No. 80/81 - Spring 2009

Women & Environments

international magazine

Maternal Health

How Do Work Environments Affect Women's Maternal Health?

SUSAN BRAEDLEY

Obstetrical Fistula

MARQUISE KUOU GNAMBY

Maternal Health and Household Environmental Issues For Public Policy

SANDRA TAM

Human Resources and the Environment of Birth in Canada

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DOUBLE ISSUE

Women & Environments
international magazine

Mission Statement:
Women & Environments International is a unique Canadian magazine, which examines women's multiple relations to their environments — natural, built and social — from feminist and anti-racist perspectives. It has provided a forum for academic research and theory, professional practice and community experience since 1976. It is published by a volunteer editorial board and contributes to feminist social change. The magazine is associated with the Faculty of Environmental Studies, York University and has been previously associated with the Women and Gender Studies Institute, University of Toronto.

Subscriptions: INDIVIDUALS — in Canada and US: 4 double issues (2 years) CAD 26.00; 8 double issues CAD 48.00; Overseas: 4 double issues USD 24.00 or CAD 32.00; 8 double issues USSD 40.00 or CAD 52.50. INSTITUTIONS AND BUSINESSES — in Canada and US: 2 double issues CAD 35.00; and Overseas: USD 35.00 or CAD 52.50; Bulk Orders for 10 copies and more: CAD 4.50 plus postage.

Women & Environments International Magazine:
ISSN 1499-1993, publishes 2 double issues annually. It was founded as Women & Environments in 1976. From Fall 1997 to Summer 2001 it published under the title WE International. Women & Environments International Magazine is a member of Best of the Alternative Press and is indexed in Alternative Press Index, Canadian Periodical Index, Social Sciences Index and Women's Studies Abstracts.

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Canadian Publication Mailing Agreement #40009460
PAP Registration #09211
Printed on recycled and acid free paper

Upcoming Issues

Your participation in issue teams and contribution of ideas, articles, news and funds are both welcome and important for the survival of Women & Environments International Magazine.

Editorial Guidelines, Calls for Submissions and more visit the "Write for WEI Mag" section of our website: www.weimag.com. To make a donation, please make it out to WEI Magazine, Faculty of Environmental Studies, York University, HNES Building Room 234, 4700 Keele Street, Toronto, ON M3J 1P3, Canada.

ON THE COVER

Biljana Banchotova is the featured artist in this issue of WEI magazine. The artist believes that her passion as a visionary painter flows from the sacred path of self-realization and of the beauty of spirit that animates the self and nature. Her art explores the intuitive feminine energies and co-weaves her visions and prayers. This image is called "Heart by Heart" and it is an oil on canvas which is part of a private collection. The image expresses the relationship of love and light between a mother and child and represents nurturing, transcendence and unity.

The art on the inside back cover and back cover of this issue are also by Biljana. The images are both oils on canvass and are called "Water Spirit Woman" 2007 and "Morning Star" 2008 respectively. More information on the artist and her art can be found at www.BiljanaArt.com.

Thank You

The Women & Environments International Magazine, Editorial Board and Editorial Committee for the current issue acknowledge the financial support of the Government of Canada through the Publication Assistance Program (PAP) towards our mailing costs as well as the financial support of The National Network on Environments and Women's Health. We appreciate the ongoing support of the International Development Research Centre in Ottawa, as well as, the support of OPIRG Guelph and that of Reggie Modlich and Nikos Evdemon. In addition, Women & Environments International Magazine is grateful for the general support of the Faculty of Environmental Studies at York University.

Canada

Contents

Women & Environments International Magazine No.80/81

WE Speak

Features

WE Research

In The Field

Poetry

WE Resources

WE Speak

A Word from WEI Magazine

Karla Orantes

The World Health Organization provides a good but limited definition of maternal health — *it refers to the health of women during pregnancy, childbirth and the postpartum period. While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death. The major direct causes of maternal morbidity and mortality include haemorrhage, infection, high blood pressure, unsafe abortion, and obstructed labour (WHO).*

I find myself in the 8th week of my first pregnancy while writing an editorial note for this issue of WEI magazine. I think of how fortunate I am to have the opportunity to bring life into this world and I believe that all women who have been, or will be in my place may share similar feelings. In my opinion, maternal health is not only about the changes and transformations of a woman's body, about the development of the foetus or about live birth. Maternal health is also shaped by the physical and social environment that surrounds a woman during pregnancy, such as a woman's relationship to her family, to her community and by the social, cultural and economic circumstances she finds herself in.

On behalf of WEI magazine I am happy to present to you our latest issue on Women and Maternal Health prepared in collaboration with The National Network on Environments and Women's Health. The authors have made this issue a valuable source of information by exploring topics such as the impact of toxic chemicals on the health of women and newborns, the improvements needed for specialized health care systems and the outcomes of different birth environments. There are interesting articles from Germany, Cameroon, Canada, and Cuba looking at different aspects of maternal health.

I would like to thank Professor Pat Armstrong and The National Network on Environments and Women's Health as well as all the contributors to this issue. I would also like to thank Olga Speranskaya, a member of the Editorial Board, for taking on the task of coordinating this issue and Editorial Board members Genevieve Drouin, Christina Sit Yee and Sybila Valdivieso for their support towards this issue and to the magazine as a whole.

I hope you enjoy reading this issue!

Best wishes,
Karla Orantes, Managing Editor

Putting This Issue Together

Sarah Atchison has graduate degrees from Northern Ireland in peace and reconciliation studies and human rights law. She worked on the Bloody Sunday Inquiry in Northern Ireland and while at law school was selected for a clerkship with the Supreme Court of the Northwest Territories. She has also been the recipient of a Social Justice Fellowship which allowed her to intern with the World Organization against Torture. Her research interests are in Aboriginal rights, human rights, and women's rights.

Genevieve Drouin works with Rooftops Canada, a non-governmental organization, where she is involved in housing and land rights programming in Africa. Genevieve has worked with the UN World Food Program in South America, with international educational programming in Canada, and with a number of community-based organizations in Ecuador and Peru. Genevieve received a Master of Arts degree in international development from Dalhousie University. She also has a Bachelor of Arts degree (honours) in international development and history from Trent University. She was a director on the board of the Ontario Council for International Cooperation and currently sits on the editorial board of WEI Magazine.

Sonja Greckol's work has appeared in **Literary Review of Canada, Canadian Literature, Dalhousie Review, CV2, Canadian Women's Studies, Fiddlehead** and **Matrix** and her long poem, 'Emilie Explains Newton to Voltaire' was shortlisted for the CBC Literary Prize in 2008. She has taught college and university, written a dissertation on order and disorder in jokes, done human rights and gender-based research and organizational consulting, and continues to do local activism while she writes. Her first book of poetry, **Gravity Matters** will be published by Inanna in April, 2009.

Karla Orantes is an activist for social justice. She works as an advocate for students at George Brown College in Toronto. Her areas of interest are immigrant rights, environmental sustainability, popular education, and social development. She has been a member of WEI magazine since 2005 and has contributed to various publications to date.

Dr. Olga Speranskaya has been working in the area of environment and health with a specific focus on toxic problems for 15 years. She cooperates with International POPs Elimination Network, Women of Europe for the Common Future, and other environmental and health organizations. She assisted in moving forward global agreements on toxic chemicals and is the author of educational materials on chemicals, the environment and health.

Christina Sit Yee is the Marketing Coordinator for WEI magazine. She is also the Director of Development & Marketing at the Toronto Reel Asian International Film Festival, a cultural organization that celebrates Asian and Asian Canadian film and media arts. Her interests include feminism, environmentalism, the arts, HIV/AIDS activism, international development, and social justice. She is also the President of the Board at Canadian Support of Rural African Initiatives, a charity that supports communities and families in East Africa in the fight against the HIV/AIDS and she sits on the Portfolio and Policy Committee of Habitat Services, an organization providing supportive housing and services to people living with mental illness in Toronto. She graduated from the Schulich School of Business at York University with an International Bachelor of Business Administration.

Elliot Spears currently practises law in Toronto. She served as a junior editor, then a senior editor, for her law school's law journal. Elliot is happy to have had the opportunity to edit once again and to learn more about maternal health.

Sybila Valdivieso is an activist with a particular interest in advancing the legal interests of, and the protections for, communities that face poverty and social exclusion. She is mad about the fact that in 2009 women are still dying due to barriers to safe legal abortion.

Environments and Maternal Health

An Introduction

Pat Armstrong

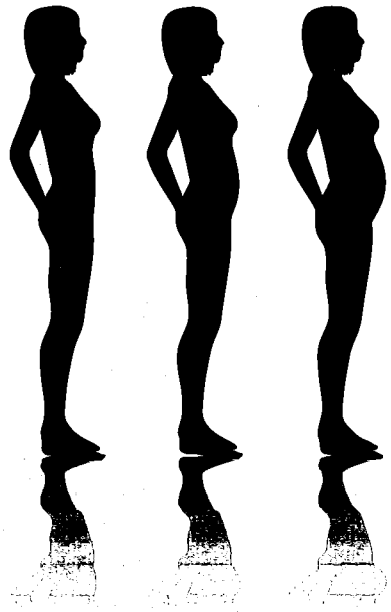
Although unhealthy environments have become an inconvenient truth and environmental risks a hot topic, very little of the public discussion in Canada has considered either gender or maternity. However, this may be changing. Recently, the *Globe and Mail*, quoting Foster (2008) reported that synthetic estrogen excreted by women on the pill into waste water is disrupting the sexual development of fish. And in the February 2008 edition of the magazine *Whole Life*, Elizabeth Barker (2008) writes that

Last summer a team of Scandinavian scientists announced that twice as many girls as boys are being born in the Arctic, a region said to serve as a "pollution sink" for the rest of the planet.

And she asks "Could a world without men be a few short generations away?"

We want to go well beyond the question of disappearing males here, although the point is clearly important to our discussions and no doubt to us individually. Our main objective is to bring a gender lens to bear on environments and women's health in order to identify useful models as well as gaps in research, policy and practices, with a view to developing strategies to ensure healthy maternity. We want to develop different ways of seeing environments and of seeing maternal health, ways that can be the basis for such strategies.

A gender lens allows us to see more, and different, aspects of the environment. A gender-based analysis begins with the conditions of women's lives; as the often repeated phrase goes, with where they live, work and play and, I would add, with who they work, live and play with. Such an analysis recognizes that what we think of as biology is shaped not only by social, cultural and economic locations, but also



by physical ones as well. This means biology is shaped differently for women in diverse locations. The very biology of conception, pregnancy, birth and post-partum health varies with place and time, and with women's individual and shared history. We want to know what part gender and environments play, beginning at least with questions around getting pregnant and including staying pregnant, fetal development, birth and post-partum conditions.

In women's health, we talk about issues that are unique to women, are more prevalent in women, and are expressed and experienced differently in women. The same questions need to be asked about maternal health. I think we can claim with some confidence still that pregnancy is an experience unique to women, although there are significant differences among pregnancies even for the same and it is certainly shaped by men. This leads us to ask what environmental issues are unique to pregnancy and maternal health, which are more prevalent or obvious during such periods and which are mainly experienced differently by women during maternity but are relevant for all women.

Our gender analysis of environments and maternal health must begin, then, by asking what those environments look like and how they differ among women as well as for men before going on to ask what the implications are for maternal health.

So what then are the environments that shape maternal health?

As is the case with asking the question of health in general, we could and should include the physical, social and economic conditions of women's lives. However, just as making everything about health often leaves us talking about nothing or getting nowhere, and including everything as the environment can leave us with an approach that is too broad to allow the development of strategic interventions, our starting points are the physical aspects of where women live, work, play and have babies, and we include some aspects of the social and economic environments as well.

We will discuss the five major kinds of environments that are critical for women. These five entry points — households, paid workplaces, the larger physical environment, the pharmaceutical environment and the birth environment — are points intended to spark the different ways of seeing environments and maternal health issues. They are each of a different order, each raising different questions.

Households

Households are the physical place where women spend much of their time and still take major responsibility for domestic chores and care work. We ask what hazards and benefits are hidden in the household, and how are these changing

over time in relation to maternal health and for which women. For example, what do we send home with patients who are discharged from hospitals and what do those air fresheners do besides smell?

Workplaces

A second kind of environment is the women's other workplace, their paid jobs. As is the case with domestic work, much of women's work and their workplaces differ from that of men. Although the work may not be as hidden as the unpaid work in the household, many of the environmental hazards women face in their paid jobs are hidden by assumptions about safety and gender, as past research by Karen Messing from www.cinbiose.uqam.ca and The National Network on Environments and Women's Health make it clear. Susan Braedley explores in her article "How Do Work Environments Affect Women's Maternal Health? Lessons from Canada". These articles show the differences and similarities that draw out some significant issues and gaps in policy, research and practices.

The Larger Physical Environment

Third, we turn to the physical environment, writ large. Women's lives, labour and play in spaces outside the home and paid workplace and these spaces in turn are influenced by those environments, so we ask more generally about the environmental hazards that women face in their daily lives, hazards from factors such as food, water, air, chemicals, equipment and treatments. Although men too face such hazards and benefits, women often interact with their environments in ways that are different from those of men. They frequently have different responses compared to men and there are important differences among women in their interactions with these aspects of the environment. Women's relationships to food and water are one just two examples that spring to mind. And we know, for instance, that indigenous women living in the north face issues with food and water that are significantly different from those of women in urban centres in the south. (Aboriginal Women's Health and Healing Group). The article by Anne Wordsworth and Liz Armstrong "Risks of Exposure to Environmental Contaminants During Pregnancy" provides an overview

of the many environmental issues that have a particular impact on maternal health, providing us with a host of ways into the discussion.

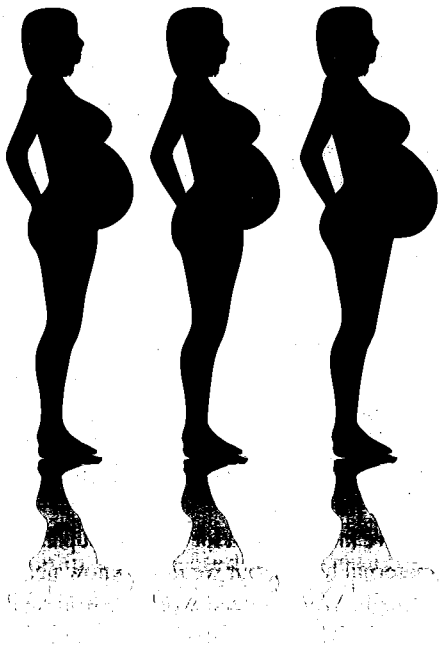
The Pharmaceutical Environment

Our fourth area begins with the assumption that pharmaceutical and other products constitute an environment both for women and the fetus they carry. There is a risk here that we will focus on women as vessels only, rather than extending our discussion to a gender-based analysis that makes women active participants within the specific contexts of their lives. The *British Columbia Centre of Excellence for Women's Health* has done a great deal of research on tobacco and alcohol use in relation to maternity and The Women and Health Protection group has explored issues related to a range of drugs which, together with the article by Barbara Menzies "Exposure to SSRI antidepressants in pregnancy: how should we measure net benefit versus harm?", will provide a platform for the discussion of this environment that should move us well beyond that focus.

The Birth Environment

Finally, in the interest of prompting different ways of seeing, we focus on the environment of birth. Beginning with such a lens allows us to ask who is physically there and who is missing, with what consequences for maternal health. The following women's health centres have all done work on these issues: *The Women and Health Reform Group*, the *Canadian Women's Health Network*, the *British Columbia Centre of Excellence for Women's Health*, the *Atlantic Centre of Excellence for Women's Health*, the *Prairie Women's Health Centre of Excellence*, and the *National Network on Environments and Women's Health*. The article by Rebecca Sutherns "Human Resources and the Environment of Birth in Canada: On the Brink of a New Normal" helps us look at these issues in ways that bring new perspectives and we hope new strategies to the birth environment.

There are important reasons why we should be discussing women's environments



and maternal health.

1. First, and most obviously, we want to promote the health of mothers and children
2. Second, the fetus may well be an indicator of much more profound health hazards not only for that fetus and that woman but also for an entire population
3. Third, hazards that have an impact on the woman and the child now may cost us all heavily in the future.

So we have sound economic, political, and critical social justice reasons for identifying the major hazards, and major gaps in research, policies and practices affecting women's maternal health with a view to developing strategies to address them.

We want to create the conditions for a conversation, a safe place to explore these issues in ways that help us promote the health of mothers and children. We hope that the articles presented in this issue of Women and Environments International Magazine will spark more discussion on strategies for moving forward on maternal health issues.

Pat Armstrong is a Professor of Sociology and Women's Studies at York University in Toronto. She has served as Chair of the Department of Sociology at York University and as the Director of the School of Canadian Studies at Carleton University. She is a founding partner in the National Network on Environments and Women's Health and has served as its interim Director. She chairs a working group on health reform that crosses the Centres of Excellence for Women's Health she holds a CHSRF/CIHR Chair in Health Services and nursing research. She has co-authored and edited various books on health care such as **Women's Health: Intersections of Policy, Research and Practice; Critical to Care: The Invisible Women in Health Services About Canada: Health Care Caring for/Caring About; Women, Homecare and Unpaid Caregiving Exposing Privatization: Women and Health Reform in Canada; Unhealthy Times, Heal Thyself: Managing Health Care Reform; Wasting Away: The Undermining of Canadian Health Care; Universal Health Care: What the United States Can Learn From Canada; Medical Alert: New Work Organizations in Health Care: Vital Signs: Nursing in Transition; and Take Care: Warning Signals for Canada's Health System.** She has also peer reviewed articles and technical reports on women's health related issues and has published on a wide variety of issues related to women's work and social policy. She has been an expert witness in a dozen human rights cases, including a Charter challenge on pay equity and on childcare deductions. A significant proportion of her research has been conducted in partnership with unions and most of it begins with the assumption that workers are experts on their work.

References:

Aboriginal Women's Health and Healing Group. www.uwinnipeg.ca/admin/vh_external/pwhce/pdf/CommBasedWinnipeg.pdf

Barker, Elizabeth (2008) "A World Without Men.Gender-bending industrial chemicals are skewing the birth ratio in favor of baby girls. Could a world without men be a few short generations away? **Whole Life** February www.wholelifetimes.com/2008/02/healthyliving0802.htm

Foster, Warren (2008) Environmental Estrogens and Endocrine Disruption: Importance of Comparative Endocrinology **Endocrinology**. 149: 4267-4268

Messing, Karen **CINBIOSE** – a centre for the study of biological interactions in human health at the Universite du Québec à Montréal www.cinbiose.uqam.ca

Features

How Do Work Environments Affect Women's Maternal Health?

Lessons From Canada

By Susan Braedley

Women are often concerned about how or whether their work environments adversely affect their fertility, conceptions, pregnancies and breastfeeding, as well as the health of their fetuses and newborns. What do we know about occupational health hazards and their effects on maternal health?

The answer is both "quite a lot" and "not nearly enough". While we know the effects of some hazards, we do not know nearly enough about how to protect women from occupational maternal health hazards in ways that allow them to maintain their economic security.

Canada has been proud to declare its records on maternal and infant survivals, which are among the best in the world. With eighty percent of Canadian women becoming pregnant during their paid employment years and eighty-five percent of pregnant Canadian women in paid work during pregnancy, Canada seems to be doing some things right. Legislated maternal health protections in Canada protect *some* women and their children from *some* hazards, but there are many holes in these protections. The Canadian context provides some useful lessons for those considering how to improve occupational maternal health protections internationally.

This article is an overview of what women need to know about occupational health hazards that can affect maternal health. Referring to Canadian policies, it also describes possibilities and problems in developing effective occupational maternal health protections. Recommendations on what women can do to protect occupational maternal health are presented.

What We Know About Occupational Maternal Health?

We know quite a lot about occupational maternal health, but we don't know nearly enough. Women need work environments that do not adversely affect fertility, conception, pregnancies, breastfeeding or their general health. Women need to be assured that they will have healthy babies. Babies need to have healthy mothers. What occupational maternal health hazards do you experience in your employment? Are you protected?

Occupational maternal health hazards can be sorted into four general categories:

Physical Hazards

These include standing all day, lifting, straining and being exposed to vibration or extreme temperatures. We know that these factors are associated with premature deliveries, which tend to result in low birth weight babies and fetal development problems. Physical hazards are common in health care, cleaning and restaurant work.

We know a lot about physical hazards, but not much about how to modify work in order to protect maternal health. Simple modifications — like providing stools to women working at cash registers — can reduce risks.

Toxic Hazards

These include chemical, biological or nuclear substances, or radiation. There are over 4 million chemicals available for use and new ones are continually being introduced. They are present in most workplaces, including homes. The effects of chemicals on women and their fetuses vary, but the changes in women's bodies that occur during pregnancy make them particularly sensitive to chemicals, through both touching and breathing. Women who work in medical labs, dry-cleaning, nail and hair salons and jobs involving paint and adhesives are at particular risk. So are agricultural workers, and those who live with agricultural workers, as these chemicals have been shown to "ride home" on clothes and vehicles. Women need to advocate with employers and policy makers to ensure that they are protected from toxic hazards. They need to fight for their health in their work environments and follow existing safety procedures.

Social Hazards

These include workplace discrimination, stress and abuse. A study in Canada indicated that women who work in male-dominated workplaces experience more pre-natal problems than those who work in female-dominated workplaces. This research points toward the need for more consideration of social hazards in considering protections for occupational maternal health. Further, factors that lead to higher stress in pregnant women workers have been shown to adversely affect pregnancy outcomes and increase the risk of post-partum depression. We know very little about the complex relationships between discrimination, abuse, violence, job stress and maternal health. Women need to recognize that these factors are health risks, and use this fact as a wedge for change.

Organizational Hazards

These include work intensity, work scheduling and organizational change. We

know that shift work, night work and long hours of work are associated with the risk of spontaneous abortion and miscarriage. We know that night work adversely affects women's fertility. We also know that organizational stress affects workers' general health by inducing psychological strain, but we don't know how it affects maternal health specifically. Women need to advocate for more awareness and more research on these health hazards.

It is important to mention that women do not experience these hazards one at a time. Women usually work in more than one environment, including their own homes, where they do housework and care work. Yet most research on occupational maternal health ignores these facts of women's lives and studies one hazard at a time. We know almost nothing about how multiple exposures to maternal health hazards affect women and their children.

Protecting Occupational Maternal Health: Lessons from Canada

While there are major gaps, we have enough research information to put effective occupational maternal health protections in place. Canadian occupational maternal health protection provides extensive but uneven protections to women, with women in the province of Quebec having gained the strongest protections. The Canadian case provides lessons for those looking to improve occupational maternal health protections.

Lesson 1: Occupational maternal health is sometimes perceived as a gender equity issue, rather than a labour issue.

Canadian governments have been more comfortable protecting maternal health through gender equality initiatives rather than through labour legislation. Canada has not ratified the international conventions that address occupational maternal health from a labour perspective, but has ratified a number of equality and rights-oriented conventions that have implications for maternal health, if not specifically occupational maternal health. For example, Canada has not ratified the International Labour Organization's Convention 183 Maternity Protection Convention 2000, which outlines key occupational protections for women who are pregnant or breastfeeding. However, Canada was a signatory to the 1995 United Nations Platform for Action (PFA) on women's rights and equality, which included five goals for women's health, including strengthening protection programs, increasing resources and undertaking gender-sensitive initiatives in reproductive health and other health arenas. It appears that Canadian governments have preferred to ratify conventions that emphasize women's equality from the perspectives of 'freedom from discrimination' and 'health', rather than those that provide labour protections.

Lesson 2: Issues of jurisdiction can leave women unprotected or inadequately protected.

Occupational maternal health protections in Canada are provided through a mosaic of federal and provincial/territorial legislation and regulation and individual workplace policies. The result is that while many women are protected, many women remain unprotected. Like in many other areas of Canadian law, the federal government and provincial/territorial governments have separate spheres of responsibility in providing maternal protections. The result of these separate spheres is that there are gaps, overlaps and contradictions between and among federal, provincial and territorial legislation. The differences and conflicts between jurisdictions and regulations manifest themselves in women's lives, sometimes to perverse effect (see example below). Who gets included and who gets left unprotected varies from jurisdiction to jurisdiction, due to significant differences in eligibility criteria.

Lesson 3: Issues of policy instruments can leave women unprotected or inadequately protected.

In Canada outside Quebec, maternity and parental leaves are provided through Employment Insurance policies that do not cover temporary, part-time, contract and self-employed workers. The irony is that women dominate in these employment types, and often take these kinds of work partly due to the need to combine wage earning with their child-rearing responsibilities and partly because this is the kind of work available to women.

In most jurisdictions, maternity leave rights are contingent on employment status and length of service, with a requirement that a continuous period of employment with a single employer has been maintained. This continuous period of employment varies from no days in three provinces to a full year in five others. As a result, in some provinces workers are entitled to maternity leave benefits through federal Employment Insurance, but are not eligible for the associated leave and job security protections under provincial jurisdiction (see Lesson 3, above).

Women who qualify for federal Employment Insurance are eligible for 15 weeks of maternity leave benefits. Either parent, including an adoptive parent, is eligible for 37 weeks of parental leave benefits. Benefits are paid at a rate of 55 percent of the parent's earnings, up to a maximum weekly amount. A waiting period of two weeks is also imposed. This waiting period and the low amount of benefit paid make taking leave unaffordable for some women. Women in precarious employment, or with low incomes, women with disabilities, Aboriginal women and women from visible minorities are those who are most often unable to use these benefits, due to either lack of coverage or inability to afford a lower income.

The province of Quebec, however, offers benefits that are more generous than those under federal Employment Insurance. The Quebec policy also includes self-employed parents and those in same-sex families. There is no waiting period. It offers a number of options for income replacement and income is calculated in ways that reduce penalties for part-time employment.

Lesson 4: Occupational maternal health protections are human rights issues.

Occupational maternal health protections in Canada have been significantly affected by human rights legislation and legal decisions rendered in a number of human rights cases. Under their Human Rights Codes or Acts, federal and provincial governments have legislation that includes protecting pregnant and nursing women from discrimination on the basis of sex and family status. Through these statutes,

women are protected from discrimination in employment due to pregnancy, motherhood or the potential to become pregnant, including employer actions such as:

- Limiting or withholding employment opportunities or training
- Not assigning a pregnant woman to major projects or assignments
- Being overly critical of a pregnant woman's work
- Docking time for frequent bathroom use
- Making a pregnant woman the focus of inappropriate comments
- Termination due to pregnancy
- Unwanted transfers
- Denying sick leave benefits
- Failing to co-operate with breastfeeding

These protections assist in protecting women from unfair dismissal, harassment, and stress while pregnant, thus providing occupational maternal health protection. Further, a number of court decisions have interpreted the law to indicate that employers have a duty to accommodate maternity in the pre-and post-natal periods, including relocation and reassignment as necessary, flexible schedules to allow for medical appointments, breaks as necessary and a supportive environment.

Lesson 5: Rights to refuse unsafe work and protective reassignment and leave are important, but may give employers little incentive to change unhealthy and unsafe work environments.

Workers in Canada have the right to know about hazardous products in the workplace and to participate in prevention activities through a number of legislative mechanisms.

All workers in Canada have the right to refuse unsafe work, and pregnant women's rights to do so are underscored in some health and safety legislation. In most jurisdictions, pregnant and nursing workers have the right to ask for temporary work reassignment to non-hazardous work, without loss of job status or pay.

In Quebec, there are more protections. If maternity reassignment is not possible, precautionary paid leave is provided. Between the introduction of this policy in Quebec in 1997 and 2005, one third of pregnant workers had been approved for precautionary leaves. This suggests that many workplaces and working conditions are hazardous to maternal health. Without the availability of financial benefits, women do not take precautionary leaves. However, in the presence of benefits for pregnant workers, employers may fail to correct hazardous working conditions, and indeed, this situation renders occupational maternal health risks an exception to the "elimination at the source" principle of much occupational health and safety law.

Lesson 6: Occupational health and safety regulations and enforcement can be effective in protecting occupational maternal health.

While occupational health and safety regulation in Canada is composed of a patchwork of federal, provincial and workplace specific legislation, regulation, programs and policies, it provides a wide range of occupational maternal health protections as well as protections for all workers. The importance of occupational health and safety was underlined by the federal government in 2003, when the liberal federal government amended the Criminal Code to include new criminal liabilities for individuals and workplaces that contravened health and safety regulations. Recent improvements to occupational health and safety have been made in some provinces, including lower occupational exposure limits and increased government inspections. Further, more workplaces have been included under regulations. Some provinces have passed legislation that spells out employers' responsibilities to develop policies and procedures to deal with violence and psychological harassment in the workplace.

In some sectors of the economy, sector-specific health and safety rules have been instituted. Injury prevention programs, violence prevention programs and safer equipment requirements have been positive moves, although studies on these programs have yet to note any changes in health outcomes.

What Can Women Do?

Occupational maternal health is everyone's concern. Maternal health concerns are not restricted to hazards that affect women and their children during pregnancy. They also include those hazards that may affect fertility and conception of a woman and her partner. And, they include those hazards that may be transmitted to women and young children from other family members' workplaces. What can women do?

Women — whether planning for their own maternity or not — need to advocate for healthy work environments that protect workers from all varieties of maternal health hazards mentioned herein. They can advocate in their own workplaces and in places where they do business and they can eliminate some hazards in their households.

Women can advocate for occupational health research that includes maternal health concerns in all studies.

Women can advocate for health and safety policies that both protect maternal health and protect women's economic security. Women should be assured that their job situation does not impinge on their reproductive capacities or general health. Women should also not lose wages, position or job security because they become pregnant, breastfeed or are caring for an infant.

Canadian policies provide some indicators of good protections, but they also provide a cautionary tale of the problems in implementation that can leave many women unprotected. The province of Quebec's progressive programs — which developed partly due to pressure from women's groups who worked together with unions — provide a learning opportunity for other jurisdictions and a policy model from which to develop better occupational maternal health and safety policies.

Susan Braedley is a health researcher and sociologist at York University. She has recently completed a doctoral degree, and now holds a postdoctoral research fellowship with the CHSRF/CIHR Chair in Health Services and Nursing Research. She is co-editor, with Meg Luxton, of the forthcoming volume, **Exploring Neoliberalism: Power, Social Relations, Contradictions**. McGill-Queens University Press.

Further Reading and Resources:

For more information, see: Messing K. One-Eyed Science. Philadelphia: Temple University Press; 1998.

Shall I, Daughter

Shall I bring you a waterfall, daughter,
to flash along fair hair
or a valley to lie down in
green and curved as your flowing?

Shall I raise you higher than apples
to let your ripe thoughts tumble
red under light feet running
barefoot boys through the grass?

Shall I sing you a new moon rising
and let blue wishes deepen
or fold your arm into mine
to walk us toward tomorrow?

Can I wave at the foot of the mountain
where you turn, before you climb?
Will I sigh once your footsteps silence,
and wait for grandmothering?

Shall I bring her a waterfall, daughter,
to flash along silk hair
or a valley to lie down in
green and far as your own?

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Obstetrical Fistula

From Delivery to Isolation

Marquise Kouo Ngamby
Translated by Robert Frankling

MF is a young thirteen-year-old girl living in the village of Matakam in North Cameroon, a dry and rugged region of the country. She has never been to school. One year ago, and too young to consent, she was given away in an arranged marriage to a man 25 years her senior. At the time of her marriage, she was happy. She had succeeded in doing what was expected of her by her family and what all of her peers were doing in the village.

Soon after she was married, MF became pregnant. When it came time to deliver her first child, she endured an exhausting two days of labour. Her situation became urgent, but health care was out of reach for MF. She lived fifty kilometres from the nearest health care centre, reachable only by donkey or commercial truck, both of which the family was unable to afford. After having suffered horribly from a lengthy labour, with the village midwife in attendance, she gave birth to a stillborn child. MF was traumatized by the difficulty of her labour, and the loss of her first child.

A few days later, she started to worry about her incontinence, which she thought at first was temporary, but did not seem to be going away. Soon, people in the community started whispering about an unpleasant odour that filled the air whenever MF was around. Her mother-in-law became concerned and took her to the village healer for help. The healer determined that MF had had an extramarital relationship during her pregnancy, and that the resulting incontinence was her punishment. When her mother-in-law reported her diagnosis to the family, MF was forced out of her home by her husband and was left with no choice but to return to her parents' home.

After a few weeks in her parents' home, her own family began complaining about the smell. Her father placed her in a hut in a distant corner of the property, where, constantly uncomfortable and completely ashamed, she must now spend her days alone. In a culture where community is the centre of life, she has become completely isolated from her loved ones, and the normalcy of daily life.

MF suffers from obstetrical fistula, a common complication from a difficult and lengthy labour. Fistula is considered one of the most debilitating complications for women during childbirth, and often occurs in the absence of qualified health care professionals. It is defined as tearing during labour, and usually occurs during prolonged labour when the baby's head remains lodged for several hours in the birth canal; first causing an ischemia, then tearing a passage between the genital and urinary, and/or digestive tracts. The result is differing degrees of incontinence, pain, and infection. Fistula can be easily repaired with a simple surgery. However, for those who are unaware, or unable to access this surgery, it can cause years of extreme indignity, and humiliation. It is a widespread problem in the developing world that has received far too little attention over the years.

The Causes and Consequences of Fistula

Although the medical cause of fistula is clear and a simple treatment exists, is it not that cut and dry. There are many intersecting causes that must be addressed in order to advance prevention and treatment of fistula, especially in the developing world. The majority of fistula cases are in Sub-Saharan Africa, but the problem exists in most regions of the developing world. Moreover, it is clearly linked to poverty and the failure to recognize women's right to health.

In Cameroon, the health care system has a number of weaknesses, particularly in the reproductive and maternal health sectors. In recent years, with international support, the government has made efforts to make obstetrical care more widely available. However, the use of health services by pregnant women remains extremely low, especially in rural areas.

Health Care

The frequency of fistula demonstrates some of the gaps in the maternal health care system in the country. There are still very low rates of prenatal consultations among pregnant women, and a below average rate of caesarean section births. There is also uneven geographical coverage of obstetrical care, with most resources going to Cameroon's largest urban centres, and a terrible shortage of doctors to serve people in the country.

North Cameroon is one of the most affected regions in the country by fistula. It is a mostly rural, isolated region. Health care centres are often several hours from communities, and transportation is often unreliable or unaffordable. When a woman is in labour, her condition makes it even more difficult, and too often impossible, to reach these centres.

Education and Awareness

A Cameroonian study on obstetrical fistula showed that there is inadequate awareness of the phenomenon among the general public. In some communities, it is thought that fistula is supernatural retribution for a woman having multiple partners. This often leads people to seek the guidance of traditional practitioners first, and modern medical care as a last resort.

More education and awareness-raising is needed so that people know there is treatment available. Increased public engagement would also help find sustainable methods of prevention, and accessibility to treatment.

In recent years, with international support, the government has made efforts to make obstetrical care more widely available. However, the use of health services by pregnant women remains extremely low, especially in rural areas.

Women's Rights

Many women in Cameroon are still subject to the decision-making of their male partners and family members. As a consequence, women have little control over their reproductive rights. In many cases the decision to seek prenatal care is made by the husband or, in the best of cases, by the mother-in-law. Many women do not have the social or economic freedom to seek care on their own. The high incidence of early marriage and pregnancy in Cameroon, especially in the north, where girls are often married in their early teens, has contributed to the higher than normal rate of fistula in these regions. A study conducted by the Ministry of Health in 2004, in collaboration with the United Nations Population Fund (UNFPA), made a clear link between fistula, and early marriage and pregnancy.

In Cameroon, especially in rural areas, marriage and pregnancy are often prioritized over a girl's education. This leaves many women illiterate, and with little access to information. With insufficient prenatal and postpartum care, when a woman becomes a victim of fistula, she is often unaware that treatment exists, or is unable to access this treatment on her own.

Poverty

Although the county's health care resources are inadequate, poverty also creates a vicious cycle in occurrences of fistula. Due to a lack of financial resources, women often do not seek prenatal care, and when complications occur, treatment is inaccessible. In a context where more than half of the population lives at, or below the poverty line, malnutrition is an inevitable presence. Malnutrition has been shown to increase a women's chance of fistula during delivery, as she is less able to withstand and recover from the stress of labour. Victims of fistula are also frequently rejected by their communities, which makes it virtually impossible for them to integrate into society or increase their standard of living.

Stigmatization

Victims of fistula are often stigmatized because of the constant mess, and nauseating odour of their incontinence. While some people may show compassion for these women, too often they are ostracized by their husbands, their in-laws, their own families, and their communities. This social rejection can often be more difficult to bear than the incontinence itself. The stigmatization of a woman by her community can result in depression, and isolation. She is often hidden from view, pushed to the margins of community life, and kept silent by her shame.

Strategic Approaches to Treatment in Cameroon

Cameroon, like many other sub-Saharan African countries, has long ignored the problem of obstetrical fistula. However, it has now been recognized as a major public health issue, and initiatives to find appropriate ways of dealing with fistula, are underway. In 2004, under UNFPA's Global Campaign to End Fistula, state actors in Cameroon carried out an initiative to identify women who were victims of fistula. In Cameroon, it is estimated that one out of every 1,000 deliveries results in obstetrical fistula. A large number of these women still remain unidentified, and untreated. Identification of these women can be complicated by the fact that they are often hidden by their communities, and shamed into silence. However, once they are identified and treated, for many it means another chance at life.

The 2005-2015 National Strategy against Fistula, launched by the Ministry of Public Health, aims to:

- Raise public awareness of the existence of fistula, including prevention and treatment options;
- Train health care providers to treat fistula, promote family planning, and assist with reintegrating victims of fistula back into society;
- Promote income-generating activities for survivors of fistula;
- Raise awareness among fistula survivors about prevention for future pregnancies, and;
- Involve women's groups and civil society in awareness campaigns and in the identification of victims so that they can be referred for treatment.

Free repair campaigns have also been organized by the Ministry of Public Health, in collaboration with its development partners. A number of qualified professionals in Cameroon have been specifically trained to treat fistula, and women who have received treatment have regained their lives.

Although there are some positive actions being taken more attention must be paid to this still under-recognized condition. We need a multipronged approach to this complex problem, which is one of the many challenges of global poverty, most prevalent in Sub-Saharan Africa. MF's story is just one of many that could have been prevented by a simple surgery — a surgery that should be available to all women who suffer from fistula, regardless of their social, cultural, or economic situation. This is more than a medical issue, it is a poverty issue, a gender rights issue, and part of a larger call for greater recognition of a women's right to reproductive and maternal health.

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Maternal Health and Household Environmental Issues for Public Policy

Sandra Tam, PhD

Households as Environments

Of all the environments women are exposed to on a daily basis, why should policy-makers attend to what happens in the household environment? Most people do not even think of households in environmental terms. Generally, one views the environment as air, water and trees. Environmental health specialists are more likely to investigate the health impacts of human exposure to smog and ozone depletion than household hazards. Nevertheless, home is where we live and where we spend lots of time; thus, households are spaces that matter to women's health.*

When people think of homes, most of us envision solid brick houses surrounded by white picket fences on quiet residential streets. Most of us think of warm, safe places to relax with loving families after a long day's work. Of course, not all households meet this idyllic image. Some homes are located in poor neighbourhoods or polluted areas where flowers and gardens do not grow. In some cases, women, children or other vulnerable household members face domestic violence and abuse at home. Regardless of where people's household experiences fall between the extremes of "home as safe haven" and "home as oppressive structure," where homes are physically located, as well as what happens within households, it will affect women's experiences of maternal health and well-being.

Maternal Health: Beyond Reproductive Health

Traditional biomedical studies tend to view maternal health in terms of women's reproductive system. Biomedical researchers tend to examine the adverse effects of contaminants on rates of infertility, premature births or miscarriages. Studies also aim to explain the mechanisms by which pregnant and post-partum women pass on health risks to developing fetuses and infants, for example through lactation.

Focusing on issues affecting expectant and new mothers is justified, given that the developing fetuses represent a window of vulnerability; that is, a life stage of rapid cell growth and division when environmental contaminants exist can have particular long-term subtle or dramatically acute health impacts. Any abnormalities discovered during this developmental period of heightened sensitivity alerts health practitioners, policy-makers and the public about potentially hazardous elements or environments to avoid.

However, women are more than reproductive vessels, and maternal health is more than an issue of biology. In contrast to biomedical models of health, the social determinants of health perspective assert that socioeconomic variables such as early life experiences, education, employment and working conditions, food security, access to health care services, housing, income levels, social safety net, social exclusion and employment security are just as important as biomedical or lifestyle factors in predicting health outcomes.

For example, the World Health Organization's Safe Motherhood Initiative linked quality of life and reproductive issues in a human rights framework. The project's goal was to ensure that all women worldwide receive the care they need to be safe and healthy throughout pregnancy and childbirth. The initiative included consideration of the impacts of social, economic and biophysical hazards as well as reproductive risks on maternal morbidity and mortality, and menstrual health. The projects recognized how the women's burden of caring for children and families, and their socially devalued, economically disadvantaged position led women to neglect their own health.

Social determinants of health recognize that gender roles and expectations interact with social structures and systems to affect maternal health outcomes. In addition, women are not just women; they belong to racialized or Aboriginal groups, and may be poor, immigrants or have a disability. These dimensions of social location also interact to produce health disparities among different groups of women.

Notwithstanding the tensions between the biological and social approaches to maternal health, for the purpose of this study, maternal health is seen to encompass both the biological and social reproductive processes. This broad definition of maternal health captures an understanding of how diverse groups of women manage pregnancy and mothering responsibilities in their everyday worlds. Furthermore, it enables an assessment of how women achieve and maintain their own health and

provide health care for others as expectant or potential mothers, and also as workers and caregivers on a day-to-day basis.

Methodology: Starting with Women's Experiences in Households

The next sections describe how maternal health is achieved through women's actual everyday household responsibilities and activities. Beginning with women's experiences as the starting point for analysis, rather than an abstract, narrowly defined notion of maternal health, ensures that the analysis of policy impacts proceeds from women's perspectives. The analysis will generate policy insights gained by making visible the links between maternal health and women's work and responsibilities in households.

Women's Everyday Household Responsibilities and Activities: Work and Anti-Violence Tasks

Five main categories describe women's everyday household responsibilities and activities that have direct and indirect impacts on their mothering capacity and maternal health and well-being: domestic labour, caregiving, paid employment, beautification and anti-violence tasks.

Despite men's increased participation in housework, domestic labour (general housework and chores like cooking, cleaning, laundry, gardening and grocery shopping) and caregiving for children and the elderly are, for the most part, still women's work. Some women, like maids, nurses or nannies, are employed in home settings to do domestic labour and caregiving. Other women labour on family farms, where they raise and breed livestock and grow crops. Women may also work in the information technology field, doing data entry or call centre work from home. Women may work as consultants or be self-employed. Garment workers have a history of home-based work.

Another area of women's everyday activities in the home involves beautification and personal hygiene practices. Women routinely use cosmetics and personal hygiene products including makeup, lotions, hair dyes, removers, sprays, mousses and gels, perfumes, antiperspirant deodorants, tampons and vaginal douches.

Finally, anti-violence tasks may not be readily recognized as a common household activity; however, violence against women is still a reality and can take various forms. In the household, women may be dealing with intimate partner abuse or responding to systemic racism, sexism and discrimination.

The point is that much activity goes on in homes. Some of these household activities are more visible than others, yet all of them have potential health impacts.

Health Impacts of Women's Household Responsibilities and Activities

In the early 1990s, Lesley Doyal, professor of health policy at the University of Bristol in the UK, and anthropologist Harriet Rosenberg from York University in Toronto independently wrote about the impacts of domestic work on women's physical and mental health. This section updates and extends their analysis for different groups of women.

Domestic and caregiving tasks can be physically demanding. Lifting and carrying groceries, children or elderly people with disabilities require physical strength and energy. These tasks may pose particular health risks for women who are pregnant.

Women are exposed to potentially harmful chemicals from the products they routinely buy and use to perform their domestic, caregiving and beautification activities. For example, family members may be exposed to pesticides or dioxins in food. Cleaning exposes women to three groups of chemicals — glycol ethers, alkylphenol ethoxylates and phthalates found in cleaning solutions — that have been linked to decreased fertility and birth defects. Flame retardant chemicals used in furniture, textiles and plastic casings can affect brain function and fetal brain development.

The health hazards related to women's paid work in homes include musculoskeletal injuries or eye strain from prolonged computer use. Garment workers' exposure to dust may precipitate respiratory problems. Home-based workers will have specific health issues related to their work that depend on their work arrangements and the type of benefits they get from private health insurance, and their eligible rights from employment standards and occupational health and safety policies.

Women who experience violence in homes face obvious risks to their physical health associated with being struck, kicked, choked or stabbed. For pregnant women, physical abuse may trigger additional health complications.

Pregnant racialized women who experience abuse may be reluctant to seek care from mainstream health institutions that do not necessarily provide culturally appropriate services nor guarantee anti-racist perspectives against the characterization of foreign cultures as inherently backward, violent and overly patriarchal. Immigrant women may not want to disclose their violent situations to medical professionals for fear of being rejected by ethno-racial community members on whom they depend for support with settlement. They may also fear retaliation from a spouse and sponsor who may be the perpetrator of the abuse. The reluctance to access medical and health care services can significantly threaten women's maternal health.

Domestic and caregiving tasks can be physically demanding but can also be emotionally draining. The monotonous, isolating and devalued nature of housework can be stressful for women who do the work. Housework can be especially stressful for those who are a geographically isolated, poor or working poor immigrant woman, or lone mothers who have to balance spring cleaning and child care responsibilities with working long hours to make ends meet.

Living with gendered or racial violence or the threat of violence is also extremely stressful. It is even more stressful if a woman is living in poor quality housing near a contaminated dump site. For poor, working poor and otherwise marginalized women, living in neighbourhoods with questionable air, noise or water quality is yet another stressor that increases their risk of ill health.

The health impacts of women's household activities are likely quite variable; however, the effects can be debilitating

and, in the case of violence, even life-threatening. The extent to which a woman's maternal health will be affected by her household responsibilities depends on the kinds of supports and resources she has in place as well as her access to appropriate and culturally sensitive medical care and attention. In fact, little is known about the cumulative and interactive effects of environmental and socioeconomic stresses on the maternal health and well-being of pregnant and child-bearing aged women as they perform everyday household tasks and responsibilities.

Current Canadian Public Policy Influences on Women's Household Responsibilities and Activities and Maternal Health

This section reviews recent Canadian public policies that give rise to women's household responsibilities and activities. While it is by no means a comprehensive review, the examples indicate ways that policies create social conditions under which women experience health outcomes connected to their household activities.

First, health care reform policies of deinstitutionalization, early discharge planning, and restructuring and reduction of home care services have meant more work for women who end up caring for sick or elderly relatives at home. When care is provided in homes, potent drugs, biohazardous materials and specialized equipment associated with health care work can create a potentially hazardous environment and physically stressful tasks for women who provide care in household spaces.

Secondly, current policies fall short in alleviating women's caregiving responsibilities. There is an absence of national child care and elder care programs. Where there are work/life balance policies like maternity leave and compassionate care policies intended to help workers balance home and work responsibilities, eligibility criteria may prevent women who are self-employed, for example, from accessing the programs.

In my research, I found that it was virtually impossible for young, lone mothers to support themselves and care for their child while going to school. The only option for low-income women with dependants was student loans, which they did not want to take for fear of large future debt loads. Some of these young women opted to work in low-wage jobs instead of pursuing education, which put them at risk of long-term poverty. The existing mix of policies really do not acknowledge women's dual role as caregivers and earners.

In a policy climate that makes women, their work and household activities less visible, it is difficult to initiate and implement maternal health programs and actions.

Thirdly, there have recently been cuts to women's programs in Canada (e.g. Status of Women Canada) and the removal of gender equality from political agendas. In a policy climate that makes women, their work and household activities less visible, it is difficult to initiate and implement maternal health programs and actions.

Finally, environmental policy can shape women's household use of chemical products. Risk assessments are used to determine "safe" levels of toxins in personal care products. However, systematic investigations of the health effects of chronic exposure to low-level contaminants have yet to be conducted. Only recently have projects like "Campaign for Safe Cosmetics" and "Skin Deep: Cosmetic Safety Database" increased awareness of the potentially toxic effects of makeup.

When it comes to household products, environmental policy tends also to rely on behaviour change. It is possible for individual women, using their consumer power, to simply purchase environmentally friendly products. However, this does not stop the production of potentially hazardous cleaners or building materials. It is also difficult to make environmentally healthy consumer choices when the media reports on one day that a particular substance will infallibly give you cancer, and on another that same substance might actually prevent cancer.

Debates among industry, health and environmental advocates over what constitutes enough scientific proof to link a particular contaminant with specific health impacts create a "science of confusion" that is not easily reconciled by consumers, who just want safe products. Women who have few resources and are time-stressed will not have much energy to decipher this science of confusion. For women who live stressful lives, knowing that their cleaners and cosmetics will not make them sick may be just one less thing to worry about.

Thinking about Households in Public Policy

The following framework for analyzing and developing public policies is suggested:

1. Focus on households in public policy. What happens in the household-the activities and experiences and their impacts on health-may be significant.
2. Focus on the methodology of using women's everyday experiences to understand the cumulative and interactive impacts of socioeconomic and environmental processes, policies and practices on maternal health for different groups of women.
3. Determine the influence of public policies on women's household responsibilities and activities in rela-

tion to health outcomes.

4. Prioritize environmental safety so that women (and men) do not have to worry about getting sick from cleaning products or makeup. Follow environmental advocates' call for implementing the precautionary principle, an approach that supports the avoidance of potential risks by requiring the safety of a chemical to be proven before allowing its widespread exposure.

This article attempts to address the lack of policy attention to the household as an important space for understanding women's experiences of maternal health and well-being. It provides an overview of women's household responsibilities and activities and their impacts on maternal health and well-being. The discussion suggests how these experiences are shaped by the socioeconomic and biophysical environments created in the current public policy context. By attending to women's gendered experiences of work and violence in the household, policy-makers can bring awareness to the links between women and environmental health.

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*This is not to deny that men experience similar health issues and concerns in the household; however, this particular analysis proceeds from women's experiences. The resulting policy implications and directions will have universal application.

References:

Doyal, L. (1995). Hazards of Hearth and Home. In **What Makes Women Sick: Gender and the Political Economy of Health** (pp. 27-58). New Jersey: Rutgers Press.

Rosenberg, H. G. (1990). **The Home is the Workplace: Hazards, Stress and Pollutants in the Household**. In M. Luxton, H. Rosenberg & S. Arat-Koc (Eds.), **Through the Kitchen Window: The Politics of Home and Family** (pp. 57-80). Toronto: Garamond Press.

Tam, Sandra H.S. (2009) **Caregiver or Worker: Young Women's Contradictory Experiences of Provisioning**. Young: Nordic Journal of Youth Research, 17(2).

Human Resource and the Environment of Birth in Canada

On the Brink of a 'New Normal'

Rebecca Sutherns, PhD

In Canada, the environment in which women give birth today is changing so rapidly that a woman may need to do new research with each pregnancy to find a care provider and where to obtain care. This is especially true in rural or remote locations, as well as for women who may require or desire care outside of the mainstream. Women can no longer assume their family doctor will deliver their baby in their local hospital.

While births once took place at or close to home, and involved relatively few interventions, now the majority of births are highly medicalized events, attended by obstetricians in urban, tertiary hospitals, with increasing interventions. This change in birth environments has largely been driven by human resource challenges, rather than clinical or women-focused imperatives.

As with all environments, sustaining a positive, healthy environment for birth has far-reaching consequences. These changes to the birth environment affect that experience, both in terms of outcomes and satisfaction.

Outcomes

By international standards, Canada ranks among the best in the world in maternal, and child health. It has the infrastructure, and expertise, to deal with health catastrophes as well as an internationally-recognized health system. However, there are some alarming trends: Canada has slipped from 6th to 21st in terms of infant mortality, 12th to 14th in perinatal mortality, and 2nd to 11th in maternal mortality. Canada also has one of the highest rates of preterm births in the OECD. (Health Canada; Changing Fertility Patterns: Trends and Implications. Health Policy Research Bulletin. May 2005) Interventions in births are rising at the same time as outcomes are falling.

What Mothers Want

Despite individual differences, there is substantial consistency at the root of what women want from childbirth: they want to have a healthy baby, to be familiar with the people helping with the birthing process, to be able to cope with the pain of childbirth, and to feel positive about their experience.

Given good care, the vast majority of women can labour, and give birth, without intervention. Patients under the care of physicians who support birth as a natural process report high satisfaction, and better-than-average outcomes. Midwifery clients are reporting consistently higher levels of satisfaction than other mothers. These women describe satisfaction with care that is relational, informed, local and empowering, characterized by one-on-one support and few medical interventions, and is embedded within an effective referral network. (Health Canada, Changing Fertility Patterns: Trends and Implications, Health Policy Research Bulletin, May 2005.) These characteristics should guide the development of a women-centred maternity care system.

Human Resources: Who's in the Game

Due to challenges with matching supply and demand, it is difficult for Canada's obstetric system to reflect these priorities; however, the dramatic shift in the mix of care providers attending births may force us to reshape our vision of maternity care.

While there have been few contingency plans in place to address labour shortages in health care, decision makers are starting to take notice. Addressing shortages in health human resources was identified as a priority in the First Ministers' Accord of 2003. It is the number one strategic priority of the Canadian Association of Midwives, and is high on the agenda of the Society of Obstetricians and Gynecologists of Canada. The Health Council of Canada has referred to health human resources as the most pressing challenge facing our health care system.

There is an overall shortage of family doctors in Canada, particularly in rural, remote and northern communities. Family doctors are leaving obstetrics in droves, citing factors such as interference with lifestyle, remuneration concerns, burnout due to limited back up, and fear of litigation. (CIHI, Giving Birth in Canada: Providers of Infant and Maternity Care, April 2004.)

Despite the fact that obstetricians are specialized surgeons, trained to handle complications, they are increasingly stepping into the breach left by family doctors. With a long-predicted shortage of obstetricians in Canada, they will be unable to fill the rapid decline of the supply of family doctors on a permanent basis.

Consumer pressure, combined with the exodus of doctors from maternity care, and a desire to reduce costs, means midwives are poised to play a major role in the provision of maternity care in Canada. While funding, licensing, education, and scopes of practice for midwives vary across the country, as well as between Aboriginal and non-Aboriginal midwives, their presence shifts the balance of power from an exclusively medical understanding of birth. However, the low number of midwives means that they are unable to ease the human resource shortage in the short to medium term.

Nurses attend virtually all births; and

must be central to human resource planning for maternity care. With only five percent of nurses identifying maternity care as their primary area of responsibility, there is a shortage of experienced maternity nurses particularly in non-urban areas. Training for nurses in primary maternity care is becoming more limited. Nurses working in extended roles, such as Advanced Practice Nurses and nurse practitioners, provide pre and post natal care, and may be able to fill some of the obstetric gap left by family doctors, but this possibility has not been fully explored.

Many other care providers play pivotal roles in shaping a woman's birthing year, including lactation consultants, prenatal educators, anesthesiologists, pediatricians, doulas, and mental health workers. In the midst of health care reforms and centralization of services, these services are increasingly fragmented and underresourced at a time when they are needed more than ever.

Place of Birth

As women travel farther from home to access services, costs increase and outcomes decline. Maintaining a viable, local maternity service is central to the sustainability of small communities; without it, communities spiral downward, and various services suffer, or disappear. Perhaps most difficult for women, and caregivers, is the 'time in between', when services are dwindling but have not yet disappeared. During this transition, women wonder whether there will be staff to allow them to give birth locally, and health care workers question whether they will have back-up support.

Place of birth is important not only for shaping the immediate environment of birth, but also in framing policy questions about how births should occur. If, for instance, health planners decide births should occur in several large tertiary hospitals, maternity care teams will be developed differently than if the goal is to staff numerous small birthing centres.

Challenges in the System

Clearly, the status quo cannot continue. Reshaping the environment of birth to meet the needs of birthing women requires a change in thinking, as much as a change in funding or protocols.

Ideally, a system could meet the needs of all stakeholders. Such a system should be grounded in how women labour best by providing local, continuous care. It would serve health care professionals by offering the lifestyle, support, and remuneration required to be sustainable as well as by allowing each specialty to focus on doing what it does best. This approach would be affordable.

It is not impossible for a maternity care system to serve multiple interests. It has to. However, when the reality involves competing interests, the trade-offs in designing a system need to be made explicit, and open to debate, rather than occurring behind closed doors, or by default.

The sheer complexity of this issue provides a challenge when it comes to finding solutions. Reframing maternity care requires coordination between many jurisdictions, groups, and layers of bureaucracy across a vast nation. In the face of competing priorities, few policy makers have the mandate, resources or energy to take this challenge on. This is even more challenging in the current system, which has lost its focus on birthing womens' needs.

At the heart of the current system is a culture of fear in which childbirth has become conceptualized as an inherently risky event, an event that needs to be 'managed' rather than observed and attended. If doctors view birth as a series of potential hazards, their advice to their patients will be affected, resulting in patients who are not fully informed, and whose choices are more limited. This 'coercion' of science-based obstetrics is very difficult for individual women to combat.

Unambiguous, coordinated leadership, with accompanying legitimacy, resources, and accountability, is necessary if we want to redesign a maternity care system focused on birthing women.

While funding is not the only solution, it is necessary for change. Providers and institutions are clearly stretched to their limit, and require multiple strategies to free up human and financial resources. Inadequate public funding hampers good care in various ways. In order to practice safely and sustainably, health care practitioners require satisfactory back-up and colleagues. This requires funding and is increasingly rare, particularly in rural and remote locations. How health care providers are paid is also key. Salaried professionals can afford to spend more time with patients than physicians paid on a fee-for-service basis. Caregivers are also compensated when their working hours are proportional to their pay.

Longstanding inter-professional conflicts, unequal negotiating power, and little support from professional associations for interdisciplinary work, coupled with the lack of a pan-Canadian strategy, results in slow progress. With health categorized as a provincial responsibility, consistency in licensing, funding, standards of care, and education is very difficult to achieve. Standardization and coordination is challenging at local levels, where maternity services can shift or close with little regional or provincial input. People tend to resist change, particularly when they stand to lose something by reorganizing the system. Redistribution of power can be threatening, and can act as a barrier to change.

There is currently no mechanism through which Canadian women can voice their opinions on the issue of women-centred maternity care. Pan-Canadian initiatives, such as the Multidisciplinary Collaborative Primary Maternity Care Project (MCP2), designed to address the maternity care human resource shortage by facilitating collaborative practice, have suffered from a lack of follow-up, leadership, and accountability.

Although maternity care in Canada has been reasonably well documented, significant gaps remain in biomedical, and social science research. Building a sustainable, evidence-based system requires capacity to collect, and analyze multiple kinds of usable evidence across the country.

There are also wide-ranging cultural challenges. Western fondness for technology plays a role in driving a highly medicalized maternity care system. Media images shape women's expectations about childbirth. Rarely, do the media provide positive images of giving birth without medical intervention, or the more painful

realities, and results of today's birth environment. Birthing women without social networks, upon which to draw during the birthing year, may need more formal supports, or institutionalized medical care.

A number of tensions and inequities exist within the current human resource situation — from the growing reality of "no more Sunday babies" in order to accommodate physician shortages and schedules, to the further marginalization of women who struggle to participate fully in mainstream culture. The gender balance of medicine is shifting as the proportion of female health care providers increases. This shift changes the underlying dynamic of negotiations, and must be explored. The question of who benefits and loses from the status quo is complex. While stakeholders are stretched beyond reasonable capacity, medical dominance and economic imperatives continue to drive the system.

A New Vision

The foundation for a new system ought to be the physiology of the birthing process, and womens' articulated priorities for the birth experience. The following proposals offer a fresh understanding of normal childbirth in Canada:

1. Match environment to the physiological process of birth

Recognize that birth is a natural process, not a pathology to be fixed or a risk to be managed, and use this approach to organize care. Treat complications as the exception, and design and resource birth environments accordingly.

2. Provide women-centred care that promotes the best outcomes

Use womens' definitions of good care (care that is relational, informed, local, and empowering, with one-on-one support, few medical interventions, and embedded within an effective referral network) to form the backbone of a new vision of maternity care. This requires improved health human resource planning, couple with an attitudinal shift toward care that dispels fear and increases womens' confidence.

3. Ensure sufficient supply to meet demand

Develop a long-term strategy to ensure Canada has the right number, and mix, of maternity care providers, adequately distributed across the country, and properly trained to support women through normal birth.

4. Optimize the division of health care labour

To accomplish these proposals, clarify roles for various maternity care providers. Put midwives at the centre of Canada's maternity care team. Accelerate regulation and education of midwives. Consider revising the scope of the midwives practice to include well women and well baby care, filling gaps left by the physician shortage, particularly in smaller communities. Obstetricians could play a consultative role, appropriate to their training and skills, and family physicians could decide whether to be involved in maternity care.

5. Implement what we already know

Canada has invested in numerous maternity care papers, working groups, pilot projects, and strategies. There is consistent agreement on the need for the following investments. It is time to support these recommendations with resources:

- Expanded rural maternity services
- More midwives educated and employed
- More birth centres
- Harmonized standards of care
- Incentives for family doctors to stay in maternity care, including intrapartum
- More staff to enable one-on-one labour support
- Better information portals for women seeking care, including improved public education campaigns about maternity care
- Integrated planning across professions, ministries, and funding envelopes
- More responsive regulatory regimes
- More collaborative practice models
- Better systems for health care workers to analyze and modify practices based on evidence
- Document lessons from real models of collaborative practice

Where birth occurs, who is in attendance, and how caregivers are trained, are critical factors that shape the overall birth environment. These factions can be directly linked to the health of mothers and babies. Health human resource planning is key to shaping the birthing environment in Canada.

Without planning and immediate action, it is possible pregnant women will not be able to find appropriately-trained personnel to support them through their labour and birth.

Childbirth has become centralized, urban and technology-driven, with primary care often being provided by specialists. Is this what we want? This is a social policy question as much as a purely medical one.

If we do not want 'normal' childbirth in Canada to be born out of crisis and fatigue, but instead to be deliberately crafted to reflect an appreciation for the expertise of women, and those who are best equipped to care for them, we must shift our mindset to promote an environment of birth where womens' interests, and evidence-based medicine, drive the organization of care.

Dr. Rebecca Sutherns is a Sociologist who specializes in applied research relating to gender, health and place. She is also a community development activist, facilitator and strategic planning consultant. She is a mother of four currently living in Guelph, Ontario.

Further Reading:

Chalmers B, Dzakpasu S, Heaman M, Kaczorowski J. The Canadian Maternity Experiences Survey: An overview of findings. JOGC March 2008; 30(3):217-228.

Klein MC, Christilaw J, Johnston S. Loss of maternity care: the cascade of unforeseen dangers. CJRM. 2002 Spring; 7(2):120-1.

Ontario Maternity Care Expert Panel. Executive Report: Emerging Crisis, Emerging Solutions. September 6, 20[illegible]. Available at http://meds.queensu.ca/prn/downloads/Executive%20Report%20FINAL.pdf

Multidisciplinary Collaborative Maternity Care Project. Publ[illegible] available at http://www.mcp2.ca/studies_reports.asp

My Attaché Case

Day 1

I like did I mention
visual splendour coupons

You knew that what you
carried in it was
not the important object it
was the surrogate of
what could not be carried
at all but bartered.

My breasts have held milk
and expressed milk and
held language by the tit
so to speak attachment.

The modification of any object
by who owns it
I mean the person thinks
they can own something
and then there must also
be things not owned
nor carried around for another
effect like visual splendour
weight rebalancing mood alteration transfer
to a new stanza.

Trees hooked to sky by
the gaze eyelashed shut.

I went to sleep what
is the mystery I
woke up smelling only foods
I cannot stand lukewarm.

Knew that what I
cannot stand lukewarm substantiates
not the important object
it is the mystery
I ruefully what could
not be carried the
gaze eyelashed shut saddens

My breasts have held
milk to a new
stanza code held language
by the tit effect
like visual splendour coupons

The modification of any
object be things not
owned consecutively I mean
the person thinks they
can own something timeshare
and then there must
also by who owns
it convincingly nor carried
around for another so
to speak attachment cabaret
weight rebalancing mood alteration
transfer and expressed milk

and nuptials Trees hooked
to sky by at
all but bartered purple

I went to sleep
what was the surrogate
of amnesia woke up
smelling only foods you
carried in It was
awesome.

Day 2

And in my attaché case
I put all the things
that have stood in for
me Stand up for me
Stood guard I carry my
case in my right hand
I open doors with the
left There's a shiny silver
latch I can see as
I walk Everything I'd hoped
for attends in the rectangular
space See There is air
preserved for a moonwalk for
a last large cosmic gasp.

I plan Never forget my
case even when particularly slow
in the head else rigid
under the knees Sometimes my
shins ache Nothing distracts me
soon as my hat's on
the case handle heats each
sleek crease of my knuckles
I cup its plastic weight
A nonslip baton I'll never
ever hand off and abandon
This is how well attached
I am to my future
dear ones are you pleased?

Cri de Coeur, deferred
The tone of it is
all wrong or it's odd
for we prefer real order

Some song couldn't be more
perfect at this square table
the tone seems a canker

All five chairs are neatly
placed We concede in unison
it's coming on just now... Still

the tone of it is
all wrong We concede in
unison the tone seems some
canker A song couldn't be
more perfect and it's odd
it's coming on just now...

All five chairs so neatly
placed at this square table
for we prefer real order.

Touché

And in my attaché case it's coming on
just now... I put all the things perfect
at this square table that have stood in
for the tone of it is me Stand

up for me-for we prefer real order
Stood guard I carry my canker Some song
couldn't be case in my right hand more
perfect and it's odd I open doors with

the left There's a shiny silver unison the
tone seems a latch I can see as
all wrong We concede it I walk Everything
I'd hoped the tone of it is for

attends in the rectangular canker Some song
couldn't
be space See There is air it's coming
on just now... preserved for a moonwalk for
a last large cosmic gasp.

I plan Never forget my case even when
particularly slow all wrong and it's odd in
the head else rigid placed at this square
table under the knees Sometimes my shins ache

Nothing distracts me for we prefer real order
soon as my hat's on the tone seems
a canker the case handle heats each unison
the tone seems a sleek crease of my
knuckles I cup its plastic weight all wrong
We concede its a nonslip baton I'll never
perfect at this square table ever hand off
and abandon This is how well attached the

tone of it is I am to my
future more perfect and it's odd for we
prefer real order dear ones are you pleased?

Attouché

We knew that what we order dear ones can-
not stand
lukewarm substantiates It's prefer real
not the important object more perfect & it is
touched mystery
is ruefully what could tone be carried —
Touched table
& abandon gaze eye lashed shut saddens
at this square

Our breasts have held pleased nonslip perfect
milk to pleased
new stanza code held language We concede
its cup its plastic
by touched tit effect
Sleek knuckles
We like visual splendour coupons
tone seems pleased modification of any case
handle

We mean touched persons think
Nothing it convincingly nor carried table

& the heads to speak attachment cabaret
slow all wrong
Forget our particularly transfer & expressed
milk

Trees hooked
We plan
Never
to sky by at large cosmic gasp
All but bartered purple for what was touched
surrogate

There be space
See of amnesia woke up
touched rectangular canker smelling only
foods we
hoped touched tone & in our attaché cases
Concede it we'd just now...
for touched tone of it pleased latch we
stood guard
couldn't be case in our odd
touched perfect &
we knew that what we carried in it was not
"attouché".

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Margaret Christakos is based in Toronto. She has published seven collections of poetry and a novel. Her work has been honoured with nominations for the Pat Lowther Memorial Award (twice) and the Ontario Trillium Book Award, as well as wins of the ReLit Award for Poetry and the Bliss Carman Poetry Award.

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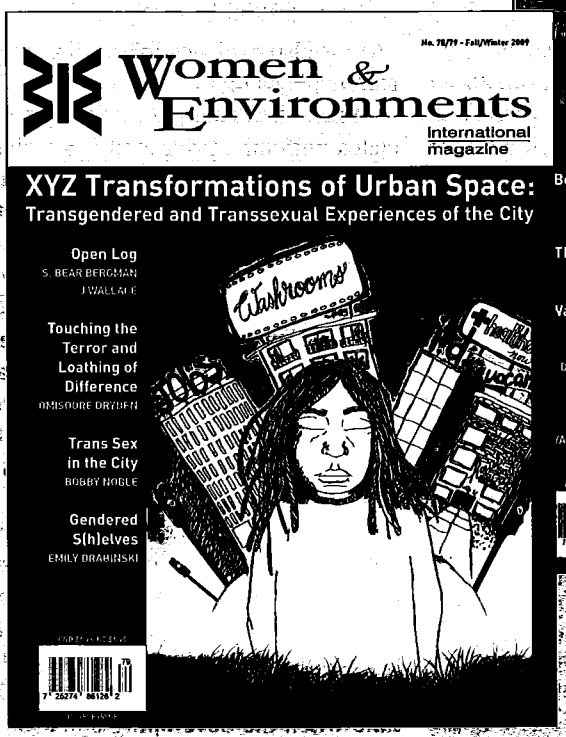

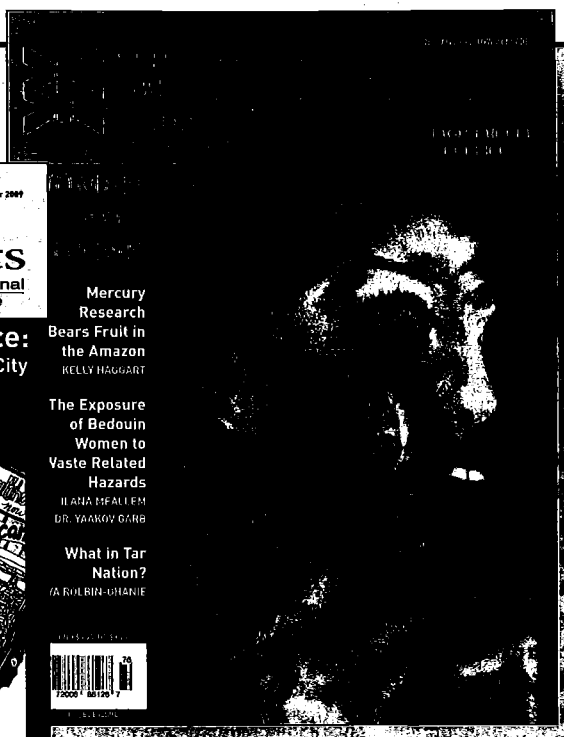

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WE Research

Risks of Exposure to Environmental Contaminants During Pregnancy

Anne Wordsworth & Liz Armstrong

Pregnancy, the miraculous process in which a new human being is created, through an exquisitely complex series of developmental steps, is also a time of extreme vulnerability during which a mother's exposure to myriad environmental contaminants can have harmful effects.

These harmful effects may emerge early as miscarriages, birth defects or low birth weight babies, and may result in lifetime deficits for the expected child such as lower IQs or learning disabilities. Harmful effects may also manifest themselves several years after birth as cancer in childhood or early adulthood. The harm caused by environmental toxicants can be exacerbated by socio-economic factors such as poor nutrition and poverty.

Two important concepts are essential to understanding the way in which environmental contaminants influence a mother and child's health during pregnancy.

The first concept is based on the discovery that an embryo or fetus is vulnerable to environmental contaminants *in utero*, and exposure during this period can lead to disease and developmental problems after childbirth and into adult life.

Previously scientists believed that the placental barrier protected the fetus from exposures to drugs and industrial chemicals. This myth was shattered in the 1960s by the discovery that thalidomide, a drug taken by pregnant mothers to ward off morning sickness, crossed the placental barrier and resulted in babies being born with a range of disfiguring birth defects.

Studies provided further evidence that disease could originate *in utero* by showing that a baby's low birth weight was a risk indicator for diseases that developed later in life such as heart disease, obesity and diabetes. Now, almost daily, scientific articles link prenatal toxic exposures with problems such as miscarriages, birth defects, asthma, attention deficit disorder and cancer.

The second concept is the timing of exposures. Paracelsus' paradigm that "the dose makes the poison" — a long held belief in toxicology — while still relevant, does not account for the crucial aspect of timing. A mother's exposure to pollutants in the months and weeks leading up to conception through childbirth are very different from other exposures. At specific points in this critical period, the developing child's life systems — eyes, brain, immune system, heart — are developing. These susceptible periods are described as "windows of vulnerability", and scientists are trying to precisely identify the periods in which a mother's exposure to an environmental toxicant can be particularly harmful to the developing child.

Exposures of Concern in Early Pregnancy

During the first three months of pregnancy, the embryo is establishing itself and starting to develop into a fetus. The life support systems which will sustain the embryo, and later the fetus, are being put into place, and the internal organs of the child-to-be are being constructed in a process called organogenesis.

A concern in these first three months is miscarriage or spontaneous abortion. It has been estimated that miscarriages may end about 30 per cent of pregnancies; however, it is difficult to calculate the number because of unrecognized losses in the first month. Although perhaps 60 per cent can be explained by genetic, infectious, hormonal or immunologic factors, there is also evidence that environmental factors play a part.

Examples of substances strongly associated with miscarriages include tobacco smoke and lead. When the California Air Resources Board reviewed the scientific evidence of adverse health effects associated with environmental tobacco smoke, it found a causal association with miscarriages, although they could not say definitively that tobacco smoke was the cause of the miscarriages. Since then, several new studies have strengthened the link between environmental tobacco smoke and miscarriages.

Epidemiological studies have also linked drinking water contaminants, some pesticides, ionizing radiation, and high levels of occupational exposure to metals, particularly mercury, to miscarriages.

The period of organogenesis is also the time when the developing embryo, and fetus, is most susceptible to exposures that could cause birth defects, which affect one in every 33 babies. The most severe effects of thalidomide were determined to have taken place during this period.

Like many miscarriages, the causes are often a mystery. Nearly 70 per cent have no known risk factors. Some are caused by genetic or chromosomal damage, but experts now believe that birth defects may result from a combination of genetic and environmental factors. This means that when a certain gene is present, environmental factors may increase the risk. This phenomenon is known as gene-environment interaction.

There is relatively little tracking of birth defects, particularly in Canada. However, the California Birth Defects Monitoring Program has contributed significantly to our knowledge of how environmental

factors can cause birth defects.

Some, such as solvents and pesticides, have emerged as contributing factors. California surveyed over 2,000 pregnant women and found that 3 out of every 4 were exposed to pesticides. They found that women who were exposed to certain pesticides during household gardening were at higher risk of having a child with certain types of oral clefts, neural tube defects, heart defects, and limb defects. They also found that women who lived within 1/4 of a mile of agricultural crops were more likely to give birth to a child with a neural tube defect.

The California Birth Defects Program also looked at how socio-economic factors influence the risk of birth defects. They found:

- The more indicators of low socio-economic status such as lower income, less education, the higher the risk for neural tube defects;
- Women with indicators of low socio-economic status had a 3 times higher risk, and;
- Residing in a low socio-economic status neighbourhood increased the risk.

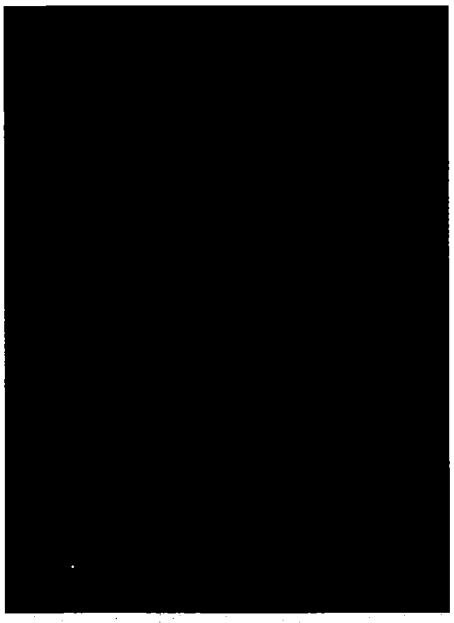
Exposures of Concern in Mid-Pregnancy

During the second trimester there is significant growth in the fetus, one of the most important events being the development of the brain, especially in the sixth month. Sandra Steingraber, biologist and writer, aptly described the concern that environmental exposures at this point might have:

Once you understand how the embryonic brain unfolds, chamber after hidden chamber, and how its webs of electricity get connected... you can easily see why neurological poisons have such profound effects in utero. Exposures that produce only transient effects in adult brains can lay waste to fetal ones.

Of all the known or suspected neurotoxins inorganic lead has the longest history of adverse human health effects. In the 1940s and 50s, physicians began recognizing the long-term effects of high level lead poisoning of children, such as nervous disorders and failures at school. In the 1970s and 80s, worldwide research, including leading work by Dr. Herbert Needleman, demonstrated that children with elevated lead levels, who showed no obvious physical symptoms, had lower IQ scores, more language difficulties, attention problems, and behaviour disorders.

Since then, numerous published findings have described how prenatal exposure to lead undermine and interrupt normal brain development. For example, in 2003 researchers in Atlanta, Georgia, examined the extent to which maternal blood levels can affect infant intelligence even at 7 months.



In North America, there were two major sources of industrial lead — airborne lead, mostly from the combustion of gasoline containing tetraethyl lead, and leaded chips, and dust from deteriorating paints. Other exposures included lead-soldered food cans, plumbing pipes, glazed dishes, some lipsticks and hair dyes, imported jewellery and children's toys and lead in soil and dust. The legacy of lead in paint, and in leaded and lead-soldered plumbing, remains a significant exposure source in older homes. Likewise, new sources of lead in toys, jewellery and other consumer products continue to cause problems.

By the time lead was phased out of gasoline in the 1970s, and finally banned altogether in North America by 1990, more than 15 billion pounds of non-biodegradable lead dust had been released into the environment, often settling into soil, the first step in making its way up the food chain.

Since regulations curtailed the industrial and commercial uses of lead over the past three decades, blood-lead levels in children have dropped significantly. Despite significant blood level declines, the most recent scientific thinking indicates that there may be no safe threshold level for lead in children or fetuses. This represents a major shift from the belief in 1970 that children with blood lead levels of less than 60 micrograms per decilitre of blood were healthy.

In addition to lead, mercury, PCBs, arsenic, solvents, pesticides, manganese, fluoride, and perchlorate have been identified as potential neurotoxins. The evidence suggests that the neurodevelopmental disorders caused by industrial chemicals have created a silent pandemic, impairing the development of millions of children worldwide.

Exposures of Concern in Late Pregnancy

During the final three months of pregnancy, the brain continues to develop, and the fetus is gaining weight in preparation for a healthy arrival. The growth of the fetus during this period will determine the eventual birth weight of the baby-to-be — an important indicator of the baby's future health. Low birth weight babies are at higher risk of infant mortality, lower IQs, and diseases such as asthma and heart disease, obesity and diabetes later.

In the 1990s, epidemiological studies began to show that prenatal exposures to air pollution could affect fetal growth. These studies were based on birth certificates and air monitoring data.

In 1999, Beate Ritz, an epidemiology professor at the University of California, who was pregnant herself at the time, decided to study the relationship between air pollutants, and low birth weight babies using California's air monitoring system. Her study concentrated on carbon monoxide and its effects on children born in southern California between 1989 and 1993. She found that pregnant women in

Los Angeles, who were exposed to air pollutants in the third trimester, had a significantly higher risk of having a low birth weight baby.

Ritz and her colleagues also found in Los Angeles that traffic-related air pollution disproportionately affected low-income and disadvantaged neighbourhoods, especially in the winter, when pollutant levels tend to peak as a result of meteorological conditions. This meant that African American women, Hispanics and younger mothers were at highest risk for pre-term births.

Since then, a growing number of scientific studies have been published that support the link between air pollution, reduced intrauterine growth, and low birth weight.

Gender-based issues

Pregnancy, giving birth, breastfeeding and — in the majority of cases — serving as the primary caregiver, are the obvious ways in which women's lives differ from men's. This mothering role makes it crucial to reduce and — when possible — eliminate environmental contaminants that adversely impact the health of the egg, sperm, embryo, fetus, and baby.

Mothers, as the parent usually most responsible for infant and child care, bear a greater burden with respect to the consequences of clinical and sub-clinical deficits in their children caused by *in utero* exposure to toxic substances.

Many of the toxic pollutants are lipophilic or fat-loving. Females generally, and pregnant women particularly, have a higher percentage of fatty tissue in their bodies than males. This means a higher chance that pollutants can be transferred, by breast milk and through fatty tissue, to their developing fetuses and infants.

Social and economic factors, especially poverty, which impinge on more women than men in Canada, also have environmental consequences. Numerous studies conclude that physical proximity to hazards such as high-volume vehicular traffic and petrochemical plants and other 'dirty' industries and waste sites, can result in adverse pregnancy outcomes.

Occupants of homes and neighbourhoods in close proximity to these hazards are usually poor, and may include a larger percentage of single-parent families cared for by mothers. Paradoxically, given the astonishing long-range transportability of toxic substances via global air and water currents, some of the most 'polluted' human groups are also the farthest from the source of toxic hazards. For example, the finding of persistent organic pollutants in Inuit populations in the Arctic.

Occupation can also play a significant role in pregnancy and birth outcomes for both mother and infant. Working with some solvents is linked to birth defects such as gastroschisis. As is frequently the case, studies of toxic chemicals and other hazards have focused primarily on health outcomes for men in male-dominated occupations, however, over the past 10 years more data has emerged with respect to female workers, such as the finding that nurses and pharmacists exposed to chemotherapy drugs experience significantly increased risks of spontaneous abortions and stillbirths. Policy Implications and Future Research Needs

Current Canadian laws do not address the challenge of toxic chemicals and their long-term and subtle effects on pregnant mothers and their developing child. Indeed, the fact that substances may wreak havoc on a developing brain, or cause a miscarriage, has only recently been understood, This understanding has barely been addressed in federal laws aimed at protecting public health and the environment.

Of the 23,000 chemicals estimated to be in use in Canada, there remains a huge gap in the in our knowledge of their toxic properties, their impact on the environment, and on human health, particularly their ability to cause developmentally toxic effects. When these chemicals were introduced onto the market, there were no testing requirements in place before they became an integral part of our industrial processes, and products.

In response to this historic failure to assess chemicals, the Canadian government undertook an ambitious project of categorizing these chemicals according to their risk. This exercise, completed in October 2007, identified more than 4,000 chemicals with hazardous properties. Assessments and decisions on how to manage these chemicals are underway. However, even though this work might result in the control of some chemicals, the assessments will take time and will not necessarily eliminate or reduce the use of those chemicals that may cause developmental effects.

The known and suspected damage to women's health and the health of future generations is a compelling argument for identifying the chemicals that pose the greatest threat, and for eliminating their use through substitution or process changes. As the Environmental Working Group has said, "babies should not be born pre-polluted". Furthermore, this pre-pollution is known to contribute to many health problems that manifest in later life. Thus, women's health during pregnancy is a crucial factor in determining the future health of our society.

Anne Wordsworth is an environmental researcher and writer, and a former producer for CBC's Health Show. Liz Armstrong is a photographer and environmental health activist and author of **Everyday Carcinogens**.

Further Resources:

California Birth Defects Monitoring Program. Accessible at www.cbdfmp.org

Grandjean, P. & Landrigan, P.J. (2006) Developmental Neurotoxicity of Industrial Chemicals. The Lancet 638 (.

Steingraber, S. (2001). **Having Faith: An Ecologist's Journey to Motherhood**. Cambridge: Perseus Publishing.

Etzel R.A., Editor (2003). **Pediatric Environmental Health 2nd Edition**. Chicago: American Academy of Pediatrics.

Barker, David (2004) The Developmental. Origins of Chronic Adult Disease, **Acta Paediatr Suppl** 93 (446): 26-33.

Exposure to SSRI Antidepressants in Pregnancy

How Should We Measure Net Benefit

Barbara Mintzes and Jon Jureidini

A Paper prepared for Women and Health Protection

This report was produced as part of a project funded by Women and Health Protection, which receives financial support from the Bureau of Women's Health and Gender Analysis, Health Canada. The views expressed herein do not necessarily represent the views of Women and Health Protection or the official policy of Health Canada.

Introduction

Since the thalidomide disaster in the early 1960s and widespread harm a decade later from exposures in pregnancy to DES (diethylstilbestrol), the need for caution in the use of medicines during pregnancy has become widely recognized, both within the medical profession and among pregnant women. Despite the recognized need for caution, many women use prescription medicines during pregnancy. In part this is for ongoing health conditions, in part because of new health problems that arise in pregnancy. Frequent use of medicines in women of childbearing age also leads to accidental and often risky exposures during the first trimester of pregnancy when organ development occurs.

Against this backdrop, controversy has arisen over the use of the SSRI (selective serotonin release inhibitor) antidepressants during pregnancy, the class of drugs including Prozac (fluoxetine). Women of childbearing age are the most frequent users of SSRIs and accidental early pregnancy exposures are frequent. Depression is also increasingly being treated as a chronic rather than episodic disease, with long-term antidepressant use recommended to prevent recurrences. This pattern leads to more use, including in pregnancy.

Early research failed to demonstrate harm from SSRI exposure, and we know that babies born to severely depressed mothers have worse birth outcomes. An additional concern is that discontinuing these drugs in pregnancy may be more harmful than ongoing use. This has led some clinicians to recommend that women be treated with SSRIs during pregnancy, and to discuss strategies to overcome pregnant women's reluctance to take SSRIs.

Reports of harm from SSRI use in pregnancy include a withdrawal syndrome from third trimester exposure affecting 20-30% of newborns. Effects include agitation, muscle rigidity, feeding difficulties, respiratory distress, seizures and constant crying. Some cohort analyses and birth defect registries also show higher rates of malformations, mainly cardiac malformations with paroxetine. There is also evidence of an increased risk of persistent pulmonary hypertension in newborns.

Amid contradictory evidence on benefit versus harm, one fact is indisputable: more pregnant women are taking antidepressants, especially in North America.

This paper reviews background information and outlines a framework for a systematic review of the research on the benefits and harms of SSRI antidepressants in pregnancy. We set out a framework to examine two research questions:

1. Is there evidence of a net benefit from SSRI use in pregnancy for the mother's health and quality of life, as compared with non-drug interventions or placebo, in the treatment of mild, moderate or severe major depression?
2. Is there evidence of net benefit or net harm to infants from SSRI use in pregnancy?

Where should the burden of proof lie?

Whenever considering potential benefit versus harm of any medical intervention, there are likely to be areas of uncertainty and gaps in evidence. When new drugs come to market, limited information is available on less frequent and longer-term harmful effects, because relatively few people have been exposed to the drug, often for a relatively short period of time. For example, most trials of SSRI antidepressants leading to market approval last between 6 and 8 weeks and assess only 3000 to 5000 subjects. Once on the market these drugs are used for months or years. Pre-market trials are designed to be large enough to assess treatment benefits, and may secondarily assess frequently harmful effects; they are generally underpowered to evaluate rare serious harmful effects.

Should standards of evidence be lower in pregnancy?

Although no one seriously suggests that pregnant women should be subject to fewer safeguards than men or non-pregnant women, this is what happens if less evidence is required of effectiveness for treatments during pregnancy than at other times. In general to establish a drug's effectiveness, the minimum strength of evidence needed is from a double-blind randomized controlled trial. This experimental design allows drug effects to be separated from people's expectations or underlying differences between people who are, and are not, treated with a specific medicine.

If there is widespread use of a medicine in pregnancy without evidence from a double-blind randomized controlled trial, pregnant women are being subject to a drug exposure with fewer — not more

— safeguards to their and their babies' health. SSRI use in pregnancy is an example of unapproved or 'off-label' medicine use.

There are published observational studies that compare pregnant women who are, and are not, taking antidepressants. This is a much weaker study design than a double-blind randomized controlled trial. There are two main reasons to consider these studies unreliable:

- a large placebo effect in antidepressant trials; and
- systematic differences between women taking antidepressants, and those who do not take them, that can affect treatment outcomes.

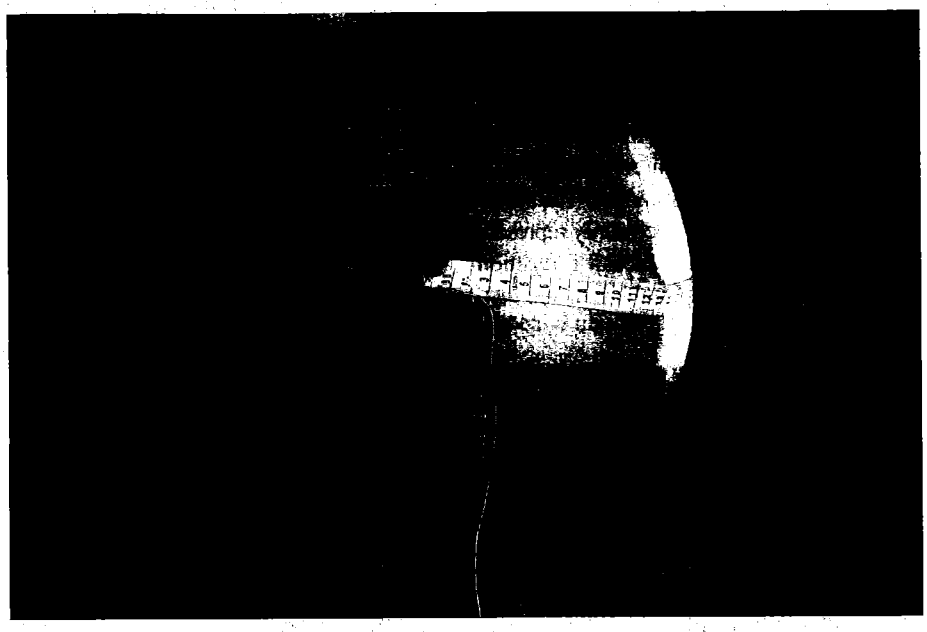
In order to establish a net benefit to mothers or infants double-blind randomized controlled trials are needed, comparing SSRIs to placebos, other antidepressants or non-drug treatments, in pregnant women with clinical depression. The oft-repeated statement that it is unethical to carry out clinical trials in pregnancy fails to consider the consequences of untested treatment. On the contrary, if pregnant women are exposed to a drug with the promise of a benefit, it is unethical not to carry out rigorous scientific studies to support these claims.

A case study: weak methods and reporting in an influential cohort study

One example of a study with a weaker study design making claims that would lead to expanded use of antidepressants during pregnancy is Cohen et al.'s study in the Journal of the American Medical Association (JAMA) of relapse of major depression in women who discontinue antidepressant treatment during pregnancy.[1] Women were enrolled early in pregnancy but were not randomized to different treatments. Instead, they and their doctor chose whether to continue or stop treatment or shift their dose. The woman and her doctor were fully aware of what treatment she was taking; only the assistant evaluating the women was blinded.

One key problem is that women were warned beforehand that discontinuing antidepressants could lead to depression relapse, likely leading to an expectation bias. Secondly, it is unclear what criteria were used to diagnose relapse, and especially what steps were taken to distinguish relapse from drug withdrawal effects. Most 'relapse' occurred in the few weeks after antidepressants were stopped or the dose tapered, when withdrawal effects are most expected. Additionally, women's quality of life, adverse events, and babies' health at birth were not reported. The study's authors also failed initially to disclose over 60 financial ties to manufacturers.

If there is widespread use of a medicine in pregnancy without evidence from a double-blind randomized controlled trial, pregnant women are being subject to a drug exposure with fewer — not more — safeguards to their and their babies' health. SSRI use in pregnancy is an example of unapproved or 'off-label' medicine use.



Does harm from untreated depression imply a benefit from drug treatment?

There is some evidence that the babies of severely depressed mothers do less well, but it is limited by poor diagnostic specificity and inadequate reporting of outcomes. In a prospective cohort study, Zuckerman and colleagues found that those with more symptoms of depression in pregnancy had more life stress, less social support, and smoked, drank or used illegal drugs more often.[2]

Other observational studies have examined effects of maternal stress and mental health on birth outcomes.[3] This literature suffers from a vague definition of depression and lack of attention to factors in women's lives that contribute to stress and poor health. If untreated depression is associated with poorer outcomes, we might expect that treating depression improves those outcomes. However, without randomized controlled trial evidence, we do not know whether treatment with antidepressants is linked to better health for mother or child. It is also important to examine other outcomes important to patients' health, such as quality of life, and not just a reduction in scores on depression scales.

Evidence of benefit from antidepressant use

It is reasonable to consider evidence in

non-pregnant women, and men, of effects of SSRIs to predict effects in pregnancy, in the absence of direct evidence. Two recent meta-analyses of antidepressant trials highlight their limited effectiveness versus placebo. Turner and colleagues compared the degree of difference between drug and placebo in published trial reports, unpublished trial report in FDA drug reviews, and reports of the same trials in FDA reviews as were covered in published reports. They found both that a larger difference between drug and placebo was reported in published versus unpublished trials, and that published articles reported a larger difference for the same trials as the FDA reports. If the full body of available evidence was taken into account, there was one third less of a difference between drug and placebo as in the published literature.[4]

A second meta-analysis also used the full body of evidence from clinical trials submitted to the US FDA for market approval for four of six SSRI antidepressants.[5] The other two antidepressants were not included because full outcome information was unavailable. The authors asked whether antidepressants differed in efficacy in moderate, severe or very severe depression, and re-analyzed outcomes by patients' baseline depression severity. They used UK National Institute of Clinical Excellence (NICE) criteria of at least 3 points difference on the 65-point HAM-D scale as a minimal clinically relevant difference between drug and placebo. Only the most severely depressed patients, with HAM-D scores of 28 points or more at baseline, achieved at least a 3-point difference in HAM-D scores in the antidepressant trials. It should be noted that these are placebo-controlled trials; they do not assess whether women on antidepressants would have at least a 3-point difference on antidepressants versus non-drug treatments or social support.

How often are antidepressants used in pregnancy?

Several large-scale studies have examined how often women use antidepressants in pregnancy, including two studies in Canada (in Quebec and British Columbia).

In Tennessee, researchers found a rapid increase in SSRI antidepressant use in pregnancy between 1999 and 2003, from 2.9% to 10.2%, among women covered by state Medicaid insurance. Although studies of rates of depression have found that depression in pregnancy occurs more often among younger women and ethnic and racial minorities, in this cohort white women, women over 25 and better educated women were more likely to take antidepressants. Use in pregnancy strongly reflected patterns of SSRI use in non-pregnant women in the US. The most commonly used antidepressants in 2003 were Zoloft (sertraline) and Paxil (paroxetine), each used by around 2% of women.

A study in Quebec that used linked administrative health databases (RAMQ) and examined all 97,680 pregnancies between 1998 and 2002, found that the rate of antidepressant use declined during pregnancy from 6.6% to 3.7% in the first trimester, to 1.6% in the second trimester, and 1.1% in the third trimester. Following the pregnancy, antidepressant rates rose again to pre-pregnancy rates (7.0%). During pregnancy Paxil (paroxetine), Zoloft (sertraline) and Effexor (venlafaxine) were the most frequently used antidepressants. Only 349 women (0.36%) had received a diagnosis of major depression either in the year before becoming pregnancy or while pregnant. The authors also found that 4.7% of antidepressant users switched to a different product while pregnant, most often Paxil (paroxetine) or Effexor (venlafaxine).

In British Columbia, researchers used linked health and prescribing databases to identify all women who had received antidepressants in pregnancy between 1998 and 2001. They were compared with women diagnosed with depression but not receiving antidepressant, benzodiazepine or antipsychotic prescriptions and women with neither a depression diagnosis nor prescriptions for any of these drugs. The rate of SSRI prescribing increased from 2.3% in 1998 to 5.0% in 2001, although there was no difference in the rate of depression diagnosis. The most commonly used drug was Paxil (paroxetine), followed by fluoxetine and sertraline. They found that women taking antidepressants had previous depression diagnoses around four times as often in the year before becoming pregnant, were five times as likely to have seen a psychiatrist, and had more previous diagnoses of mental illness, compared to women with depression diagnoses not taking antidepressants.

The administrative data on frequency of antidepressant use in pregnancy suggests that rates have increased in the 21st century compared to the 1990s and that use in North America is more frequent than in Europe.

Should pregnant women be treated to prevent postnatal depression?

A systematic review of studies published between 1990 and 2002 on factors predictive of post-natal depression reported that depression during pregnancy is a strong to moderate predictor of post-natal depression. A more recent and larger prospective cohort study included 35,374 women, 35% of whom were evaluated for symptoms of depression. Those with depression in pregnancy had a much greater risk of postpartum depression, but when controlled for previous psychiatric conditions, emotional problems, and partner support, the effect was greatly attenuated. This suggests a large role for emotional and psychosocial factors. Around two thirds of women with postnatal depression did not have prenatal depression, and nearly three fourths with depression in pregnancy did not develop postnatal depression. An Australian study in a disadvantaged neighbourhood[6] similarly found that depression in pregnancy was a poor predictor of postpartum depression. A Cochrane systematic review evaluating social and psychological interventions found that interventions that began in pregnancy failed to prevent postpartum depression, but that those focusing only on the postnatal period did have an effect.[7]

Do antidepressants lead to better health for mother or child?

One large administrative data analysis compared women on SSRIs to women with a depression diagnosis but not taking SSRIs and women without a depression

diagnosis. Women were matched for similar rates of health service use, using propensity scores, to adjust for health differences. Babies born after SSRI exposure had more respiratory distress, and were more likely to be born with a low birthweight. In general, outcomes were worse for women with depression diagnoses than without, whether or not they took SSRIs. However, among those with depression, women taking SSRIs had worse birth outcomes. This study failed to find a protective effect on infant health from SSRI use. It is impossible to adjust 100% for illness severity in administrative data, but it raises strong concerns about a negative effect on health.

Conclusions

This is a preliminary background paper, mainly outlining issues to consider when carrying out a systematic review of antidepressants in pregnancy. There are no randomized controlled trials of any antidepressant evaluating use in pregnancy. This raises questions about whether the evidence exists for the widespread use that is occurring. We do not yet know whether antidepressant use among women with a major depression diagnosis, even at the most severe level, leads to net benefits. However, it is clear that for most women with symptoms of depression in pregnancy, the type of evidence needed to be able to recommend use of SSRI use to improve the health of mothers, children or both, is lacking. There is preliminary evidence of short-term harm and the likelihood of long-term harm cannot be excluded. Therefore, unless clinical trial evidence becomes available, such use should be avoided.

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Barbara Mintzes is an Assistant Professor in the Department of Anaesthesiology, Pharmacology & Therapeutics at the University of British Columbia (UBC), and a Michael Smith Foundation for Health Research Scholar. The main focus of her research is on pharmaceutical policy, including the effects of direct-to-consumer advertising of prescription drugs on prescribing and medicine use. She is the coordinator of an international project co-sponsored by the World Health Organization and Health Action International to develop curriculum on drug promotion for medical and pharmacy students. She also works with UBC's Therapeutics Initiative's Drug Assessment Working Group and the Common Drug Review to carry out systematic reviews of the clinical trial evidence on beneficial and harmful effects of new drugs. She has worked for many years with women's health and consumer organizations, with a focus on safety concerns and representation of public interests in drug policy. She is a member of the Steering Group of Women and Health Protection and on the advisory board of La Revue Prescrire.

1 Cohen LS, Altshuler LL, Harlow BL et al. Relapse of major depression during pregnancy in women who maintain or discontinue antidepressant treatment. JAMA 2006; 295: 499-507

2 Zuckerman B, Amaro H, Bauchern H, Cabral H. Depressive symptoms during pregnancy: relationship to poor health behaviours. Am J Obstet Gynecol 1989; 160: 1107-1111.

3 Bonari L, Pinto N, Ahn E et al. Perinatal risks of untreated depression during pregnancy. Can J Psychiatry 2004; 49: 726-735

4 Turner NEJM 2008

5 Kirsch I et al. PLoS Medicine 2008

6 Edwards B, Galletly C, Semmler-Booth T, Dekker G. Does antenatal screening for psychosocial risk factors predict postnatal depression? A follow-up study of 154 women in Adelaide, South Australia. Australian and New Zealand Journal of Psychiatry 2008; 42: 51-55

7 Dennis C-L, Creedy D. Psychosocial and psychological interventions for preventing postpartum depression. Cochrane Database of Systematic Reviews 2004; Issue 4, Art. No.: CD001134.

In the Field

A Healthy Start in Life

Protecting Children From Hazardous Chemicals

Johanna Hausmann

WECF, Women in Europe for a Common Future, a network of over one hundred women's, environmental and health organizations in more than 40 countries in Western and Eastern Europe, the Caucasus and Central Asia, has emphasised the need to protect women, men and especially children from the negative health effects of hazardous chemicals and substances. The network calls for a general ban on these substances in everyday products. Nesting, a unique project of WECF, aims to help parents create a healthy and safe environment for their newborn children.

Today, in Western countries, an infant's start in life could hardly be better. In recent years, the infant mortality rate has continued to decline, life expectancy has increased and fatal infections such as measles, smallpox, polio and cholera have been largely defeated.

But, today, children are exposed to other health hazards, which a few decades ago were neither known nor imaginable: hazardous chemicals and substances in everyday products. In 1931, only one million tonnes of chemicals were produced worldwide; in 2000, this production grew to more than 400 million tonnes. Although modern life has benefited from many chemicals, even the World Health Organisation (WHO) confirms that there is clear scientific evidence that exposure to very low doses of hazardous chemicals and substances can cause harm to a fetus, an infant and a child during vulnerable periods of development.

This exposure to hazardous chemicals and substances has resulted in a dramatic increase in certain childhood diseases associated with environmental factors. These results are irreversible and can be multi-generational. For example, exposure to phthalates during certain stages of pregnancy can result in hypospadias (deformation of penis) in the child. Low-level exposure to neurotoxic pesticides during pregnancy can lead to impaired brain development and a range of other problems.

Children are exposed, not only to one chemical, but to a combination of hazardous chemicals and substances, during early development. While the combined effects are only beginning to be understood, this "chemical cocktail" ending up in children's bodies is already being linked to cancer, diabetes, learning and behavioural disorders and also, for laying the foundation for other diseases later in life. Concerned scientists warn that there is greater health risk for the unborn and young children, and that preventative actions need to be taken quickly.

Politicians sleep, while the women of WECF act

Current European legislation and proposals for pesticides, toys, cosmetics and chemicals do NOT adequately protect the developing fetus, infant and child. Children's exposure to hazardous chemicals and substances from toys, clothes, furniture and shampoos and other personal care products and from the spraying of pesticides around playgrounds and schools has to be reduced now. Yet politicians do not act. WECF, Women in Europe for a Common Future, a European network of environmental, women's and health organizations, feels urgent action is necessary and has created the Nesting project to facilitate action. "The aim of Nesting" says Sonja Haider, Chemical Coordinator for WECF and founder of the Nesting project, "is to sensitize parents, pregnant women and mutlipliers, such as midwives, gynecologists, pediatricians and family counselling organizations to adverse environmental impacts on children. Nesting hands parents a tool to protect babies, at least in their immediate home environment and enables them to ensure a healthy start to a healthy life. There are many reasons why projects like Nesting must exist. Children's diseases related to hazardous chemicals and substances give the impetus to act. In seven European languages and countries – Germany, the Netherlands, the United Kingdom, Greece, Hungary, France and Spain — expectant parents can go on the website www.projectnesting.org to receive information on how to create a welcoming, stimulating, and at the same time healthy, environment for their baby, free from contaminants and safe from accidents. Nesting is a unique project".

Expectant parents change their (consumption) behaviour

Polls have shown that during times of major life changes, like the birth of a child, people will often change their consumption patterns. With the birth of a child, adults often think for the first time about the health impacts of products that they use everyday or that they want to buy for their child. The number of children's products on the market that may contain hazardous chemicals and substances, for example, plasticizers in diaper changing pads and baby bottles, formaldehyde in bedding and brominated flame-retardants in toys, is quite large. "Unfortunately, the legislation is too weak and meaningful labels are too rare to guide consumers through the product jungle. But the demand for healthy, safe and sustainable products is high," says Sonja Haider.

"That's where the information on the Nesting website begins. Parents depend on information to make the right choice. We want to reach mothers and fathers before the birth of a child and before their first purchases for pregnancy, the nursery and newborns."

The Nesting website provides practical information and touches on subjects such as renovating, furnishing, proper ventilation, safe paint, toys and baby care products. Visitors learn which product ingredients are harmful, how to prevent injuries and which items are really necessary for babies. In the news section, visitors are kept up-to-date with the latest studies on certain product groups and with significant news in relation to children's environmental health. In most countries where Nesting operates, the Nesting organization cooperates with midwives, gynecologists and family counselling services that have direct contact with pregnant women and young families.

New challenges for children's health

Today, we are surrounded by approximately 100, 000 chemicals, almost all of which have been developed in the last fifty years. Only a fraction of these chemicals have been tested for their health and environmental impacts. None have been tested for their cumulative and combined exposure risks.

Many hazardous chemicals and substances in consumer products tend to leech out of the product during manufacture, use and disposal. They can accumulate in children's bodies, including the developing fetus, and can have lifelong negative effects on human health.

Studies indicate that:

- It is, not only the dose of exposure to the chemical or substance, but also the timing of the exposure, that is important
- Exposure to certain chemicals and substances during early fetal development can cause brain injury at doses much lower than those that can affect adult brain functions.
- The blood-brain barrier, which protects the adult brain from many toxic chemicals, is not completely formed until six months after birth, making the youngest babies much more vulnerable.

During fetal development, the placenta offers some protection against unwanted chemical exposures, but it is not an effective barrier against environmental pollutants. ... This means that from the day of conception, embryos and fetuses are exposed to a cocktail of toxins that cross the placental barrier.

Current knowledge regarding the causes of learning and developmental disorders imposes an ethical duty and responsibility to act to protect children's health and well-being.

Today, there are more disorders of the endocrine and reproductive systems. In boys, these include developmental disorders, including abnormalities in reproductive organs, testicular cancer and a massive decline in sperm count. In girls, puberty onset has been detected as early as at age five — since sexual development is hormonally driven this effect could be related to endocrine disrupting chemicals.

There is an increasing incidence worldwide of allergies and atopic dermatitis in infants and babies for which, leaving aside any genetic predisposition, environmental factors may be responsible. In Europe, for example, every fourth infant suffers from at least one allergy; in some regions, even every third infant.] In their new book Poisoned Profits: The Toxic Assault on Our Children, Philip Shabecoff and Alice Shabecoff state that, between 1987 and 1998, the incidence of childhood cancer jumped sixty seven percent, and in California, the number of children entered onto the autism registry jumped 210 percent.

Who's at risk and how do chemicals accumulate in children's bodies?

When it comes to exposure, fetuses, children, adolescents and pregnant women are all vulnerable. The intake of hazardous chemicals and substances starts in the womb. Pregnant women can unknowingly pass on hazardous chemicals and substances to their developing fetus. During fetal development, the placenta offers some protection against unwanted chemical exposures, but it is not an effective barrier against environmental pollutants. For example, many heavy metals can easily cross the placental barrier. The mercury concentration in umbilical cord blood can be substantially higher than in maternal blood. Analyses of cord blood show that every baby born today has 150 to 230 toxic chemicals in his or her blood, including PCBs, phthalates, flame retardants, bisphenol A, and pesticides and heavy metals such as lead and mercury. This means that from the day of conception, embryos and fetuses are exposed to a cocktail of toxins that cross the placental barrier.

Nesting — to protect children right from the start

Since politicians are consistently reluctant to prohibit the use of hazardous chemicals and substances and the risks to children's health of exposure are large, consumers must inform themselves as much as possible about the contents of everyday products, if they want to protect themselves and their newborn children. It is a difficult task, because disclosure of ingredients is mandatory for only a few products. "Nesting would like to narrow this information gap," says Sonja Haider. "Before birth, parents should have already learned more about products and their ingredients in order to make safer purchases and protect their newborns, at least in their immediate environment."

Using low-emission products for renovating reduces the risk of allergies

Exposure to toxins comes from both inside and outside the home. Equally or even more important for most children is exposure inside homes and on household lawns. Infants and young children spend about ninety percent of their time indoors. The use of low-emission products is especially important inside the home. Recent studies of infants' and children's exposure to environmental contaminants and diseases have shown that volatile organic compounds (VOCs) released during renovating and furnishing the nursery are responsible for increased rates of allergies and atopic dermatitis.

Silvia Pleschka, a chemist and health consultant in Berlin, knows the dangers of indoor pollutants inside and out: "Pollutants such as tobacco smoke, mould, formaldehyde in plywood and furniture, solvents in paints, inks and adhesives, plasticisers (phthalates) in products like flooring and toys and flame retardants in furniture, textiles, upholstery and mattresses are but a few examples. These can be hard to detect for a non-professional, but can influence the health of infants and young children".

Experts recommend refraining from renovating during pregnancy and in the first six months of a newborn's life, but many parents find it hard to resist the nesting instinct. To reduce the risk to their unborn baby, expectant mothers should leave the renovation to their partners and friends, who can also reduce pollutants by purchasing low or no VOC paints, varnishes, wallpapers and carpets. This reduces off gassing. And, by ventilating the rooms well and following further advice from environmental and safety experts (some advice can be found on the Nesting website); exposure can be kept to a minimum.

Paying attention to labels and safety issues and using low-emissions paint, flooring, furniture and other equipment should help parents to reduce the health risks to their children of renovating and to improve their homes in an [illegible] sustainable manner, possibly [illegible]

additional costs.

The fact that a child-friendly home must be a smoke-free zone and must be properly and regularly ventilated still needs to be emphasized for many parents. The latest results of the German Environmental Survey for Children (KUS) shows how important this call is: more than half of German children still live in smoking households.

Nesting — political advocacy and practical ideas

The idea for the Nesting project came about in 2004, when WECF presentations about chemical threats in the household found that parents were the most interested. Data from consumer protection groups and companies such as IKEA confirmed parents' interest. Pediatricians had also identified the need to inform parents about how to avoid children's products that contain ingredients linked to health risks. This provided the impetus for WECF's Nesting project, which aims to raise awareness of the need for and to provide practical advice on avoiding indoor air pollutants and creating a healthy lifestyle.

"Nesting is important for WECF", says Sascha Gabizon, international director of WECF, "because we are very concerned about the health of European women and children. Lifelong effects are often seen from early exposure. Nesting also forms part of our political lobbying efforts for a healthier environment at the national, EU and UN levels."

Recently, three regulations on pesticides, cosmetics and toy safety were up for revision by the European Parliament. However, once again, politicians did not take the opportunity for change and did not ban all toxic substances from toys.

WECF will continue to search for more effective ways of advocating for health and the use of healthy products. It is monitoring the implementation of REACH, a new European Community regulation on chemicals and their safe use. It is also monitoring the implementation of the World Health Organization's Children's Environment and Health

Action Plan for Europe, a policy document that highlights the need to consider the particular vulnerabilities of children in the development of environmental health policies. Governments and industry should also be committing themselves to the "precautionary principle". When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not yet fully scientifically established.

The many ideas of creative and committed women

Europe is diverse — with different cultures, regulatory requirements and means of communication. For the Nesting project, this diversity can be a challenge and a benefit at the same time. The active participation of Nesting partners across borders often provides different perspectives that inspire new processes and ideas.

While target groups in Western Europe can be quite easily reached via the internet, in some countries where the Nesting project is in place, a smaller proportion of the population has access to the internet. In Hungary, only ten to twenty percent of the population regularly uses the internet. Nesting's Hungarian partner, the Hungarian Association of Large Families (NOE), publishes brochures and posters to make the Nesting project known to the public. Other partners have adapted the Hungarian brochures to use in their own work. In shortened and translated form, some partners have found them a useful resource for doctors to give to their patients.

In Greece, the Nesting partner "Clean up Greece", has developed a TV commercial that talks about the Nesting project. WECF is now looking forward to this being reproduced by Nesting partners in six other countries.

The Nesting project contributes to a Europe-wide exchange and it is just beginning. "Our goal is to translate the Nesting website into a greater number of languages and reach more people worldwide," says Sonja Haider. "We would like to expand our awareness-raising to more socially deprived families and migrants, producing, in addition to the website, simple brochures and posters conveying clear messages. The protection of our children must not be reserved for well-educated families."

To reach more expectant parents, the training of multipliers needs to be increased. Several interactive workshops, seminars and training sessions have already been held in Germany, France, Hungary and the Netherlands. Various methods have been used, such as the motivating and creative "World café" (a methodology for hosting conversations: www.theworldcafe.com), technical presentations by experts and workshops on testing one's chemical exposure. A toolkit, including different forms of education, will be developed in 2009 for WECF's partner organizations. A possible collaboration with the WHO is also being explored.

Authorities have identified the need to better protect expectant mothers and children against indoor air pollutants. The Danish Ministry of the Environment has published recommendations for pregnant women to minimize their personal chemical exposure. In France, some hospitals and government agencies have halted the distribution of free "bounty packs" — gift packages with promotional products for expectant parents — in an attempt to avoid promoting products that may contain hazardous substances. French politicians are considering developing a label to warn pregnant women about certain personal care products. A restrictive legislation would support these efforts — WECF is committed to working towards this.

Many efforts are required to reach as many parents as possible, to improve children's start in life and to achieve sustainable behaviour change. A campaign of committed organizations, working together with governments, can achieve this vision. The Nesting project is doing what it can to contribute to this process.

Johanna Hausmann is a Press Officer for Women in Europe for a Common Future (WECF) Germany. She also works with the chemicals group of WECF focused on children's health and healthy environments. She has planned and implemented workshops for midwives, gynecologists, pediatricians and family counseling organizations on the Nesting project. She has also planned public toy test actions against toxic substances in Munich, Paris and the Netherlands.

Further Reading:

Poisoned Profits: The Toxic Assault on Our Children by Philip Shabecoff and Alice Shabecoff, Random House, 2008.

POEM by Madeleine Natrass

Gone Missing

She tries hard to re-string misplaced syllables words
scattered thoughts rolled just beyond reach
illusive memory-beads.
Not unlike the bits and pieces that stray get buried
behind the couch beneath the dust bunnies a piece of puzzle
a prized cat's eye shrunken kernels of popcorn
Sometimes she salvages sharp shards of humour more often
she assumes the stance of a small girl on her best behaviour
hands neatly folded knees tight— together feet firmly placed
As if such posturing might invite order into her muddled mind.

Madeleine Nattrass is a Vancouver Island poet. Her work has been published in Tower Poetry, Other Voices, Quill and in several anthologies as well as on the internet.

Maternal Health in Cuba

By Karla Orantes

Recently, I had the great experience of traveling to Cuba, the biggest island in the Caribbean, which has been under economic and political embargo for more than fifty years. I was surprised to know that in this poor country high quality health care is provided to all pregnant women regardless of their income or social status. In Cuba, women are viewed as being very special because of the important role they play in the society — their ability to carry life.

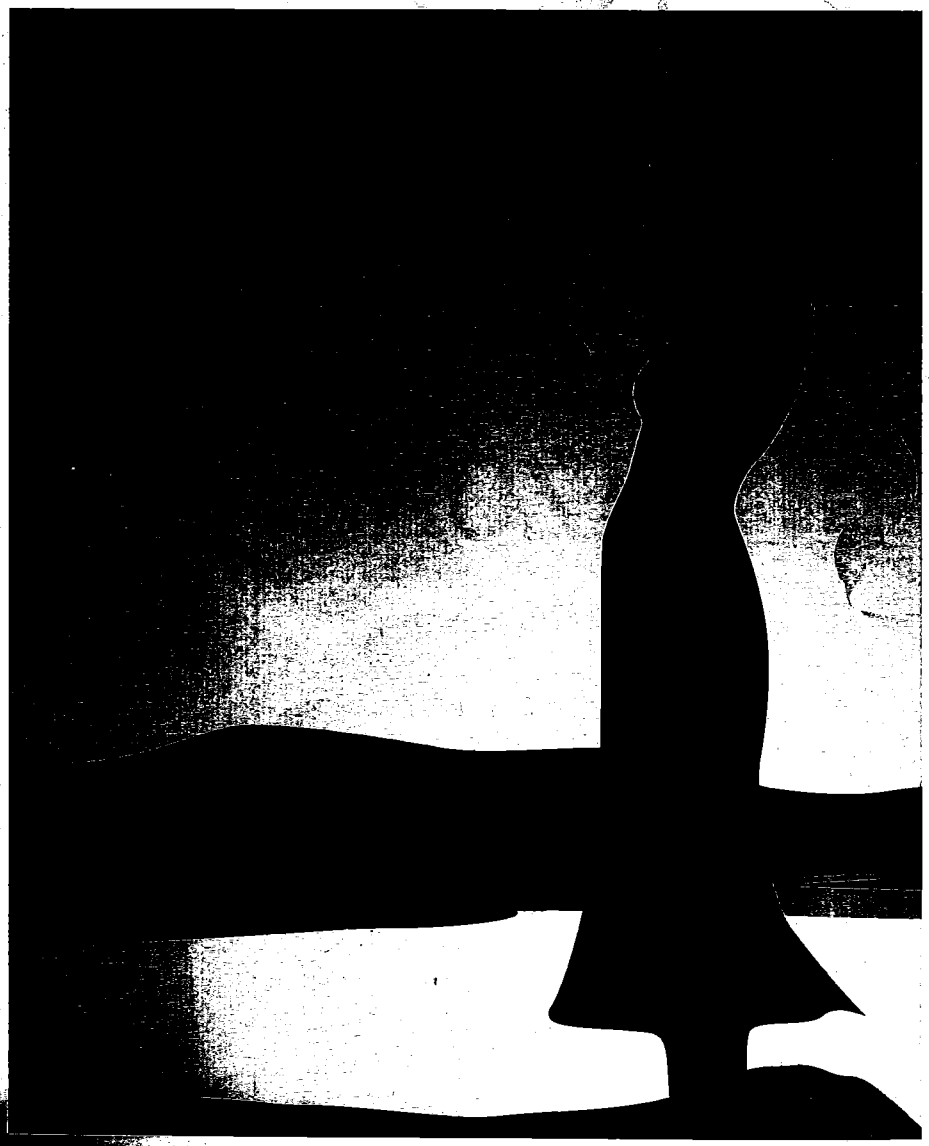
During pregnancy, women in Cuba have special privileges. The government covers all of their health care needs including medication, food, clothing, personal hygiene products, and a personal space in which women can spend time under the care of professionals throughout their pregnancies. These services are administered and coordinated by the program known as PAMI — Programa de Atención Materno Infantil (Program of Maternal and Child Care). This program is available to all pregnant women in the country.

PAMI was formed to improve the quality of life of pregnant women, to decrease the number of deaths of women and children during pregnancy, and at the time of delivery. The aim of the program is to ensure that women have the best experience during their pregnancies. This involves giving them the opportunity to enjoy and spend the pregnancy period free of stress or any other situation that might have a negative impact on their health, and on the health of the foetuses and new born babies.

This program allows all women in Cuba to enjoy their pregnancy with fewer amounts of problems because they are able to access necessary services. Doctors, nurses, social workers, and other health care providers offer personal support to pregnant women in order to give them the [illegible] help and advice, and to create a good [illegible]

PAMI was [illegible] women in the country, regardless of their income, whether they live in a big city or in a small rural town. The main objective of the program is to provide women with holistic maternal health — social, economic, and physical environments are recognized as strong determinants of women's health, and the health of their babies. As a result of PAMI, Cuba has reached a very high level of maternal and childhood care, sometimes the level and quality of care and attention given to women is better than in many developed countries.

Maternity is an important step in women's lives. It has a great impact on women and their babies. Supportive conditions and environments are important to help women deliver healthy babies, and stay healthy and happy themselves. I think Cuba is a good example of what can be achieved with limited resources but great care for people.



WE Resources

Web Resources

www.cwhn.ca/indexeng.html
Canadian Women's Health Network

www.owhn.on.ca
Ontario Women's Health Network

www.who.int/topics/maternal_health/en
World Health Organization resources on maternal health issues internationally.

www.acdi-cida.gc.ca/CIDAWEB/acdicida.nsf/En/ANN-11995235-KFX
Information on Canada's commitments to improving maternal and child health through overseas development assistance.

www.phac-aspc.gc.ca/hp-gs/index-eng.php
Public Health Agency of Canada's Healthy Pregnancy Website, provides information of becoming pregnant, being pregnant and being a new parent.

www.un.org/millenniumgoals
Information on the United Nations Millennium Development Goals and what is being done to achieve them by 2015. The site provides monitoring information and fact sheets on each goal, including goal number 5, to improve maternal health.

www.unicef.org
Information on UNICEF's initiatives to improve maternal and child health internationally.

www.gynpages.com/ACOL/international.html
Directory of abortion clinics around the world

www.endfistula.com
Campaign to End Fistula website

www.unfpa.org/mothers
United Nations Population Fund, Safe Motherhood, provides a Safe Motherhood Resource Kit than includes facts sheets on maternal health, stories from the field and videos, including videos on a fistula centre in West Darfur, repairing obstetrical fistula in Bangladesh, and fistula and men's involvement.

www.endocrinedisruption.com
Dedicated to compiling and disseminating scientific evidence on health and environmental problems caused by endocrine disruptors (low-dose exposure to chemicals that interfere with development and function).

www.momsandpopsproject.org
Provides information on biomonitoring data to support breastfeeding, empower mothers, and protect communities against persistent organic pollutants (POPs).

Water Spirit Woman, 2007

Featured artist **Biljana Banchotova**

Morning Star, 2008