Supporting Pregnancy and Parental Responsibility in the Orthopaedic Profession and Throughout Orthopaedic Training

A Position Statement from the Canadian Orthopaedic Association

Contributors:

Kristen Barton, Laura Morrison, Annalise Abbott, Colm McCarthy, Alexandra Bunting, Pierre Guy, Brendan Sheehan, Marie Gdalevitch, Lisa Howard, Lane Dielwart, Linda Thyer, Duyen Thi Kim Nguyen, Olufemi Ayeni, Kishore Mulpuri, Laurie A. Hiemstra and Pascale Thibaudeau.

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"We always talk about supporting women being surgeons… but why aren't we supporting surgeons being women."

– Dr. Lisa Howard

INTRODUCTION

The Canadian Orthopaedic Association (COA) recognizes that a successful surgical career should not preclude an orthopaedic surgeon's choice to be a parent. Orthopaedic surgeons who choose to have children (through the pregnancy of the surgeon or the surgeon's partner, a surrogate, or adoption) have made an equivalent commitment and investment in their surgical careers as those who choose not to have children. Becoming a parent does not detract from one's full professional commitments as an orthopaedic surgeon. The COA supports healthy pregnancy outcomes and strongly believes there should not be punitive repercussions on surgeons who choose to have children and/or take parenting leave to care for their children.

Pregnancy is a physiologic condition, not an illness or injury, but a condition requiring medical care. It has both physical and mental components which must be taken into consideration. All pregnancies will require some accommodation in the workplace to ensure a healthy mother and baby. Higher-risk pregnancies will require a more individualized response regarding workplace adaptation. Considerations for pregnancy include accommodation and leave for fertility treatments, prenatal care, pregnancy, pregnancy-related complications, including miscarriage, as well as the peri- and post-partum periods.

Parental leave refers to leave for all new parents, including the birthing parent, partner of the birthing parent, adoptive parents, and parents through surrogacy. Parents taking time to spend with children after birth or adoption is associated with significant benefits for the child and parents [1]. Although Canada has robust pregnancy and parenting leave legislation for salaried workers, there is no standard parental leave policy for orthopaedic surgeon consultants in Canada. Pregnancy and parental leave are left to local administration and colleagues with little oversight. As a result, taking time off for pregnancy or parenting is difficult to navigate and places surgeons at the relative mercy of collaborative colleagues. Resident provincial associations have guidelines built into their contracts; however, these are inconsistent and there is no standardization across provinces.

Orthopaedic surgery faculty and program support is essential for a surgeon or trainee to experience successful pregnancy or parental leave. Efforts must be made to ensure support is available during pregnancy and parental leave. Creating evidence-based and family-friendly guidelines for parental leave is important to the progress of academic medicine in the modern era, as it supports parental and child health, promotes wellness, and reduces gender disparities in surgery to the benefit of all [2].

GUIDING PRINCIPLES

- Pregnancy is a physiologic condition requiring medical care.
- Pregnancy leave includes prenatal care, incapacity related to pregnancy including after pregnancy loss and birth of a child.
- Parental leave includes the birthing parent, partner of the birthing parent, and parents by adoption or surrogacy.
- Surgeons and trainees deserve pregnancy and parenting leave guidelines consistent with legislated guidelines.

PRECONCEPTION

Fertility Treatment

Colleagues and residency programs must recognize that surgeons and residents undergoing fertility treatments are often going through a stressful and emotional time and will have more medical appointments than usual during this time. Accommodations are required to allow for attendance at necessary medical appointments and treatments for those who require them. Reasonable efforts should be made by surgeons and trainees to book appointments outside of scheduled clinical activities when possible. However, it should be recognized that appointments are often time-sensitive, and that the medical system offers very little flexibility with regards to scheduling. Guidelines should treat infertility and its treatment as any other medical condition.

Surgeon and Trainee Recommendations:

1. *Fertility appointments and treatments should be considered as medical appointments. Surgeons and trainees facing fertility issues should be afforded the same support as anyone else with a medical condition.*

PREGNANCY

Antenatal Appointments

Colleagues and residency programs must recognize that pregnant surgeons and residents may have medical appointments related to their pregnancy, including but not limited to ultrasounds, laboratory tests, and visits with the obstetrician or family doctor. The frequency and time-sensitivity may vary by test, stage of pregnancy, and any potential or diagnosed complication.

Accommodations should be made to allow for attendance at necessary medical appointments and treatments. This includes pregnant surgeons and trainees, and those whose partners are pregnant. Reasonable efforts should be made to book appointments outside of scheduled clinical activities when possible.

Surgeon and Trainee Recommendations:

1. *Antenatal appointments and treatments related to pregnancy should be considered as medically necessary, often time-sensitive appointments, and be afforded the same support as any other medical appointment.*
2. *Support should be given for surgeon and trainee partners of pregnant individuals to attend prenatal appointments.*

Pregnancy Symptoms and Complications

Even the most uneventful pregnancy is often accompanied by various symptoms, such as fatigue, nausea and vomiting, light-headedness/dizziness, and frequent urination. Depending on their severity, these symptoms can greatly affect an individual's functioning. Surgeons who are suffering from such symptoms may need accommodations in their workplace to be able to accomplish their work duties.

Compared to the general population, female orthopaedic surgeons tend to delay childbearing due to their careers, have fewer children overall, and experience higher rates of infertility and pregnancy-related complications [3, 4]. The reasons reported by women for delaying childbearing until the completion of residency or fellowship are fear of negative implications on their professional reputation and inadequate resources to support pregnancy and/or parenting during training [5-7]. This delay can lead to increased maternal age at the time of first pregnancy, which is associated with higher rates of pregnancy complications, fertility issues, and a lower total number of children [8]. Concerning, however, is that even when controlling for increased maternal age, higher rates of infertility and pregnancy-related complications are documented in orthopaedic surgeons [7]. These include but are not limited to the need for assisted reproductive technology, as well as higher rates of preeclampsia, gestational diabetes, and preterm labour [7, 8]. These are thought to be related to conditions of the orthopaedic work environment, such as long hours, overnight call, and stress [5].

Surgeon and Trainee Recommendations:

1. *Surgeons must be supported in having children at any point in their careers without fear of negative repercussions on their professional lives.*
2. *Policies should be in place to allow and support the pregnant operating surgeon's autonomy over their workplace environment (duty hours, call schedule, heavy lifting, etc.).*

High Physical Demands and Extended Duty Hours

The high physical demands and extended duty hours experienced by residents, fellows, and orthopaedic staff surgeons can lead to significant pregnancy complications, including pre-term labour, pre-eclampsia, and intra-uterine growth restriction. Increased risk of these complications has been found in orthopaedic surgeons working greater than 60 hours per week but has not been correlated with the number of hours spent in the operating room [9]. However, prolonged standing of more than three hours has been associated with an increased risk of pre-term labour and low birth weight [10].

Surgeon and Trainee Recommendations:

1. *Pregnant surgeons and trainees should work no more than 60 hours per week. Surgeons and trainees should not work shifts longer than twelve hours after 28 weeks of gestation or earlier if deemed medically necessary.*

Call Schedule Guidelines

Consultant surgeon call guidelines are covered by each health region and hospital medical staff by-laws under the purview of 'quality and safety of care', as well as the 'on-call and service coverage responsibilities. These bylaws leave all details to the respective department and are open to wide interpretation. Call guidelines for orthopaedic residents are governed by provincial contracts with Resident Associations. Surprisingly, the guidelines are not comprehensive in the resident agreements, with wide variation across the provinces. Given that human health resources and surgeon hiring is not under the power of the individual surgeons or residents, the health regions must take an active role in safeguarding the health and wellness of surgeons by relieving the burden of forced call coverage from being solely on the shoulders of the surgeons and trainees. Guidelines for on-call duties should be outlined clearly for the health and safety of pregnant surgeons and should be explicit in the expectations.

Surgeon and Trainee Recommendations:

1. *National guidelines should be in place that specifically mandate call restrictions on pregnant surgeons and trainees. Based on the literature, call requirements should end at 28 weeks of gestation, with earlier accommodations to this timing based on the needs and condition of the individual.*
2. *Pregnant surgeons should not be required to "make up" missed call duties due to their pregnancy and necessary medical care or to take extra call before their leave to compensate for time away.*
3. *Call coverage for a pregnant surgeon must be worked out with the individual departments with cooperation from the hospital administration.*

Exposure to Airborne Toxins

Pregnant orthopaedic surgeons may be exposed to fetotoxic gasses and chemicals in the operating room, including methyl methacrylate (MMA) and anesthetic gases. MMA is used in bone cement and is associated with concerns of fetotoxicity with very high-level exposure [11]. Potential effects of MMA on the unborn child include intra-uterine growth restriction and skeletal malformation [11]. Exposure to fetotoxic levels of MMA in the operating room is considered very low risk, with one study reporting a maximum MMA level recorded in the air at 280 ppm. This risk is lowered using vacuum mixing rather than hand mixing and personal hoods. There is conflicting evidence regarding the harmful effects of anesthetic gasses, with a possible correlation to increased levels of miscarriage with exposure to waste levels of anesthetic gas [9].

Surgeon and Trainee Recommendations:

1. *The use of vacuum mixers and protective personal hoods should be available to pregnant surgeons to decrease exposure to MMA.*
2. *Pregnant surgeons should consider waiting outside of the operating room during the induction of anaesthesia.*
3. *Although the evidence available at this time is reassuring, pregnant surgeons should exercise caution in cases where they will be exposed to MMA and/or anesthetic gases and modulate their exposure based on their preference and comfort level.*

Exposure to Blood-Borne Pathogens

Disease transmission to surgeons from percutaneous blood-borne pathogen exposure varies from 0.3% for HIV to 30% for hepatitis B [9]. For pregnant surgeons, the potential effect on a fetus is substantial, as these blood-borne viruses can be vertically transmitted, placing newborns at risk of infection, including acute and chronic hepatitis B/C. There are additional post-exposure treatment challenges for pregnant surgeons; HIV post-exposure prophylaxis may be mutagenic to the fetus, and [9] there is currently no post-exposure prophylaxis available during pregnancy for Hepatitis C.

Surgeon and Trainee Recommendations:

1. *Properly fitting personal protective equipment, including protective personal hoods, should be available to pregnant surgeons and trainees.*
2. *Where possible, pregnant surgeons should be limited in their exposure to high-risk cases. They should have the option to opt out of high-risk elective and non-emergent urgent cases by transferring the patient to a colleague.*
3. *Trainees should have the choice to opt out of a high-risk case without consequence.*

Exposure to Radiation

Depending on their subspecialty and on-call requirements, orthopaedic surgeons are variably exposed to radiation at work. Radiation exposure can be expressed in Gray (Gy, actual dose) or Sieverts (Sv, absorbed dose) [12]. When discussing radiation exposure from standard radiography and/or fluoroscopy, Gy and Sv are considered interchangeable and are typically expressed in milligray or millisieverts (mGy or mSv). The unborn child is most at-risk for adverse effects of radiation at less than two weeks gestation, and this risk decreases with increasing gestational age [11]. Potential adverse effects on the developing unborn child are prenatal death, growth restriction and organ malformation which can occur at radiation doses greater than 50 mGy (equivalent to 50mSv absorbed) [11]. In Canada, the radiation dose limit for pregnant workers is 4mSv from the time the pregnancy is declared until the end of term [13]. Health Canada recommends monitoring radiation exposure every 2 weeks using a dosimeter placed at the abdomen underneath protective lead [13].

Surgeon and Trainee Recommendations:

1. *Standard and well-maintained 0.25mm protective lead gowns with axillary protection wings should be available for pregnant surgeons to wear when exposed to radiation. Consideration should be given to wearing double lead (0.5mm) over the abdomen to reduce absorbed radiation. This must be weighed individually against the physical demands of wearing heavy lead.*
2. *A dosimeter should be provided to the pregnant surgeon for monitoring of radiation exposure.*
3. *Residents should be able to choose to opt out of surgical cases which cause severe discomfort (due to heat and weight of lead) or they feel is risky to their health or the foetus.*

PARENTAL LEAVE

Partner Leave

Parental leave positively impacts family engagement, bonding, stress, and happiness. Partner leave has numerous proven benefits for the couple, the children, and the affected individual [14]. Parental leave benefits are important to all surgeons whether or not they are the birthing parent and regardless of their sex. Understanding parental leave practices in orthopaedic surgery is critical to promote equity within the profession and supporting balance in work and family life [6]. As nonchildbearing parents of this generation become more involved in child-rearing, establishing inclusive parental leave policies is essential. There are significant challenges for trainees and faculty to take partner leave [15]. Key stressors around parental leave include poorly defined leave policies, historic paradigms of prioritizing professional duties over personal ones, the stigma attached to taking time off, and the guilt related to imposing extra work on colleagues [15].

Surgeon and Trainee Recommendations:

1. *Institutions and training programs should have clearly defined parental leave benefits that are easily accessible and permissive for both parents.*
2. *Orthopaedic departments and training programs should support partner leave without repercussions on the surgeon or trainee.*

Duration of Leave

Family leave has been shown to confer important health benefits to individual family members and to improve the overall well-being of families [16]. In Canada, salaried employees are entitled to take time off after the birth of their child or after adopting a child, although the maximal duration of leave varies slightly between provinces. According to the Canada Labour Code [17], pregnancy leave of up to 17 weeks is available to the birthing parent. In addition, all parents are entitled to parental leave of up to 63 weeks, with extensions granted in specific circumstances. Upon the end of their leave, employees are entitled to be reinstated to their previous employment without penalty. While most Canadian surgeons are not technically employees, they should be afforded the same protections as employees regarding pregnancy and parental leave.

Surgeon and Trainee Recommendations:

1. *Maximal leave durations for pregnant surgeons should align with the Canadian maternity and parental benefits, which include pregnancy leave of up to 17 weeks and parental leave of up to 61 weeks, for a total of up to 78 weeks (18 months).*
2. *The maximal duration of parental leave for orthopaedic surgeons who are not birthing parents should be consistent with National guidelines for federal employees, with leave up to 63 weeks.*
3. *Surgeons taking pregnancy and/or parental leave should be able to take the amount of leave desired, up to the maximum durations for Canadian workers as outlined above, without threat to their hospital privileges or academic position.*

Locum Coverage

In many situations when time away from practice is expected, a surgeon may hire a locum tenens to “cover” their practice while they are unavailable. While parents have no inherent right to hire a locum, one jurisdiction (Quebec) states that it will automatically centrally approve any request for a temporary replacement due to pregnancy, parental, and adoption leave, while local approval implementation of such arrangement will be left at the discretion of the department head and hospital board.

(Translated from the original French text): "A request for temporary appointment related to an absence for maternity leave, paternity leave, parental leave, adoption leave or healing leave and which respects the durations above will be authorized by the MSSS. The institution submitting a request for temporary replacement must ensure that the choice of replacement does not cause prejudice to another establishment [18]."

Approval of a locum tenens request should be encouraged and not be unduly withheld. A locum tenens assures the care of a surgeons' patients by an identified clinician, helps avoids additional clinical burden on the team and may help relieve the parent-surgeon of guilt related to exposing colleagues to extra work during their leave [15]. Financial arrangements with locum tenens, who temporarily takes over a surgeon's practice, should take into consideration the fixed costs incurred by the surgeon related to staff, office space, and operations, to assure the surgeon a return to the same work environment as before their leave, as financial concerns are known to affect surgeon-parents [15].

Surgeon and Trainee Recommendations:

1. *Locum tenens coverage for surgeons should be considered with collaborative discussion with partners and colleagues.*
2. *Hospital and clinic administration should collaborate with surgeons to obtain and credential locum tenens positions.*
3. *Hospital By-laws should clearly state that completing parental leave and hiring a locum should not threaten a surgeon's training position, hospital privileges, or academic career.*
4. *If the surgeon cannot find a locum tenens to cover their practice and call duties, they should not be required to take extra call before or after their leave to compensate for the increased workload on their colleagues.*

Postpartum Depression

The effects of postpartum depression impact not only the mother but also the child and those members of her social community. Untreated postpartum depression can lead to suicide or long-term depression [19]. A lack of workplace support for surgeons' obstetric or neonatal-related health concerns contributes to postpartum depression [20]. For professionals with high-stress jobs, such as surgeons, the ability to have control of their scheduling, as well as having support from peers, is protective [21]. Perceived as well as actual stigma or repercussions stemming from the request for work accommodations during or after pregnancy, the concerns of burdening colleagues, and the financial burden associated with time off have been listed as possible reasons for expectant mothers not to make work requests [20]. Surgeons and trainees experiencing pregnancy or postpartum health-related challenges must be supported by colleagues and hospitals using a multifactorial approach. A cohesive work culture, institutional policies, planned work reduction strategies, and financial compensation for both the pregnant surgeon and their colleagues facilitate this increased burden to the group while supporting all members. Reduction of postpartum depression will result in not only the protection of surgeons but will likely also allow for the protection of their families.

Surgeon and Trainee Recommendations:

1. *An open dialogue should be encouraged regarding the mental health repercussions of pregnancy and parenthood.*
2. *Recognition and treatment for post-partum depression should be supported and encouraged.*
3. *Accommodations should be supported for new parents with post-partum depression while returning to work.*

Pregnancy loss/Stillbirth

The loss of a pregnancy is a life-changing medical event. Colleagues and residents who embark on pregnancy deserve support regardless of how the pregnancy ends. Appropriate leave, access to mental health support and time to recover are basic needs to facilitate a healthy recovery from pregnancy. Equal rights and protections should be provided to all parents, including after pregnancy loss, stillbirth and live birth.

Surgeon and Trainee Recommendations:

1. *Surgeons and trainees who have a pregnancy loss or stillbirth should be afforded physical and mental support to recover from their loss.*
2. *Surgeons and trainees whose partners have had a pregnancy loss or stillbirth should be afforded physical and mental support to recover from their loss.*

RETURN TO WORK

Call Coverage

Surgeon and Trainee Recommendations:

1. *Call coverage responsibilities do not accumulate, and no surgeon should be required to "make up" call after pregnancy or parenting leave.*

Breastfeeding

There are numerous proven health benefits to breastfeeding, both for the baby and the mother. These include a lower risk of asthma, type 1 diabetes, obesity, and SIDS in babies, along with a lower risk of breast and ovarian cancer, type 2 diabetes, and hypertension for the mother [22-24] Breastfeeding is supported and encouraged by the Association for Women Surgeons [25], yet lactation challenges still exist for surgeons and trainees who choose to breastfeed [26]. Additional challenges due to high physical demands and extended duty hours may be encountered by lactating orthopaedic surgeons [9]. Breastfeeding is recommended for up to 2 years of age and beyond [27]. Studies have shown that workplace accommodations for lactating individuals help maintain the breastfeeding relationship [28].

Surgeon and Trainee Recommendations:

1. *Surgeons and trainees should have flexibility in their schedules to express breastmilk ("pump") or breastfeed during their workday. The required frequency and length of pumping breaks will vary among individuals.*
2. *Surgeons and trainees should have access to a private and clean location for their lactating needs. A bathroom is not an acceptable location. A lactation room equipped with electrical outlets, a sink and a refrigerator for breastmilk storage is required. This room should be near the operating room and equipped with a phone and computer for the surgeon or trainee to work as needed. The provision of a hospital-grade breast pump would add extra convenience.*
3. *Surgeons and trainees should be allowed to use a wearable pump in the clinic and operating room if they choose to. However, the use of a wearable pump does not replace adequate pumping breaks.*
4. *A supportive work culture is crucial for allowing lactating surgeons and trainees to continue breastfeeding their child(ren) upon return to work.*
5. *Education regarding lactation and the needs of lactating physicians should be provided to all healthcare professionals.*

Re-entry and Additional Training Time

After an extended leave, surgeons may experience some decay in their procedural skills [29]. For residents, provincial agreements have established guidelines regarding extending training time based on maternity/parental leave. In certain circumstances, an individualized plan regarding training extension should be made in conjunction with the program director and the post-graduate medical education committee. For trainees, the amount of leave possible without requiring a residency or fellowship extension should take on an individualized approach with early discussion with the residency or fellowship director. Clinical fellows should be able to meet all their case/clinic numbers and all other fellowship requirements through individualized plans. For practicing surgeons, support for staged re-entry into practice, individualized for the specific needs of surgeons, should be provided.

Surgeon and Trainee Recommendations:

1. *If the surgeon requests it, all efforts should be made to provide the returning surgeon with surgical assistance from a peer as they transition back to surgical practice.*
2. *Residency completion should be based on competency-based guidelines. If the time off for pregnancy and parenting leave necessitates extra training to complete these, then it should be required. No extra training should be required if the leave does not interfere with the resident's ability to complete the competency-based guidelines.*
3. *Fellowship completion should follow an individualized plan based on fellowship objectives and case numbers.*
4. *Job sharing is an acceptable and encouraged way to facilitate return to work for parents who wish to work less than full-time to accommodate family life.*

Onsite Childcare and Resources to Find Childcare

All hospitals that can do so should have childcare onsite for all hospital workers [30]. Keeping parents working through regular, reliable childcare and emergency childcare when one gets ill allows for sustained hospital productivity. Reliable and easily accessible childcare would also function to improve career satisfaction and reduce a parent's stress and anxiety over scheduling [31].

Surgeon and Trainee Recommendations:

1. *All hospitals that can do so should have childcare onsite for all hospital workers.*

Resources

Surgeons should not be penalized for time taken as pregnancy or parenting leave. Support for family leave should consider the challenges of using surgical wait lists in isolation as the criterium for surgical time allocation.

Surgeon and Trainee Recommendations:

1. Surgeons returning to work after parental leave should be given the same resources they had before their leave, including clinic and operating room time.

SUMMARY OF RECOMMENDATIONS

Pregnancy is a physiologic condition requiring medical care and should be treated as such regarding leave during the antenatal, post-partum and return to work periods. Parental leave encompasses all parents of the child, including the birthing parent, partner to the birthing parent or parents by adoption or surrogacy. Despite good evidence supporting that parental leave improves outcomes for all members of the family unit, there remains a stigma around leave and various issues related to pregnancy, breastfeeding, and post-partum depression, particularly within the medical community. Education around these issues is a very effective way to combat such stigma and promote a much-needed culture change; education on these topics should be readily available and provided to all surgeons, hospital departments, and hospital staff.

Pregnancy and parenting leave policies should be consistent nationwide and readily available for all surgeons. The above guidelines represent the standard to maximize safety for the mother and child and family wellness for all surgeons. A medical note should not be required to implement the above accommodations. However, working beyond these guidelines should require clearance by the treating physician. The COA encourages employers and departments to work with the orthopaedic surgeon and/or trainee to support a safe pregnancy and parental leave. For those in the position to shape their own practice guidelines, the COA encourages the development of a clear pregnancy and parental leave policy for all orthopaedic practices.

GLOSSARY OF TERMS

A "**parent**" includes:

- A birthing parent.
- A parent through adoption.
- A parent through surrogacy, or
- A person who is in an established relationship with the child's parent and who plans on treating the child as their own.

Partner leave – Time off work for the partner of a person who has had a baby, adopted a baby, or had a baby by surrogate.

Parental leave – Time taken off to participate in the early life of a child, including one born to yourself, your partner, adopted or by surrogacy.

Adoption – Process whereby a person assumes the parenting of another from that person's biological or legal parent(s).

Surrogacy – A form of third-party reproductive practice in which intending parent(s) contract a surrogate mother to give birth to a child.

Pregnancy leave – Time taken off work due to being or having been pregnant. This can be due to the consequences of being or having been pregnant.

Birthing parent – The person who gave birth to a child.

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