

## **Oh Baby – How to Handle OSHA’s “Unborn Child” And “Breastfed Children”**

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### **Introduction**

The hazard statements “suspected of damaging the unborn child,” “may damage the unborn child” and “may cause harm to breastfed children” required by OSHA’s 2012 HazCom standard creates new public health responsibilities and increased due diligence for SH&E pros and employers. This paper describes “special instructions” needed to address precautions for this emerging issue.

### **Backstory**

There is long history of employer and society’s attitude to unborn children in the work environment. Given the limitations of this paper, only key points since OSHA will be presented.

In 1991, the US Supreme Court ruled in *UAW v Johnson Controls* that Title VII of the 1964 Civil Rights Act, as amended by the 1978 Pregnancy Discrimination Act, forbids sex-specific fetal-protection policies (UAW, 1991). The crux of the case involved OSHA’s lead standard and Johnson Controls decision to bar women from working with lead if they were capable of bearing children. In a nut-shell, the Supreme Court was in unanimous agreement that employers couldn’t do that.

The takeaway on Johnson Controls by employers centered on these three comments by the court:

1. With the PDA, Congress made clear that the decision to become pregnant or to work while being either pregnant or capable of becoming pregnant was reserved for each individual woman to make for herself.
2. Decisions about the welfare of future children must be left to the parents who conceive, bear, support, and raise them, rather than to the employers who hire parents.
3. If under general tort principles, Title VII bans sex-specific fetal-protection policies, the employer fully informs the woman of the risk, and the employer has not acted negligently, the basis for holding an employer liable seems remote at best.

Johnson Controls argued that more than 40 States recognized a right to recover for a prenatal injury based either on negligence or on wrongful death. Avoidance of situations that

could create a lawsuit with huge expense was a major factor in Johnson's policy that workers that could become pregnant should not work with lead. The court's comments that negligence should be downplayed was based primarily upon the evidence that OSHA established through the lead standard a series of mandatory protections which, taken together, "should effectively minimize any risk to the fetus and newborn child."

Johnson's decision to exclude fertile women from lead exposure was not an isolated case. Leading companies at the time including General Motors, Ford, Dow, Owens-Corning, American Cyanamid, DuPont, Exxon, BASF, Gulf Oil, Monsanto, Firestone, Eastman Kodak, and Shell Oil also instituted fetal-protection programs. By some estimates as many of 20% of Fortune 500 companies in the mid-1980s had implemented some form of fetal-protection program (Blank, Robert H., 1993).

The Supreme Court's ruling that banned fetal-protection programs essentially removed workplace risk to the unborn child from industry's radar. The court's words seemed clear: risks to unborn children were a parent's decision and if the employer fully complies with OSHA standards there is limited concern for tort liability.

### Unsettled Issues

Although there was silence on the issue within industry legal chatter picked up. More than 900 law review articles were published covering the many varied and complex issues contained within the Johnson Controls case (Lopez, C.B. and Sturm S., 2007). Chatter centered around the theme that the Supreme Court only settled the narrow point on workplace sex discrimination and left many ethical, moral, and safety and health issues unresolved.

The wisdom of the Supreme Court held true for the decade following the Johnson Controls ruling. Time, however, chipped away at the foundations of court's views and industry's silence.

In February 2002, the USA TODAY published the front page cover story, "Workers take employers to court over birth defects: Workplace hazards worry employers, their children" (USA TODAY, 2002). Tort liability was no longer remote.

I was interviewed for the story by USA TODAY reporter, Stephanie Armour. Stephanie found that employees were not being told about workplace risks to their unborn children. She asked me why this was so. I explained about industry's shyness in dealing with these issues; but Stephanie's repeated question to me was, "Who is responsible for telling employees about workplace risks to unborn children?"

My stock answer that it is the "employer's duty" to inform of risks was not sufficient. Stephanie was looking for workplace titles such as HR manager or safety and health pro. Stephanie was emotionally connected to the story. It bothered her that somebody, and not some faceless corporate entity, had dropped the ball on this very important topic.

### Decade of Discovery

Scarcity of data during the 1990s contributed to industry's silence on chemical risks to unborn children. The National Research Council, however, predicted in 2000 that an "explosive" growth of this data was coming (NRC, 2000). And the NRC's prediction came true.

In September 2010, science writer, Annie Murphy Paul, found that new information on risks to an unborn child had created a revolutionary shift in thinking among health researchers: that the nine months of gestation "constitute the most consequential period in our lives" (Paul, 2010). According to Paul, new research showed that chemical exposures encountered *in utero*

have the potential to permanently shape a person's susceptibility to numerous diseases including asthma, cancer, diabetes, obesity and even conditions associated with old age such as arthritis, osteoporosis and cognitive decline.

## **Statements, Policies, and Guidelines**

Armed with new information scientific and medical groups stepped up to shout their concerns of chemical risks to unborn children by issuing statements, policies, and guidance. The 2007 Faroes Statement, the Endocrine Society's First Scientific Statement issued in 2009, the American Academy of Pediatrics Policy on Chemical Hazards released in 2011, and the American College of Occupational and Environmental Medicine Guidance on Reproductive and Developmental Hazards published in 2011 are just a few examples.

The Faroes Statement (Faroes, 2007), developed by international experts on the topic, provides these key observations and recommendations:

- “The old paradigm, developed over four centuries ago by Paracelsus, was that ‘dose makes the poison.’ However, for exposures sustained during early development, another critical, but largely ignored, issue is that ‘timing makes the poison.’ This extended paradigm deserves wide attention to protect the fetus and child against preventable hazards.”
- “The accumulated research evidence suggests that prevention efforts against toxic exposures to environmental chemicals should focus on protecting the embryo, fetus and small child as highly vulnerable populations.”
- “Prevention should not await definitive evidence of causality when delays in decision-making would lead to propagation of toxic exposures and their long-term, harmful consequences.”

## **Children's Health**

President Clinton issued Executive Order 13045 “Protection of Children from Environmental Health Risks and Safety Risks” in 1997. EO 13045 established that government agencies make children's health a priority. The order aligned with the 1997 G8 Miami Declaration on Children's Environmental Health that put a global focus on efforts to protect children from harmful environmental exposures.

Initially, “children” both within the US and abroad meant a child from birth through adolescence. In 2005, the World Health Organization published the first Handbook on “Children's Health and the Environment: A Global Perspective” (WHO, 2005). The WHO's ground-breaking manual defined children's health to mean a period from “conception through adolescence.” The position by WHO that children's health begins at conception sparked policy changes globally.

## **EPA Involvement**

The USEPA published the “Guide to Considering Children's Health When Developing EPA Actions: Implementing Executive Order 13045 and EPA's Policy on Evaluating Health Risks to Children” in 2006. The guide established that disproportionate risk to children's health includes:

- Parental occupational exposures to toxicants before conceiving a child;
- Maternal exposures during gestation; and
- Exposures to chemicals or radiation during infancy and childhood.

The federal Children's Health Protection Advisory Committee (CHPAC), an expert group on children's health, was established to help the EPA meet conformance with EO 13045. CHPAC sent a letter to Lisa Jackson, Administrator, EPA, in November 2011, with the RE: Prenatal Exposure and Children's Environmental Health (CHPAC, 2011). The letter included the following:

“Largely as a result of research conducted over the last decade, we now understand that environmental exposures can profoundly affect children even before they are born. Prenatal exposures, including pre-conception exposures, contribute to infant mortality, pregnancy loss, birth defects, and conditions and diseases throughout the lifespan, creating significant social and economic burdens. These exposures occur in the home, the workplace, and in the community. Many or most EPA methods and policies were adopted before the significance of prenatal exposures was understood so it is important to revisit current policies and practices to address this emerging knowledge.”

CHPAC provided a detailed set of recommendations for the EPA that includes, “CHPAC recommends that EPA work with the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), and industry to develop mechanisms to assure protection of men and women in the workplace from exposures that may impact the workers during the preconception and prenatal period.”

The EPA's Office of Children's Health Protection (OCHP) responded to CHPAC on May 15, 2012 (OCHP, 2012). The response acknowledged that “... environmental exposures through the mother to the developing fetus can have a profound effect on the future life of child.”

OCHP's detailed response to each of CHPAC's recommendations shows that the EPA has been actively engaged on the topic. Further, response shows that the agency has positioned itself to meet future challenges and opportunities.

OCHP's specific response on workplace exposure includes the following: “In response to this CHPAC recommendation, EPA has initiated a discussion with the Department of Labor, OSHA and NIOSH to explore opportunities to give greater consideration to potential prenatal exposures through the communication and enforcement of current worker protection standards.”

## **OSHA HCS**

OSHA's 2012 HCS, that adopts GHS, fits snugly into the timeline for opportunities to protect the health of children i.e. conception and infant from exposure to chemicals. Requirements in the 2012 HCS to include the words “unborn child” and “breast-fed children” accents the connection to the topic.

OSHA acknowledges in the preamble to the 2012 HCS the significance of new discoveries in reproductive toxicity, mentioning concerns such as endocrine disrupting chemicals. OSHA's understanding of chemical risks led it to provide in the 2012 HCS the most protective GHS concentration limits i.e. 0.1% cut-off for chemicals classified as carcinogens, mutagens, and toxic to reproduction (CMRs).

CMRs are now treated as “substances of very high concern” in many parts of the globe including laws in several US states such as Minnesota's “Toxic Free Kids Act,” Maine's law on “Toxic Chemicals in Children's Products,” and Washington's “Children's Safe Products Act.” In each of these examples the terms “kids” and “children” include exposures to the unborn.

## Interpretation

There may be no better opportunity to address prenatal exposures through communication and enforcement of current worker protection standards than through the 2012 HCS.

In preparation for presentation of this paper, I sent a letter in February 2013 to OSHA's Directorate of Enforcement Programs that requests an interpretation on this topic. Here are the questions:

- Question #1: Does OSHA foresee enforcement of hazards statements for chemicals toxic to reproduction at OSHA's hazard communication standard 29 CFR 1910.1200 Appendix C.4.10 for the prenatal exposure population of an "unborn child?"
- Question #2: OSHA's lab standard at 29 CFR 1910.1450(e)(3)(vii) identifies reproductive toxins as a "particularly hazardous substance" that requires employers to provide employee protections found at 1910.1450(e)(3)(viii)(A) thru 1910.1450(e)(3)(viii)(D). Should all chemicals that are toxic to reproduction under the HCS be addressed in a manner equal to employee protections for reproductive toxins as found in the lab standard?
- Question #3: OSHA's lab standard revised March 26, 2012, provides separate definitions for "mutagen" and "reproductive toxins." Under the former lab standard, mutagen was considered a subset under reproductive toxin e.g. may cause genetic defects. Are mutagens now excluded as a particularly hazardous substance at 1910.1450(e)(3)(vii)?
- Question #4: What evidence will OSHA look for to demonstrate that the employer has met its general duty and standard of care for the precautionary statement, "obtain special instructions before use" at 29 CFR 1910.1200 Appendix C.4.10?
- Question #5: 29 CFR 1910.1200 Appendix C.4.10 (continued) includes the new classification "Effects on or via lactation" with the hazard statement "May cause harm to breast-fed children." Other than the precautionary statements found in the HCS, I cannot find any OSHA requirements for breast-fed children. Do you foresee OSHA enforcement of hazards to breastfeeding?
- Question #6: Will OSHA enforce occupational exposure limits that may be specific to an unborn child such as a DNEL or MAK where this information is found on a safety data sheet maintained by the employer? For example, the MAK value for carbon monoxide is 30 ppm TWA with a Pregnancy Risk Group B. Risk Group B states, "According to currently available information, damage to the embryo or foetus must be expected even when MAK and BAT values are observed." What actions will OSHA take if a pregnant employee is exposed to CO above 30 ppm TWA?
- Question #7: Some of my clients believe that an unborn child and breast-fed children, as identified in the OSHA HCS, lead standard, ethylene oxide standard, and by reference OSHA's lab standard are not employees and are outside of the scope of the OSH Act. Are their assumptions correct?

It may take a few months or more for OSHA to respond to the above questions. In the meantime we can speculate how OSHA may answer some of the questions. In defense of whatever OSHA may conclude, none of the questions have an easy answer.

## Functional Capacity of Parent?

An unborn child and breast-fed children are not employees. OSHA asserted, however, with the promulgation of 1978 lead standard that "damage to the fetus represents impairment of the reproductive capacity of the parent and must be considered material impairment of functional capacity under the OSH Act" (OSHA, 1978). OSHA is unlikely to sway from this position.

OSHA most likely will cite definitions within the 2012 HCS to support current understanding. The 2012 HCS defines reproductive toxicity as “adverse effects on sexual function and fertility in adult males and females, as well as adverse effects on development of the offspring.” “Effects on or via lactation” are included as a subset of development of the offspring but are treated separately within the 2012 HCS.

There are two halves to the reproductive toxicity definition. The half that deals with fertility or effects on lactation represents functional capacity of the parent. Both of these exposures fit neatly under the umbrella of occupational health. Development of the offspring including effects via lactation fits better under the umbrella of public health.

Functional capacity of the parent and development of offspring move further apart as medical science and legal arguments advance to distinguish when a child’s injuries are independent and not derivative of the parent.

## **Risk Management**

Merging occupational and public health through the micro-environment of the parent impacted by the large environment of the workplace, under the very broad concept of environment, creates uncertainty. “Effect of uncertainty upon achievement of objectives” is the definition of risk according to ISO 31000:2009 Risk Management – Principles and Guidelines on Implementation.

OSHA may lump most of the interpretation questions above as an organizational risk management decision – not an OSHA decision. In the preamble to the 2012 HCS, OSHA stated at page 17720, “The HCS is a standard that is intended to provide information to users of chemicals so they can make their own determinations as to what controls are needed to prevent adverse health effects or the effects of physical hazards. The better information they have about the chemicals in their workplaces, the more likely they will be able to make their own risk assessments, and choose appropriate risk management measures.”

## **Information**

The information age is a double-edged sword. Ready access to large amounts of information challenges us to use the information wisely.

The 2012 HCS allows any exposure limit (OEL) on an SDS. Given the global concept of GHS, OELs developed outside the US may appear on SDSs used by US employers. The German Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) recently launched a free online database, available in English, for international OELs (IFA, 2013). IFA’s OEL database is also available as a free Android and iPhone app.

EU REACH requires a chemical manufacturer or importer to develop a “derived no effect level” (DNEL). There are several different types of DNELs. A DNEL is OEL. Human exposure should be kept below the DNEL. Given that the DNEL is developed by a chemical manufacturer or importer it cannot be easily dismissed as a country specific OEL by an employer. The IFA provides a free online database for approximately 1,000 inhalative long-term exposure DNELs for employees. The list will be periodically updated when new DNELs are developed.

The IFA also maintains a database, available in English that may be accessed online or installed as an Android or iPhone app, for approximately 8,500 substances. The database includes regulations specific to Europe and Germany. However, the extensive technical and precautionary recommendations within the database are universal. Each entry includes CMR

information. GHS classification and pictograms for substances within the database apply in the US. MAK OELs are included in the IFA database.

The above example demonstrates the ready access SH&E pros have to large amounts of information. The example also highlights the adage that pros should “think global and act local.”

## Risk Decisions

Ready access to large amounts of information may complicate risk decisions. For example, interpretation question #6 to OSHA is more easily viewed as Table 1.

Carbon Monoxide CAS # 630-08-0	DNEL	ACGIH® TLV®	DFG MAK	NIOSH REL	OSHA PEL
	20	25	30	35	50

**Table 1. CO OELs expressed in PPM**

Source for the DNEL is the IFA GESTIS DNEL Database. GESTIS expresses DNELs in mg/m<sup>3</sup>. Conversion to parts per million in Table 1 provided for ease of understanding.

An organization may comply with employee exposure to CO under federal OSHA’s PEL at 50 ppm. Switch the hat to public health and an organization should consider the pregnancy classification for CO under the MAK that warns that damage to the embryo or foetus must be expected even when the MAK is observed. If this is the case, should an organization adopt the TLV® at 25 ppm for CO or go lower?

The choice of CO exposure to a pregnant worker may be lower than the DNEL. Risk decisions don’t hold only with airborne measurements. Biological monitoring is a more accurate measure of exposure. The ACGIH® has a BEI® for COHb (end of shift) for normal healthy adults at 3.5%. The World Health Organization recommends that non-smoking pregnant women limit their COHb level to less than 2.5%. The WHO has determined that COHb will not be exceeded by normal subjects that are exposed to CO at 90 ppm for 15 minutes, 50 ppm for 30 minutes, 25 ppm for one hour, and 10 ppm for 8 hours (WHO, 2000).

Zero level of CO exposure may be unreasonable for many workplaces. Regardless of the limit an organization sets for a pregnant worker’s CO exposure, if she smokes she puts her unborn child at greater risk. If the child is born with developmental problems organizational health care costs may increase along with other burdens such as lost-time by the employee to provide care for an infant that may have special needs.

## Slippery Slope

How we treat a pregnant worker and her unborn child may be a slippery slope into further uncertainty.

Don’t fully inform workers of CO risks to their unborn children? The intent of HCS and an employer’s general duty for standard of care may not be achieved. Hire only non-smokers? Some organizations have been successful toward this objective. Remove a pregnant worker from CO exposure without her consent and an organization may violate the ADA. Don’t hire women who may become pregnant? Laws don’t allow an organization to cross that line. And there are other lines such as tort liability that shouldn’t be crossed.

## **Tort Liability**

Crossing the line of prenatal tort liability is a big concern. Step back to my comments about being interviewed in 2002 by the USA TODAY. The article includes a discussion about Naomi Snyder who alleged that her daughter, Makayla, was born with cerebral palsy and other health problems when exposed to CO as an unborn child at her mom's workplace.

The California Supreme Court in 1997 ruled in *Makayla Snyder v Michaels Stores* that children could sue their mothers' employer for fetal injuries. The Snyder case opened doors to other cases where the workers' compensation system is by-passed when children sue their mom's employer for fetal injuries. A single prenatal tort injury claim may run into the millions of dollars and may be uninsured.

Recall, too, my comments about being pressed by the reporter, Stephanie Amour, about who should inform parents of risks to unborn children. In the Snyder case it was not only the faceless corporate entity that was being sued. Naomi's supervisor was named as a defendant in the claim.

I am not a lawyer and cannot provide specific advice in areas of law. To arm you with some advice on the issue, however, the following is the conclusion of 2003 article "Defending Workplace Prenatal Injury Claims" written by lawyers engaged in the topic (Schumacher, Paul J. and Lougovskaia, Elena N., 2003):

"The potential for future claims for prenatal injuries against employers and chemical manufacturers is significant. The defense practitioner should be aware that the exclusivity of state workers compensation schemes is unlikely to shield most employers from claims presented by the unborn child. Since many traditional defenses may be unavailable to the employer, an attack on plaintiff's ability to prove general and specific causation may be the best course for the defense. As science advances, however, it will become more challenging to defeat a claim of causal link. While a legislative solution would be welcomed by employers, prudent defense practitioners should be proactive in alerting clients to these issues and assisting them in establishing non-discriminatory means of protecting unborn in the workplace. Effective monitoring, warnings and a keen interest in advancing work place hazard assessment will give employers and their counsel a huge advantage in defending workplace prenatal injury claims."

## **Growth in Toxicity Studies**

The legal advice above warns about the advancement of science and challenges to defeat prenatal injury claims of causal link. Consider the growth in reproductive and developmental toxicity studies.

More than 4,500 chemical substances are registered under the early phases of EU REACH legislation. Approximately 1.6 million animals were used to accomplish reproductive and developmental toxicity studies for these registrations (Rovida, C., et al, 2011). Thousands more of substances will undergo reproductive and developmental toxicity studies as REACH matures.

REACH data, however, is only part of the growing evidence that is available to help classify chemicals under the reproductive toxicity category for the 2012 HCS. Further, classification for developmental toxicity i.e. damage to the unborn takes a cautious approach. Section A.7.2.4.2 of the 2012 HCS, for example, states: "Developmental effects which occur even in the presence of maternal toxicity are considered to be evidence of developmental toxicity, unless it can be unequivocally demonstrated on a case-by-case basis that the developmental



effects are secondary to maternal toxicity.” In layman terms, if there is doubt about a chemical’s toxic effect assume the chemical has an effect on the unborn child.

Growth in toxicity studies and other evidence will result in many chemicals with the 2012 HCS hazard statements “suspected of damaging the unborn child,” “may damage the unborn child” or “may cause harm to breast-fed children.” And these required words come at a time when scientific and medical groups urge for greater protections for these populations.

## Special Instructions

Classification of chemicals sets the stage to transmit information through a SDS and label elements. Within the label elements the precautionary statements: prevention, response, storage, and disposal set the stage for actions. Prevention is the primary actions necessary to avoid damage or harmful effects of exposure to chemicals.

Table 2 shows each of the hazard classes in Appendix C to the 2012 HCS that contain the “Obtain special instructions before use” prevention statement.

Prevention	Hazard Class	Hazard Category	Reference
Obtain special instructions before use	Explosives	Unstable explosive	C.4.14
	Germ cell mutagenicity	1A, 1B, 2	C.4.8
	Carcinogenicity	1A, 1B, 2	C.4.9
	Reproductive toxicity	1A, 1B, 2	C.4.10
	Reproductive toxicity (effects on or via lactation)	Additional category	C.4.10 (cont.)

**Table 2. Prevention statement “obtain special instructions”**

The importance of the special instructions prevention statement for these hazard classes begins with an understanding of explosives. There are seven hazard categories for explosives: unstable explosive and explosives within Divisions 1.1 through 1.6. Unstable explosives are uniquely dangerous - more dangerous than explosives that have a mass explosion hazard i.e. Division 1.1 or severe projection hazard i.e. Division 1.2. There should be no argument that an employee should obtain special instructions before handling an unstable explosive.

The 2012 HCS not only provides the most protective GHS concentration limits for CMRs, but as Table II shows, CMRs may be considered uniquely dangerous and equal to the prevention statement for an unstable explosive. OSHA’s very cautious mindset on CMRs is also shown in the lab standard where CMRs are considered a “particularly hazardous substance” that requires employers to provide special protections for employees (see OSHA interpretation question #2 above). CMRs are considered uniquely dangerous because even uncontrolled brief and low level exposures may cause permanent damage to health that may lead to death.

Special instructions are not defined in the 2012 HCS. As mentioned earlier, OSHA most likely will conclude that special instructions will be established as a risk management strategy that may be unique for each organization. CO exposure to a pregnant worker, as provided in this paper, show some of the complexities involved in risk decisions to protect an unborn child. Complexities include that although compliance with OSHA is important, conformance with due

diligence to prevent or prevail in a prenatal tort lawsuit may be more important for some organizations.

## **Outdated OSHA?**

Compliance with OSHA may not assure protection of an unborn child or breast-fed children from workplace chemical exposures. For example, OSHA's medical surveillance guidelines, Appendix C, in the lead standards recommend now that females that wish to bear children should not exceed a blood lead level (BLL) of 30 ug/100g. OSHA's recommendation came from CDC guidelines in 1978.

OSHA is frozen in time. The CDC recommended in 1991 that the BLL of pregnant women not exceed 10 ug/dL (ug/100g = ug/dL), otherwise they are at risk of delivering a child with an elevated BLL that may increase the child's risk of having cognitive deficits. The CDC advised in 2005 that a BLL at 10 ug/dL was too high. The CDC's current (CDC 2010) recommendation is that the BLL of pregnant women should be less than 5 ug/dL. Current recommendations also state that lactating women that have a BLL at 40 ug/dL or higher "pump and discard their breast milk." Further, CDC's current recommendations acknowledge that, "OSHA's lead standards have not been updated to reflect current research findings."

The above should remind SH&E pros and employers that OSHA cannot be expected to identify special instructions for all chemicals when the agency's substance specific standards may be out-of-date.

## **Risk Context**

ISO 31000:2009 standard for risk management includes the processes: identify, analyze, evaluate and treat that are familiar to SH&E pros. Most SH&E pros are comfortable in identifying the presence of a potentially harmful chemical, analyzing e.g. measuring exposure, evaluating e.g. determine compliance with regulations or conformance with organization objectives, and treatment e.g. implementing hierarchy of controls such as substitution, engineering, PPE, and administrative.

Each of the mostly "hard science" processes above are greatly influenced by context that is more soft science such as determining values, attitudes, and beliefs of stakeholders to a risk. Context is what will move an organization or individual to develop special instructions to prevent damage to an unborn child or harm to breast-fed children. Without an understanding of context it is likely that a US organization will remain silent on risks to an unborn child.

The words "unborn child" were never discussed in the preamble to OSHA's 2012 HCS. The lack of discussion implies that that everyone knows what the words mean and how to handle them. This is a foolish assumption. The US organization, "People Concerned for the Unborn Child" was formed in 1969. The international "Society for the Protection of the Unborn Child" is headquartered in the UK. And March 25<sup>th</sup> is promoted in a religious context as the "Day of the Unborn Child."

The words "unborn child" are highly polarizing, particularly in the US. For example, on January 23, 2012, H.R. 3803 "The District of Columbia Pain-Capable Unborn Child Protection Act" was introduced in Congress. Because the bill was fast-tracked it failed under suspension by vote of 220/154. Failure was not the point of the bill – message was the point. Cosponsors to the

bill included 216 Republicans and only six Democrats. Implied message: Republicans care about the welfare of unborn children.

On the other side of the coin, the large coalition of women's rights and other groups that formed the "Campaign to End Discrimination Against Pregnant Workers" in 1977, that ultimately led to the 1978 PDA, that ultimately led to downfall of corporate fetal protection policies under the 1991 Supreme Court ruling in Johnson Controls, has mobilized again to push the "Pregnant Workers Fairness Act." The PWFA was introduced into Congress on May 8, 2012, as H.R. 5647, but did not come out of committee at year end. The intent of the PWFA is to, "eliminate discrimination and promote women's health and economic security by ensuring reasonable workplace accommodations for workers whose ability to perform the functions of a job are limited by pregnancy, childbirth, or a related medical condition." The House bill had 112 cosponsors, all Democrats. What is the implied message?

Sitting in the wings for legislative action in 2013 is reform of the 1976 Toxic Substances Control Act (TSCA). A proposal to reform TSCA was introduced by Senator Lautenberg in 2008 under the title "Kids-Safe Chemical Act." And, yes "kids" include the unborn. A bill to reform TSCA has appeared in Congress every year since 2008. Influence of EU REACH and growth in state laws to regulate chemicals will force reform of TSCA. Details for a reformed TSCA are uncertain but priority for children's health will be there. The industry leader, The American Chemistry Council (ACC) is on board with that objective. According to the ACC, "TSCA modernization must place protecting public health as its highest priority, including consideration of safety for children." Under TSCA reform the term "children" will include the population of pregnant worker and unborn child.

## **4C Risk Communication**

The above are just a few context issues that may influence a SH&E pro and employer's efforts to treat risks within the 2012 HCS. A major context issue that must be determined is the values, attitudes, and beliefs of internal stakeholders such as the CEO, shop supervisors, and most importantly, workers.

SDS and label elements required by the 2012 HCS are designed to influence workers to obtain special instructions before use of a chemical that may damage an unborn child or cause harm to breast-fed children. Again, this may be a very sensitive topic for some people. The development of special instructions will be influenced by what people think and how they behave.

Communication of risks may be viewed in the context of a pyramid with four layers: curiosity, concern, controversy, and conflict – or (4C). The 4C (foresee) pyramid structure symbolizes that there is more curiosity (base of pyramid) than concern and conflict should be rare. The 4C pyramid is similar to the injury pyramid, familiar to most SH&E pros, where the base is near-miss events.

The 4C risk communication concept holds that when a person's curiosity is not addressed they move to concern. If concern is not satisfied, controversy comes next. If controversy is not adequately addressed, conflict ensues that generally requires a third-party such as OSHA or lawyers to resolve.

Here's an example of how 4C risk communication proceeds. Curiosity: "Will carbon monoxide exposure at work hurt my unborn child?" Concern: "I think carbon monoxide exposure at work will hurt my unborn child." Controversy: "The plant safety pro says exposure to 25 ppm

carbon monoxide is safe, but I feel a lower level is necessary to protect my baby.” Conflict: “I’m going to have my doctor provide a medical note that says I shouldn’t be exposed to any carbon monoxide at work while pregnant.”

The objective of the 4C risk communication concept is to satisfy people’s curiosity. To satisfy curiosity you must have an idea what people think. To figure out what people think, engage in conversation. Conversation to learn about curiosity should begin with a low level exchange of information. Exchange of information is a two-way street: send a message, obtain feedback, and return feedback to ensure that message was understood.

## **Training Deadline**

OSHA requires that employees complete 2012 HCS training on the 16 section SDS and GHS label elements that include precautionary statements and pictograms by December 1, 2013. Training comes first among various 2012 HCS requirements because GHS data from Europe and elsewhere is in the US now and the information is growing.

The question, “Who is responsible for telling employees about workplace risks to unborn children?” that USA TODAY reporter, Stephanie Armour, asked over a decade ago deserves a definitive answer. Employers and SH&E pros that meet only minimal 2012 HCS training requirements and bypass the 4C risk communication concept, using full internal and external context available to an organization, with snippets shown in this paper, may promote conflict.

## **Pandora’s Box?**

US employers may be reluctant to open the Pandora’s box that contains workplace protection from chemical exposure to an unborn child and breast-fed children. The 2012 HCS, however, forces the box to be opened. And once the box is opened other workplace hazards to pregnant workers and their unborn children such as noise, ergonomics, radiation, heat, biological agents and psychosocial stress emerge and demand attention. At this point a full appreciation for “special instructions” by the employer and other stakeholders will be evident.

Europe opened the Pandora’s box with the 1992 Pregnant Workers Directive. The Directive was issued by the Commission of the European Communities and encouraged EU countries to implement measures to improve the safety and health at work of pregnant workers. The Commission established Guidelines in 2000 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.”

When the GHS breadcrumbs are followed it becomes obvious that safety and health activities in Europe greatly influenced requirements in the 2012 HCS. The hazard statements unborn child and breastfed children have been used throughout the EU for many years. There are a great many differences between social practices in the EU versus the US. A key difference is the generous amount of maternity leave given pregnant workers in EU countries. The US is one of the very few countries that doesn’t provide any paid maternity leave for all pregnant workers.

As the parable goes, hope is found at the bottom of Pandora’s box. Whether hope is a good or evil depends upon actions. If positive actions are taken, hope is good. In this regard, SH&E pros and other stakeholders such as the ASSE should take actions to ensure that workplace hazards to the unborn child and breast-fed children are fully addressed. The 2012 HCS and other timely influencing context including CHPAC’s actions and pending actions on the PWFA and TSCA reform provides the first major opportunity to pursue this objective.

## Conclusion

Some final points:

- One-half of the children in the US are now born to a mom who worked while pregnant.
- Children that are born healthy and stay healthy solve many of our nation's health care challenges.
- SH&E pros are part of the public health workforce that may help ensure healthy children.

SH&E pros have an obligation to determine the special instructions that will allow a pregnant or breastfeeding worker to safely work with chemicals. Special instructions should be communicated before a worker voluntarily announces her pregnancy. Altering workers to special instructions several weeks or longer after conception may not allow for early protections. Special instructions should consider "reasonable accommodation" as intended in the proposed PWFA. Zero exposure is not a reasonable accommodation, whether suggested by the SH&E pro or health care provider. Reasonable accommodations allow a pregnant worker to remain at her job and not be forced out of work with loss of income – that opens up potential health problems for an unborn child and breast-fed children.

SH&E pros and other stakeholders should not sit on the sidelines for this very important issue. Coming into the game requires competency that begins with an awareness, acceptance, and development of special instructions for pregnant and breastfeeding workers - that may vary for each organization.

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