special projects. But in the final Federal FY 2007 budget, the NCS was earmarked to receive all the funds it asked for.

Employed women with children, or employed women who plan to have children, are disproportionately affected by lack of social and private policies to address their needs as primary care-givers for their children. The World Health Organization's 2006 report, "Gender equality, work and health: a review of the evidence" is just one of many recent studies that supports this position.

"Mom's Mad - And She's Organized" is the heading for an article that appeared in February 22, 2007, The New York Times. The Times article points out that U.S. mothers (who hold jobs outside of the home) are in larger numbers than ever before and they're not happy. They feel that there should be more social and private policies to address their special needs in the workplace. Unlike years past, however, these moms are banding together and have considerable political clout.

MomsRising, established in May 2006, is one example. Membership in the group has been growing at more than 10,000 per month. In September 2006, Senators Ted Kennedy, Christopher Dodd, and Democratic presidential frontrunners, Hillary Clinton and Barack Obama, spoke at an event in Washington to support MomsRising's causes including promotion of the book and documentary film "The Motherhood Manifesto."

Not to belabor the point, but along with makeup of more working moms in Congress, such as House Speaker, Nancy Pelosi, if the Democrats secure the White House in the November 2008 elections, and strengthen their numbers in the House and Senate, it is expected that we see new legislation seeking fairer treatment of moms in the workplace. The proposed Healthy Families Act introduced by Ted Kennedy and proposed changes to FMLA from Christopher Dodd (who authored the FMLA in 1993), are examples of this type of legislation. Additionally, and more importantly, both Clinton and Obama have proposed in their platforms to focus on disease prevention, and improving science, to curb rising health care costs. Given the demographics of workplace reproductive and developmental hazards, along with other information covered by this paper, the workplace seems like strong potential target for disease prevention.

Are Safety and Health Pros Ready to Act?

U.S. employers have generally side-stepped directly addressing reproductive and developmental risks from workplace hazards. Part of the reluctance to address these risks was a misreading by most employers of the 1991 U.S. Supreme Court decision in UAW v. Johnson Controls outlawing

"fetal protection programs." The decision centered on employee discrimination concerns and never intended for employers to abdicate responsibility on workplace reproductive hazards primarily to a pregnant employee or to employees planning a pregnancy.

A hands-off approach when dealing with pregnant employees also can be seen in the US's official response to the International Labour Organization's Maternity Protection Convention (No. 183) and Recommendation (No. 191) of 2000 – the recommendation calls for risk assessments for pregnant workers. The US informed the ILO that, in regards to maternity protection, "The (US) government should not decide whether the (work) position held by a woman is prejudicial to her health or that of her child. That decision should be made by a woman in consultation with her physician. Additionally, a woman should not be prohibited from making her own decisions as to whether to work and when to work."

The US's approach to risks faced by pregnant employees goes against the tide of actions by other nations. As of June 2006, ninety-two countries around the globe, which includes all countries in the European Union, have established legislative health protections for pregnant employees. Health protections include provisions on work time, breastfeeding, and/or avoiding dangerous or unhealthy work. In the United Kingdom, for example, legislative health protections for pregnant employees require employers to conduct and communicate a risk assessment for workplace pregnancy hazards before an employee is pregnant. If an employee voluntarily declares that she is pregnant, the employer then must tailor a risk assessment for that employee. Based upon the findings of this risk assessment, the employee's physician may then provide specific guidance for a healthy pregnancy.

It is the author's opinion that regards to workplace hazards, it is unreasonable to expect that pregnancy risk decisions should only be made by a woman in consultation with her physician; unless the physician conducts an onsite inspection of the workplace themselves, which rarely happens. The employer, through their superior knowledge of workplace hazards, is a critical interface between a pregnant employee and her health care providers.

The effect of the Johnson Controls decision, however, is that U.S. employers are believed to shy away from the issue which has led to occupational safety and health practitioners in the U.S. not acquiring sufficient awareness or knowledge to successfully manage workplace reproductive and developmental hazards. It is hypothesized that these safety and health practitioners now have low self-efficacy in this regard. There are no qualified studies that specifically measure this self-efficacy. The author has, however, conducted PDCs annually at the AIHce conferences since 2004 on "Implementing Reproductive and Developmental Health Programs." The experience in these PDCs is that participants have only a cursory understanding with the topic. Participant acceptances of the topic, covering issues presented in this paper are high. At the 2006 AIHce in Chicago the PDC ranked number two (out of 72 PDCs). At the 2007 AIHce in Philadelphia the PDC ranked number four (out of 69 PDCs).

Conclusion

This paper sought to demonstrate, within its limited scope, that there is now an urgent need and significance for U.S. safety and health pros to complete a risk assessment for workplace reproductive and developmental hazards in advance of growing litigation, potential legislative

rules, or business imperatives. A major driving factor for business action is the threat of litigation that may occur if a child is born with prenatal injuries caused by workplace exposures. These tort claims are not covered by workers' compensation, and may impose a multi-million dollar liability upon an employer1.

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[1] See "The $100 million wake-up call: More claims seek damages from employers for birth defects" http://www.ishn.com/CDA/Archives/714fa0d1540c7010VgnVCM100000f932a8c0____.