



The Carousel Network

**Chronic Neuroimmune Disease  
Information and Support for Sonoma County**  
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Santa Rosa, CA 95409  
[www.cndsinfo.net](http://www.cndsinfo.net)

## CFS/FM/MCS Considerations in Surgery and Anesthesia

The following information was culled from various web resources and CFS/FM periodicals. An interactive version, with links to the sites and additional information, can be accessed online at Melissa Kaplan's [www.anapsid.org/cnd/drugs/](http://www.anapsid.org/cnd/drugs/) site.

*The Carousel Network (TCN) offers information on the various diseases and disorders associated with chronic neuroimmune diseases, such as chronic fatigue syndrome, fibromyalgia, multiple chemical sensitivity, autoimmune thyroid disease, etc. The information is intended to help patients and caregivers make informed decisions about the patient's health, diagnostic testing, and treatment in conjunction with their health care practitioners. TCN does not diagnose patients nor recommend specific medical or palliative treatments.*

***The Carousel Network is a 501(c)3 nonprofit supported by memberships and donations.***

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*M-5 Rev. 09/04*

# CFS/FM/MCS Considerations in Surgery and Anesthesia

## Compiled by Melissa Kaplan

### Surgery

Surgeons, anesthesiologists and support staff need to be aware of the following anomalies typically found in persons with CFS/FM/MCS:

- neurally mediated hypotension (NMH) / orthostatic hypotension (OI)
- low red blood cell count
- low blood plasma volume
- hyper coagulation (thick blood – a low sed rate [0-5] is often seen)
- alkalotic (urine pH < 6, venus blood ph > 7.4)
- drug and food sensitivities
- chemical sensitivities, including disinfectants, fragrances, plastics, vinyl
- poor absorption of nutrients in the gut
- leakage out of the gut of non-assimable particles
- abnormally low (up to 50% below normal) oxygen release from red blood cells
- 80+% chance of severe herxheimer effect from some antibiotics and antifungals
- many supplements act as blood thinners and anticoagulants or are otherwise contraindicated for use with many prescription drugs
- low NK levels, or abnormal numbers of immature NK cells, coupled with hyperactive Th2 immune activity

### Anesthesia

Persons with CFS/FM/MCS don't often respond to drugs, including anesthetics, the way healthy people do, or the way that people with other diseases and disorders do. This makes going in for surgery, whether inpatient or outpatient, doubly risky for PWCs.

The following letters and briefs are from physicians and surgeons who have worked with patients with CFS and FM.

#### **Open Letter from Charles Lapp, MD: Recommendations For Persons With Chronic Fatigue Syndrome (Or Fibromyalgia) Who Are Anticipating Surgery**

CFS is a disorder characterized by severe debilitating fatigue, recurrent flu-like symptoms, and neurocognitive symptoms such as difficulties with memory, concentration, comprehension, recall, calculation and expression. A sleep disorder is not uncommon. All of these symptoms are aggravated by even minimal physical exertion or emotional stress, and relapses may occur spontaneously. Although mild immunological abnormalities (T-cell activation, low natural killer cell function, dysglobulinemias, and autoantibodies) are common in CFS, subjects are not immunocompromised and are no more susceptible to opportunistic infections than the general population. The disorder is not thought to be infectious.

Persons with CFS frequently re-activate latent herpes group viruses, which may produce a mild, subclinical hepatitis with slight elevations of the transaminases. Thus, hepatotoxic anesthetic agents should be avoided because they could potentiate the liver problem or even provoke fulminant hepatitis. Intracellular magnesium and potassium depletion has been reported in CFS. For this reason, serum magnesium and potassium levels should be checked pre-operatively and these minerals replenished if borderline or low. Intracellular magnesium or potassium depletion could potentially lead to cardiac arrhythmias under anesthesia.

Up to 97% of persons with CFS demonstrate vasovagal syncope (neurally mediated

hypotension) on tilt table testing, and a majority of these can be shown to have low plasma volumes, low RBC mass, and venous pooling. Syncope may be precipitated by catecholamines (epinephrine), sympathomimetics (isoproterenol), and vasodilators (nitric oxide, nitroglycerin,  $\alpha$ -blockers, and hypotensive agents). Care should be taken to hydrate patients prior to surgery and to avoid drugs that stimulate neurogenic syncope or lower blood pressure.

Allergic reactions are seen more commonly in persons with CFS than the general population. For this reason, histamine-releasing anesthetic agents (such as pentothal) and muscle relaxants (curare, Tracrium, and Mevacurium) are best avoided if possible. Propofol, midazolam, and fentanyl are generally well-tolerated. Most CFS patients are also extremely sensitive to sedative medications -- including benzodiazepines, antihistamines, and psychotropics -- which should be used sparingly and in small doses until the patient's response can be assessed.

Finally, HPGA Axis Suppression is almost universally present in persons with CFS, but rarely suppresses cortisol production enough to be problematic. Seriously ill patients might be screened, however, with a 24 hour urine free cortisol level (spot or random specimens are usually normal) or Cortrosyn stimulation test, and provided cortisol supplementation if warranted.

#### Summary Recommendations

- Avoid hepatotoxic anesthetic agents
- Insure that serum magnesium and potassium levels are adequate
- Hydrate the patient prior to surgery
- Use catecholamines, sympathomimetics, vasodilators, and hypotensive agents with caution
- Avoid histamine-releasing anesthetic and muscle-relaxing agents if possible
- Use sedating drugs sparingly
- Consider cortisol supplementation in patients who are chronically on steroid medications or who are seriously ill.

Relapses are not uncommon following major operative procedures, and healing is said to be slow but there is no data to support this contention.

I hope that you have found these comments useful, and that they will serve to reduce the risk of surgical procedures.

Yours truly,

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704-543-9692  
<http://www.charlotte.infi.net/~cfids/>

The following two doctors' quotes appear frequently throughout the CFS/FM/MCS support group and website literature:

"I would recommend that potentially hepatotoxic anesthetic gases not be used including Halothane. Patients with Chronic Fatigue Syndrome are known to have reactivated herpes group viruses which can produce mild and usually subclinical hepatitis. Hepatotoxic anesthetic gases may then provoke fulminate hepatitis. Finally, patients with this syndrome are known to have intracellular magnesium and potassium depletion by electron beam x-ray spectroscopy techniques. For this reason I would recommend the patient be given Micro-K using 10mEq tablets, 1 table BID and magnesium sulfate 50% solution, 2cc IM 24 hours to surgery. The intracellular magnesium and potassium depletion can result in untoward cardiac arrhythmias during anesthesia. For local anesthetics, I would recommend using Lidocaine sparingly and without epinephrine."

Paul R. Cheney, MD, PhD, 1992  
P.O. Box 3218  
86 Keelson Row  
Bald Head Island, NC 28461  
910-457-7133  
910-457-7136

"Suggestions on anesthesia include using Diprivan (propofol) as the induction agent along with nitrous oxide and isoflurane (Forane) as the maintenance agent. The ones to avoid are histamine releasers that include sodium pentothol as well as a broad group of muscle relaxants in the Curare family, including Tracrium and Mevacurium."

Patrick. L. Class, MD, 1996  
Anesthesiology  
300 S. Arlington Avenue  
Reno 89501  
775-348-1900  
FAX: 775-348-1912

*Probably best known amongst PWCs/FMs for his identification of craniovertebral stenosis (creating a malformed or abnormally small opening of the spinal canal, known as the Chiari formation), Dr. Rosner discusses the importance of the patient's posture during the surgical procedure:*

For those patients with canal stenosis or hypoplastic posterior fossa, the most important component of anesthesia is a neutral neck position and avoidance of hypotension. The former may increase cord compression and the latter may decrease blood flow to the spinal cord. Together, the effect may be severe. This may also be part of the mechanism by which both surgery and trauma are linked in some individuals to the development of their FMS/CFS. I doubt that the specifics of different anesthetic regimes will matter too much beyond the above.

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From the abstract of *Profile of Patients with Chemical Injury and Sensitivity*, by Grace Ziem, PhD and James McTamney, PhD:

"...Agents whose exposures are associated with symptoms and suspected of causing onset of chemical sensitivity with chronic illness include gasoline, kerosene, natural gas, pesticides (especially chlordane and chlorpyrifos), solvents, new carpet and other renovation materials, adhesives/glues, fiberglass, carbonless copy paper, fabric softener, formaldehyde and glutaraldehyde, carpet shampoos (lauryl sulfate) and other cleaning agents, isocyanates, combustion products (poorly vented gas heaters, overheated batteries), and medications (dinitrochlorobenzene for warts, intranasally packed neosynephrine, prolonged antibiotics, and general anesthesia with petrochemicals). Multiple mechanisms of chemical injury that magnify response to exposures in chemically sensitive patients can include neurogenic inflammation (respiratory, gastrointestinal, genitourinary), kindling and time-dependent sensitization (neurologic), impaired porphyrin metabolism (multiple organs), and immune activation. "

Abstract published in *Environmental Health Perspectives*, 1997, volume 105 (Suppl 2), pages 417-436. Based on a paper presented at the Conference on Experimental Approaches to Chemical Sensitivity held 20-22 September 1995 in Princeton, New Jersey. Available online at <http://ehpnet1.niehs.nih.gov/docs/1997/Suppl-2/ziem.html>.

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The following information was found on a Danish site; the website owner could not attribute it, either, but the information appears germane based on the other information appearing on this subject.

#### ANAESTHESIA PROTOCOL CANNOT RECEIVE ANY HISTAMINE-RELEASING DRUGS

"I have used the following anaesthesia protocol with success during surgery on CFS patients. First, I perform skin tests for all the agents I am considering using with the patient. With CFS patients, I recommend Diprivan (propofol) as the induction agent; Versed (midazolam), fentanyl (a short-acting narcotic) and droperidol (an anti-nausea agent) during the anaesthetic; and a combination of nitrous oxide, oxygen and iso-flurane (commonly called Forane) as the maintenance agent."

"In contrast to the above agents, there is a group of commonly used anaesthetic agents which are known histamine-releasers and are probably best to be avoided by CFS patients. This group includes the thiobarbiturates such as sodium pentothal, which is probably the most common induction agent, but is a known histamine-releaser. In addition, there are a broad group of muscle relaxants in the Curare family, name Curare, Tracrium and Mevacurium, which are also potent histamine releasers and should be avoided by CFS patients. Since so many of these histamine-releasing agents are commonly used during emergency surgery, it would be advisable for you to wear a medical alert bracelet in the event you are unconscious and would have to have an anaesthetic. I would mention on the bracelet that you cannot receive any histamine-releasing drugs."

*This unattributed quote was found online at <http://www.cfs.inform.dk/Behandling/anestesi.txt>.*

### **Anaesthetic Considerations in the Patient with Rheumatoid Arthritis**

"Rheumatoid arthritis (RA) is a multisystem autoimmune disease with many anesthetic implications. Patients with RA may challenge the anesthesiologist at the time of tracheal intubation because cervical spine instability. In addition, temporomandibular joint (TMJ) or arytenoid joint immobility may limit safe access to the airway. The preoperative anesthetic assessment must focus on possible airway difficulties. Patients must be questioned and examined to elicit evidence of neck pain, limitation of cervical spine movement, nerve root impingement or spinal cord compression. Lateral C-spine flexion-extension X-rays are indicated in patients with cervical spine symptomatology to assess the possibility of cervical spine subluxation. The need for these X-rays in completely asymptomatic patients remains controversial; however, one should keep in mind case reports of neurological damage following direct laryngoscopy and intubation in asymptomatic patients. Patients with cervical spine instability should generally be intubated and positioned awake before surgery to avoid neurological injury. The TMJs must be examined to ensure that mouth opening and anterior subluxation of the mandible will permit direct laryngoscopy. Patients demonstrating stridor or hoarseness require awake direct or indirect laryngoscopy to assess the possibility of arytenoid involvement and determine the size of the glottic opening. Finally, the larynx may be displaced from its usual location by erosion and generalized collapse of the cervical vertebrae."

From *Medical Conditions with Airway Implications*  
D. John Doyle, PhD, MD  
[www.gasnet.org](http://www.gasnet.org)

## **Topical Anesthetics**

For those allergic to lidocaine (or any of the 'caines), beware of this neat little gadget:

### **Lidocaine Iontophoresis Reduces Pain Of Needle Sticks For Kids**

A study published in *The Journal of Pediatrics* shows that lidocaine iontophoresis reduces the pain children feel from needle sticks. Iontophoresis is a needle-free method of delivering certain types of medication directly into and through the skin using a mild, low-level electric current. Study results concluded patients receiving lidocaine iontophoresis were noted to have a three-fold reduction in pain compared with placebo prior to IV catheter placement.

The pediatric application of iontophoresis, marketed as Numby Stuff(R), is a needle-free method of delivering lidocaine(R), lomed's brand of anesthetic medication, directly into the skin using a mild, low-level electric current from a small, battery-powered dose controller. In as little as 10 minutes, the skin and underlying tissue becomes completely numb up to a depth of 10 millimetres, allowing the physician or nurse to proceed with local dermal procedures.

Numby Stuff is currently being used in hospitals nation-wide for the delivery of anesthesia prior to IV starts, drawing blood, performing a minor surgical procedure such as a skin biopsy, port access, performing a lumbar puncture and any other procedure over intact skin where the skin needs to be numbed.

*Excerpted from Doctor's Guide at <http://www.pslgroup.com/dg/94a1e.htm>*

## **CFIDS AND ANESTHESIA: WHAT ARE THE RISKS?**

**Elisabeth A. Crean**

Reprinted from *The CFIDS Chronicle*, Vol. 13, Winter 2000, pp 11-13.

Anecdotes have piled up over the years about the especially difficult time persons with CFIDS (PWCs) have recovering from anesthesia. PWCs are hypersensitive to many medications, including anesthetics, often tolerating just a fraction of the standard dosage levels. The reactions some patients experience may be a sign that their immune and endocrine systems don't respond normally to pharmaceutical challenges and stimuli. Unfortunately, no rigorous scientific studies have been published on any of these issues. Meanwhile, every day PWCs are facing the imminent possibility of surgery, and need to educate their doctors now.

### **What the doctors say**

When a question about anesthesia and PWCs was posted on the Internet, most responses quoted two doctors, Dr. Patrick L. Class, of Nevada, and Dr. Paul R. Cheney, of North Carolina. Here is what Dr. Class recommends for CFIDS patients who must undergo surgery: "I prepare long before the surgery takes place by performing skin tests for all the agents I am considering using, to see if the patient is allergic to any of them. With CFIDS patients, I recommend Diprivan as the induction agent; Versed, fentanyl (a short-acting narcotic) and droperidol (an anti-nausea agent) during anesthesia; and a combination of nitrous oxide, oxygen and Forane as the maintenance agent."

In contrast, Dr. Class notes, "There is a commonly used group of anesthetics, known as histamine-releasers, which are probably best avoided by CFIDS patients." This group includes the thiobarbituates, such as sodium pentathol, probably the most common induction agent and a known histamine-releaser. "In addition, there is a broad group of muscle relaxants in the Curare family, namely Curare, Tracrium, and Mevacurium, which are also potent histamine-releasers and should be avoided by CFIDS patients." Because many histamine-releasing agents are commonly used during emergency surgery, Dr. Class advises PWCs: "Wear a medical alert bracelet in the event you are unconscious. I would mention on the bracelet that you cannot receive any histamine-releasing drugs." Other options for communicating this information include carrying instructions in your wallet, educating your family and insisting that it be included in your medical chart.

CFIDS can be an indication that certain organs, like the liver, may already be overtaxed, and processes like cell metabolism disturbed. An anesthesia plan must take this into account. Dr. Cheney advises against using anesthetic gases like Halothane that can potentially be toxic to the liver. "Patients with CFIDS are known to have reactivated herpes group viruses, which can produce mild and usually subclinical hepatitis. Hepatotoxic anesthetic gases may provoke fulminate (sudden, severe onset) of hepatitis."

Dr. Cheney also notes that electron beam x-ray spectroscopy techniques have shown that PWCs do not have enough magnesium and potassium in their cells, which can be problematic. The magnesium and potassium depletion can result in cardiac arrhythmias during anesthesia. "For this reason, I would recommend the patient be given Micro-K using IOMeq tablets, 1 tablet BID and magnesium sulfate 50% solution, 2cc IM 24 hours to surgery."

As technological advances like laparoscopy make surgery less invasive, surgeons can perform more procedures where they combine a local anesthetic with a sedative instead of using general anesthesia. But even local anesthetics used outside of surgery should be approached with caution when being administered to PWCs. "Lidocaine should be used sparingly and without epinephrine," Dr. Cheney says.

In an article for the February CFIDS Support Network update, Dr. Charles Lapp of North Carolina also emphasizes checking serum magnesium and potassium before surgery and replenishing these minerals if the levels are borderline or low.

Seriously ill patients, or those frequently on steroid therapy, might need pre-operative cortisol testing and supplementation as well. According to Dr. Lapp, doctors may also have to modify pre- and post-operative sedation. "Most CFIDS patients are also extremely sensitive to sedative medications, including benzodiazepines, antihistamines and psychotropics-which should be used sparingly and in small doses until the patient's response can be assessed."

The consequences of neurally mediated hypotension (NMH)-frequently seen in CFIDS patients concern Lapp as well. These include low plasma volume, low red blood cell mass, venous pooling and vasovagal syncope (fainting). "Syncope may be precipitated by catecholamines (epinephrine),

sympathomimetics (isoproterenol) and vasodilators (nitric oxide, nitroglycerin, beta-blockers and hypotensive agents)," Dr. Lapp says. "Care should be taken to hydrate patients prior to surgery and to avoid drugs that stimulate neurogenic syncope or lower blood pressure." The need for extra hydration might mean checking into the hospital the day before surgery-as was customary in pre-managed care times-instead of just a few hours before.

Almost everyone feels weak and tired after an operation. But people with CFIDS should prepare to experience increased fatigue and problems with memory and concentration for a much longer period than normal, says Dr. Charles Shepherd of Gloucestershire, England, in his book *Living with ME*. He speculates that reduced blood flow to the brain during surgery and the immediate post-operative recovery period may partially explain this. Other possible culprits may be specific anes-thesias, particularly those used to correct a low heart rate or reverse muscle paralysis, which can further disturb brain chemistry already altered by CFIDS.

Dr. Shepherd suggests referring surgeons and anesthesiologists to a research paper about acetylcholine levels in PWCs (such as Chadhuri, A., et al, Chronic fatigue syndrome: a disorder of central cholinergic transmission, *Journal of Chronic Fatigue Syndrome*, 1997; 3: 3-16). This may be a good way to alert them to possible complications with your recovery.

### **How you can prepare**

These steps should help you get ready in the event that you need anesthesia. Remember that the following applies to dental procedures requiring anesthesia as well, so don't forget to inform your dentist or oral surgeon.

1. Avoid unnecessary surgery, since the risks of anesthesia for PWCs are still not well defined.
2. Ask that the specific information about the use of anesthesia in PWCs mentioned in the "What the doctors say," section of this article be placed in your medical chart in case you need emergency surgery.
3. Always seek a second opinion-and a third or fourth, if necessary-when a doctor recommends you have surgery. This applies even in emergency situations. Let your family know your wishes.
4. If non-surgical treatment options exist, explore them first. For instance, there are new, non-surgical techniques to remove kidney and gallstones.
5. If you have to have surgery, choose the least invasive surgical technique. There are new "keyhole" procedures available that involve less anesthesia, less trauma to the body and a quicker recovery time. This may mean traveling to a big city hospital where the higher tech equipment is more prevalent and surgeons have more experience using it. Be careful to investigate all options carefully first, so you can avoid being a guinea pig for an inexperienced doctor trying equipment for the first time.
6. Insist on meeting with the anesthesiologist and surgeon as far ahead of the surgery as possible, so you can discuss CFIDS-specific issues and he can have time to do additional research on what will work best for you. Ask him or her to explain exactly what will happen during the procedure.
7. Make sure your surgeon and anesthesiologist know the dosage and frequency of every medication you are taking, including herbs, supplements and vitamins. Don't forget to mention any drugs you have recently stopped taking, as some substances take weeks to clear from your system. There may be contraindications to or interactions with the medicines they plan to use.
8. Make sure your doctors know all allergies and hypersensitivities you have to medications, foods and chemicals. A latex allergy is an obvious example, but did you know that a shellfish allergy might mean you will react badly to certain x-ray dyes? No allergy information is too insignificant to mention.
9. Ask if you can leave information on CFIDS for the nurses who will be caring for you after the surgery. They may not read it, but it is worth the attempt to educate them about possible complications.

10. After the surgery, try not to overdo and give your body appropriate time to heal. Keep in mind that your healing may be slower than is normal, and make sure your health care providers and caregivers are aware and prepared for that possibility beforehand, so that a longer hospital stay or special care can be arranged.

## **Tips for Anesthetics and Hospitalization for People with Multiple Chemical Sensitivities**

**Susan Beck**

The purpose of this article is to help people with Multiple Chemical Sensitivities/Environmental Sensitivities (MCS/ES) prepare for surgery. The content has been derived from research and personal experience. Even though this information is based on knowledge I have acquired from various physicians, pharmacists etc., I am not an MD and this article is not meant to substitute for the advice of a medical professional.

The following suggestions may be helpful for Surgeries and Hospitalization if you have sensitivities. The first and most important point is to avoid a gas anesthetic. The reason for this is that anesthetic gasses are neurotoxic and can cause serious problems especially for people with sensitivities. An alternative to Gas is a continuous IV infusion of a short acting anesthetic by injection or a continuous flow pump. This can be done with Diprivan or Sodium Phenothal usually induced with Fentanyl (narcotic). These drugs are used at the Environmental Health Center (EHC) in Dallas and I have used Diprivan and Fentanyl in Canada with this type of pump for the Diprivan myself. (This is not to be confused with a PCA pump discussed below.)

There is a very short web article by Paul R Cheney, M.D., Ph.D., 1992 which mentions gasses and Diprivan as well as has some additional information about intracellular magnesium and potassium depletion in patients with compromised livers. He offers some solutions for this problem at his site. [Note: the old cfsfoundation.org site no longer belongs to Dr. Cheney, but his article is in several places, including <http://www.cfs.inform.dk/Behandling/anesthesia.html>.]

He does advise Diprivan *with* nitrous oxide, which of all the gasses is considered the safest, but which should be avoided by those with MCS. Diprivan can be used alone as discussed above. This could theoretically be done either way. His specialty, however, is CFS not MCS and doctors specializing in MCS advise the avoidance of *all* gasses. In addition to the above you may need a small amount of Diazamuls, a preservative-free Valium emulsion, for long surgeries where the possibility of "awareness" is a concern. This can be explained by your anesthesiologist and avoided if necessary. This drug can also be used pre and post-operatively for sedation, and for cramping in certain types of procedures (valium in combination with narcotics discussed later).

Testing should be done for these anesthetics if possible and any other drugs that may be required. If you are extremely drug sensitive you could consider having your doctor contact Dr. Rea at the EHC for advice on your particular case. He was a cardiovascular surgeon and became disabled by operating room gasses like Halothane (214-373-5100).

Avoid using the rubber mask for oxygen as it is reused and has absorbed disinfectants. Using a disposable plastic one instead is the lesser of two evils as a ceramic mask will not fit the O.R. equipment or be allowed. A consult with your surgeon and your anesthesiologist is very important to insure you are well informed about the procedure and therefore able to find solutions for all your concerns and get confirmation that he/she will make every attempt to follow your agreed upon plan.

Then test drugs to be used, if possible, unless previously used, and make sure they do not contain preservatives or alcohol. Watch for inappropriate combinations of medications. This can be an individual sensitivity or a known phenomenon. For example, in my experience, mixing large doses of benzodiazepines and narcotics can cause post operative nausea while the use of either one alone or low doses with the anesthetic were tolerated.

Aspirin should not be used for several days prior to surgery and your doctor should be consulted about this or any other blood thinners you may be taking because the risk of excessive bleeding exists. Ask for the special warming apparatus which is put around your shoulders during a long surgery to keep your body temperature at a safe level. Borderline hypothermia is common for people with sensitivities and death due to hypothermia has been reported in routine surgical procedures. Hyperthermia is also a possible surgical risk reported in some patients with CFS, a fact that you should make your doctor aware of.

If you are sensitive to Betadine (Providone Iodine) or topical alcohol bring your own bottle of Benzalkonium Chloride if tolerated. A preparation of 1:750 liquid can be purchased or compounded by a pharmacy. This product is also known as Zehran. Latex allergies can be dealt with by using sterile non-latex gloves.

Notify staff that you need oxygen at 5 liters pre and post-operatively and that you should not be exposed to perfume or scents at any time before, during, or after your surgery.

Various pain medications and ways of administering them exist. Alcohol is present in most injectable Morphine but can be avoided by using epidural morphine (which cannot contain preservatives) in a PCA (Personal Control Application) pump. In Canada, single dose vials of hydromorphone (Dilaudid), or Fentanyl do not contain preservatives or alcohol. Hydromorphone and Fentanyl are high potency synthetic morphine like drugs which simply need titration (reduced dosage) and I personally find them as tolerable or better than morphine when used in injectable form. They are not like Demerol which has toxic metabolites and should be avoided for any prolonged use. By mouth Morphine is definitely kinder to the stomach than any of the other alternatives I know of. If drugs you have no knowledge of or experience with are necessary, like paralyzing agents for example, make sure you investigate and test them and consult Dr. Rea at the Environmental Health Center if necessary. Anything else you can think of that is a problem for you at home make sure you are not exposed to it in the hospital.

Request a private room, cleaned with baking soda and water, scent-free nurses, and remove any furniture, drapery and anything that may be offgassing chemicals. Cover the soap dispenser (if scented) and use your own products if necessary. Anything you cannot remove may be covered with mylar (survival blanket) to keep the odor contained. The mattress is a good example of something that should be covered with mylar and I always do this by taping the mylar sheets together and to the underside of the bed. Hospital mattresses are usually plastic and tend to absorb cleaning products and be moldy. Mylar will stain sheets black but this washes out easily. I also bring my own bedding and pillow.

In transport to and from the O.R. and other places in the hospital, request that O<sub>2</sub> be available to you using your own tubing. Use the O<sub>2</sub> from the wall while you are waiting for surgery and ask that you be hooked up to the wall in recovery so that the tank for transport does not empty.

It is important to follow most of these guidelines for oral surgeries. These are suggestions from my own experience. You must consider your own sensitivities and ask questions to make sure you are aware of and have evaluated everything being administered and have taken all possible precautions to avoid exposures.

The most current version of the information in this article can be found online in the Drugs, Herbs & Supplements section of Melissa Kaplan's CND site, [www.anapsid.org/cnd/drugs/](http://www.anapsid.org/cnd/drugs/)