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8 Attorneys for Defendant

9 **BEFORE THE WORKERS' COMPENSATION APPEALS BOARD**

10 **OF THE STATE OF CALIFORNIA**

11 Tiffany Anderson,

12 Applicant,

13 vs.

14 San Joaquin County MVCD; AIMS Insurance
(Sacramento),

15 Defendant.

) WCAB No.: 1) ADJ7004221; 2) ADJ7004227;
) 3) ADJ7010682; 4) ADJ7976768;
) 5) ADJ9066508

) **PETITION TO LIFT STAY AND
REINSTATE MSC**

16
17 COMES NOW, defendant, San Joaquin County Mosquito and Vector Control District,
18 adjusted by EAMS, by and through attorneys of record, Stockwell, Harris, Woolverton &
19 Muehl, and petitions the WCAB for an Order lifting the stay of proceedings and reinstating the
20 MSC. In support of this Petition, defendant offers the following: Defendant is aware that the
21 applicant's mother recently passed away, and the applicant requested a stay, or a break from
22 the proceedings. However, on 2/1/15, the applicant sent an e-mail to the defense attorney, as
23 well as to the grand jury at San Joaquin Courts, and another contact at the courts. The e-mail
24 detailed her allegations of formaldehyde exposure and her need for medical treatment. First
25 and foremost, clearly, the applicant has the time and energy to be participating in proceedings
26 at the current time. It does not appear that a stay is necessary. It is unfair that the applicant
27 may send harassing e-mails while taking a break from proceedings.

28 ///

1 Further, an MSC was previously scheduled in this matter in order to set for trial the
2 issue of an alleged conflict of interest by the selected internal PQME. Applicant continues to
3 reiterate her request for medical treatment for a denied condition. Yet, she is causing undue
4 delay of the proceedings. The only way that she will be able to obtain treatment for the denied
5 condition is by proceeding with the PQME Exam. The only way that this will move forward is
6 if we are able to proceed to trial on the aforementioned issue.

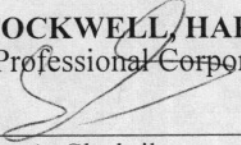
7 Defendant is unclear why the MSC is now scheduled for a Status Conference. While
8 defendant can accept that the date has been moved to 4/21/15, defendant respectfully requests
9 that this conference be re-set as an MSC, which was previously on calendar at the applicant's
10 own request. This matter needs to be set for trial on the issue of the internal PQME so that the
11 case can move forward and the applicant can have her shot at treatment for this denied
12 condition.

13 Based upon the foregoing, defendant respectfully requests that the Status Conference
14 set for 4/21/15 be converted to an MSC on the issue of the alleged conflict of interest of the
15 internal PQME. Defendant further requests that the Order staying proceedings be lifted in light
16 of the applicant's continued participation in the proceedings, despite the Order.

17 I declare under Penalty of Perjury that the foregoing information is true and correct the
18 best of my knowledge.

19
20 Dated: February 10, 2015 Respectfully submitted,

21 **STOCKWELL, HARRIS, WOOLVERTON & MUEHL**
22 A Professional Corporation

23 
24 _____
25 Sara A. Skolnik
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VERIFICATION

STATE OF CALIFORNIA, COUNTY OF SACRAMENTO

I have read the foregoing **PETITION TO LIFT STAY AND REINSTATE MSC** and know its contents.

I am one of the attorneys for a party to this action. I am informed and believe and on that ground allege that the matters stated in the foregoing document are true.

Executed on February 10, 2015 at Sacramento, California.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.



SARA A. SKOLNIK

Michelle Anderson

From: Sara Skolnik
Sent: Friday, February 06, 2015 8:17 AM
To: Michelle Anderson
Subject: FW: I want to be heard
Attachments: formaldehyde.pdf; ATSDR - Medical Management Guidelines (MMGs) Formaldehyde.pdf; 20110318 mom, me and grandma.pdf; 20150128 AIMS denial for medical treatment .pdf

This is attachment for a petition I'm doing.

-----Original Message-----

From: Tiffany Anderson [<mailto:tiffanyanderson@icloud.com>]
Sent: Sunday, February 01, 2015 7:55 AM
To: Trisa Martinez; Grand Jury
Cc: Sara Skolnik
Subject: I want to be heard

I have been without medical care since 2011. I was forced out of my job with bodily injury in the middle of a Grand Jury investigation where I should have been protected. I have test results that were taken in 2005 by my employers medical provider Dameron Occupational Health after I was treated for my third exposure. I have been requesting missing medical records since the DA's office informed me for the first time my employer was using Formalin in our work place (2011). My full medical records have been tampered with and will not be released to me. I do have one alarming document that reads abnormally high levels for auto immune and leukemia. I am requesting to meet with Tori Salazar. I deserve the respect of someone to look me in my eyes and honestly tell me no crimes were committed and if so help my employer come up with a reasonable resolution so I can move on with my life and have the medical attention they are fully responsible to provide. The last request I made to meet with Willet fell on deaf ears. I have been too sick to deal with fighting for my rights. With the loss of my mother last month it has ignited an anger within me for justice they took my health from me so I could not be what she needed and I have two kids that deserve to have a mother. The district has denied all medical care yet they sit on over 2000 of my personal medical records they subpoenaed that align with over exposure to formaldehyde. Those are visits I paid for with my money. Those are days off I paid for with my sick leave and vacation. And those are visits I was reprimanded for on evaluations and mocked for when I returned to work. My boss Duane was 59 years old. His wife Vicki committed suicide this year. They are responsible. Why are they getting raises?

Eddie Luchessi, Mike Manna, Chris Eley, Bob Durham & John Vignolo should all be placed on leave without pay and a real criminal internal investigation needs to be done. It is against the law Federal to use Formalin in the fashion it was used and it is against the law to expose your workers with out knowledge or consent. And when they die and get sick that is a crime.

I truly wish you could see life through my eyes. This has been the most painful past years since the beginning of the Grand Jury investigation into the district.

Teresa Hand this over to the Grand Jury and schedule me an appointment with Tori. All of my findings were accurate in my Grand Jury Complaint and I am the only one who has been punished.

Tiffany Anderson

This email has been scanned by the Symantec Email Security.cloud service.
For more information please visit <http://www.symanteccloud.com>

Formaldehyde

Overexposure to formaldehyde irritates the eyes, nose, throat, and skin. Formaldehyde can cause allergic reactions of the skin (dermatitis) and the lungs (asthma). Formaldehyde is a known cause of cancer in humans.

How to find out if you are working with formaldehyde

Your employer must tell you if you are working with formaldehyde, and must train you to use it safely, under California's Formaldehyde Standard and the Hazard Communication Standard (see page 8). If you think you may be exposed to formaldehyde on the job, ask to see the Material Safety Data Sheets (MSDSs) for the products you are using. The MSDS must identify formaldehyde in Section 2, by the Chemical Abstract Service (CAS) number 50-00-0.

Formaldehyde is commonly used as formalin, a mixture of 30-50% formaldehyde and 10-20% methyl alcohol in water. Formalin readily gives off irritating vapors with a strong odor.

Some synonyms and trade names of formaldehyde products

formalin	BFV
methaldehyde	Fannoform
methanal	Formalith
methyl aldehyde	Formol
methylene glycol	Fyde
methylene oxide	Ivalon
oxomethane	Karsan
oxymethylene	Lysoform
paraform	Morbicid
paraformaldehyde	

How formaldehyde is used and where it's found

Formaldehyde is used as a...

- disinfectant and sterilant,*
- fumigant,
- preservative, and in...
- embalming fluid,
- some keratin-based hair smoothing treatments.

* (other aldehydes used include glutaraldehyde and ortho-phthalaldehyde)

FACT SHEET



HESIS

HAZARD EVALUATION SYSTEM & INFORMATION SERVICE
California Department of Public Health
Occupational Health Branch
850 Marina Bay Parkway, Building P, 3rd Floor, Richmond, CA 94804
510-620-5757 • www.cdph.ca.gov/programs/ohb

It is used in making...

- chemical resins • wrinkle-proof fabrics
- rubber products • latex paints • dyes
- plastics • paper products, and • cosmetics.

It is found in...

- insulation materials • plywood • particle board
- adhesives • glues • paint primers, and
- fingernail products.

Any of these materials may give off formaldehyde vapors.

Formaldehyde is also present in combustion products, such as vehicle exhaust and tobacco smoke.

Some workers who may have substantial exposure to formaldehyde

chemical and rubber workers
embalmers
laboratory workers
health care workers
clothing and textile workers
furniture or wood product makers
foundry workers
insulation workers

How formaldehyde affects your body

Formaldehyde can affect you when you breathe its vapors or touch the liquid. Because formaldehyde reacts quickly with body tissues, it mainly affects the place of direct contact, such as the eyes, nose, and skin. The most common effect of overexposure is irritation of the eyes, nose, and throat.

Eyes, Nose, and Throat. The eyes, nose, and throat are irritated by formaldehyde vapors at levels as low as about 0.3 part formaldehyde per million parts of air (0.3 part per million, or 0.3 “ppm” — see “Legal Exposure Limits”). This exposure can cause red, teary, burning eyes, sneezing and coughing, and sore throat. Some people have irritant symptoms at these very low exposure levels, while others can tolerate levels as high as a few ppm with little or no reaction.

Liquid formaldehyde solutions contacting the eyes can damage the cornea, possibly causing blindness.

Lungs. High levels (5–30 ppm and higher) can severely irritate the lungs, causing chest pain and shortness of breath.

Repeated exposure to formaldehyde can cause allergic asthma. Symptoms of asthma include chest tightness, shortness of breath, wheezing, and coughing. Formaldehyde’s long-term effects on the lungs are not fully understood.

Skin. Formaldehyde solutions can destroy your skin’s natural protective oils, causing dryness, flaking, cracking, and dermatitis (skin rash). Skin contact can also cause an allergic reaction (redness, itching, hives, and blisters). As many as one in twenty workers who are regularly exposed to formaldehyde develop an allergic skin reaction.

Cancer. Formaldehyde exposure can cause cancer of the nose and sinuses in humans, as well as some types of leukemia and lymphoma. Formaldehyde is regulated as a carcinogen by Cal/OSHA and Cal/EPA.

Reproductive System. Formaldehyde’s effect on pregnancy and the reproductive system has been studied in both humans and in laboratory animals. Formaldehyde has been shown to decrease fertility and increase the risk of spontaneous abortion (miscarriage) in humans. In laboratory animals, formaldehyde can harm the developing fetus and damage sperm. In order to avoid risk to pregnancy and the reproductive system, HESIS recommends minimizing workplace exposures to formaldehyde prior to and during pregnancy.

Legal exposure limits

Permissible Exposure Limits. The Occupational Safety and Health Standards Board sets Permissible Exposure Limits (PELs) for the amounts of chemicals in workplace air. PELs are intended to protect the health of most workers who are exposed every day over a working lifetime.

The **PEL** for formaldehyde is 0.75 part of formaldehyde per million parts of air (0.75 part per million, or **0.75 ppm**). Legally, your exposure may be above the PEL at times, but only if it is below the PEL at other times, so that your average exposure for any 8-hour workshift is no more than 0.75 ppm.

The **Short-Term Exposure Limit (STEL)** for formaldehyde is **2 ppm**. Your average exposure during any 15-minute period must not exceed 2 ppm. Exposure at or above the STEL triggers special requirements.

The **Action Level** for formaldehyde is **0.5 ppm** averaged over an 8-hour period. Air monitoring, medical surveillance, and other special requirements are triggered at or above this level.

Cal/OSHA's formaldehyde standard, California Code of Regulations, Title 8, Section 5217, contains many other specific requirements (see information on page 8).

Monitoring your exposure

To reduce your risk of developing health problems from exposure to formaldehyde, your employer must...

- Identify employees who may be exposed at or above the action level or STEL.
- Test the air to accurately determine how much formaldehyde each identified employee is breathing.
- Test the air periodically if the first tests show that exposures are at or above the action level or STEL.

- Re-test the air for formaldehyde each time there is a change that may result in new or additional exposure.
- Determine exposures promptly, if employees are having formaldehyde-related respiratory or skin symptoms.
- Allow employees or their designated representatives to observe any required exposure monitoring.
- Notify employees in writing within 15 days after receiving the exposure monitoring results.

See the formaldehyde standard (information on page 8) for additional exposure monitoring requirements.

Tests for exposure and medical effects

Blood or urine tests. Formaldehyde does not stay in your body. No medical or laboratory test can accurately measure the amount of formaldehyde to which you have previously been exposed. There is no medical reason to do blood or urine tests for formaldehyde.

Medical Surveillance. If you are exposed to formaldehyde at or above the action level or above the STEL, your employer must have a *medical surveillance program* to monitor effects on your health.

Your employer also must...

- Provide the *medical surveillance program* if you develop signs and symptoms of overexposure to formaldehyde, or if you are exposed to formaldehyde during an emergency.
- Provide a *medical disease questionnaire* before assignment to jobs where exposures are at or above the action level or above the STEL, and promptly when you experience signs and symptoms that indicate overexposure to formaldehyde.

➤ Ensure a *medical examination*

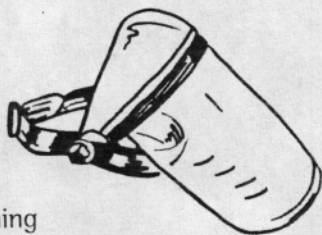
- if evaluation of the questionnaire indicates that you may be at increased risk for health effects;
- at the time you first start using a respirator (if you are required to wear one) and then once a year;
- as soon as possible if you are exposed to formaldehyde in an emergency.

- Provide the medical exam at a reasonable time and place, at no cost to you, and without loss of pay.
- Have a *licensed physician* or someone under the physician's supervision perform all medical procedures, including administration of the medical disease questionnaire.
- Provide specific information about your job, and a copy of the formaldehyde standard and the appendices, to the health care provider.
- Provide you with a copy of the *physician's written opinion* within 15 days after receiving it.

Medical Removal. If you experience significant *irritation of the eyes, throat, or lungs, or asthma-like symptoms* such as chest tightness, shortness of breath, coughing, or wheezing, a physician must determine whether you need to be removed from exposure to formaldehyde. A physician must also evaluate *skin irritation or skin allergies* caused by products that contain at least 0.1% formaldehyde.

See the Cal/OSHA formaldehyde regulation for other specific medical removal requirements including job transfer or job training with retention of current

earnings, seniority and other benefits, and provisions for multiple physician review of evaluation results.



Reducing exposure

By law, employers must provide a safe and healthy workplace. Here are some ways employers and workers can work together to reduce exposures to formaldehyde. See the formaldehyde regulation for specific Cal/OSHA requirements (information on page 8).

Use safer substitutes whenever possible

- *Hydrogen peroxide-based solutions* often can be used as disinfectants.
- *Ethyl alcohol, polyethylene glycol, or phenoxyethanol* can be used as fixatives or preservatives.

Ventilate the work area

- Install *professionally designed ventilation systems* to maintain formaldehyde exposures below legal exposure limits.
- Conduct *regular maintenance on ventilation systems* and ensure that they are functioning properly.
- Do not allow ventilation systems to recirculate formaldehyde vapors.



Use personal protective equipment

- *Protective clothing and equipment* must be provided at no cost to prevent skin and eye contact with liquids containing 1% or more formaldehyde. Employers must ensure that employees use it.
- *Change rooms* as specified in Title 8, Section 3367 must be provided for employees who are required to change from work clothes to protective clothing.
- *Gloves made of nitrile, neoprene, butyl rubber or polyethylene laminate* protect against incidental hand or skin contact with formaldehyde. Gloves made of latex may not provide adequate protection and can cause allergic reactions.

- *Chemical resistant aprons* protect against splashes to the body.
- *Chemical safety goggles* protect eyes from splashes.
- *Face shields with chemical safety goggles* protect the entire face from splashes.
- *Respirators* should be used as specified in the formaldehyde regulation, *only if ventilation and other control methods are not effective or feasible*. Employers also must comply with the Cal/OSHA Respiratory Protection Standard (Title 8, Section 5144).

Inform and train workers

- Explain and discuss the *formaldehyde regulation* and *MSDSs*.
- Educate employees about formaldehyde *health hazards* and *symptoms of overexposure*. Emphasize the importance of reporting symptoms early.
- Instruct employees on the use of *safe work procedures*.
- Demonstrate the proper *use and maintenance* of fume hoods and other *local exhaust ventilation systems*.
- Explain the *purpose and limitations of personal protective clothing and equipment* and demonstrate how to use them properly.
- Instruct employees on how to respond to *spills and emergencies*, and on *safe clean-up procedures*.
- Conduct drills on *emergency procedures* that include each employee's specific duties.
- Ensure that *employees understand the information and training*.

Establish and use safe work procedures

- Identify *regulated areas* where formaldehyde concentrations exceed the PEL or the STEL. Post with signs required by the regulation, and limit access to persons trained on the hazards of formaldehyde.

- Provide eyewash facilities in areas where splashing may occur with solutions that contain 0.1% or more formaldehyde. Provide emergency showers in areas where solutions of 1% or more formaldehyde are used. Where both are required, locate them together within 10 seconds of the splash area (Title 8, Section 5162).
- Use *laboratory fume hoods* when working with open containers of formaldehyde and specimens preserved in formaldehyde.
- *Label all containers* as specified in the formaldehyde regulation.
- *Cap storage containers* immediately when formaldehyde is not in use.
- Do not use formaldehyde on surfaces like carpets that can't be cleaned easily.

Minimize exposure from spills and contaminated material

- Perform *preventive maintenance on equipment* and *inspect frequently* to detect leaks and spills.
- Develop *procedures to contain spills, decontaminate work areas*, and dispose of waste in work areas where spills may occur.
- Use *formaldehyde neutralization pads* or sheets where small spills or drips may occur on work surfaces.
- *Repair all leaks* and *clean up spills* promptly. Ensure that employees are wearing suitable protective equipment and are trained.
- Use *formaldehyde neutralization products* that neutralize quickly and don't generate hazardous by-products.
- Promptly *remove contaminated material*, such as towels, clothing, and sponges from the work area.
- *Ventilate contaminated clothing and equipment* in properly labeled and established storage areas. Have only persons trained in formaldehyde hazards remove them.
- Place *contaminated waste* and debris for disposal in *sealed, labeled containers* that warn of formaldehyde hazards.

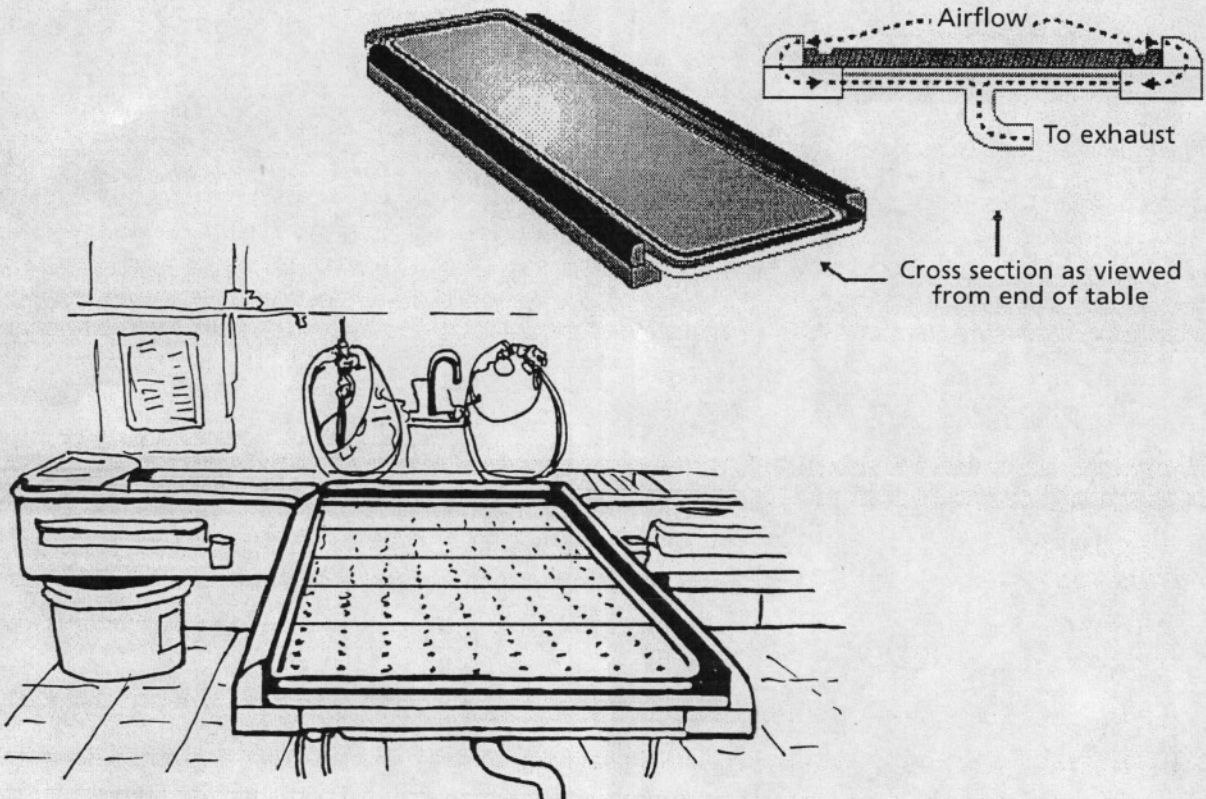
SPECIFIC WAYS TO REDUCE EXPOSURES FOR VARIOUS INDUSTRIES

FUNERAL

- Use *embalming fluid substitutes* that contain ethyl alcohol, polyethylene glycol, or phenoxyethanol. Be aware that embalming creams and drying and hardening powders may also contain formaldehyde.
- Use *embalming tables with local exhaust ventilation* that draws air down at the sides and carries it out of the room through ducts. These systems are sold for existing tables.
- Use *small quantities* for easy and safe handling.
- Use personal protective equipment such as gloves, chemical safety goggles, face shields, and aprons.

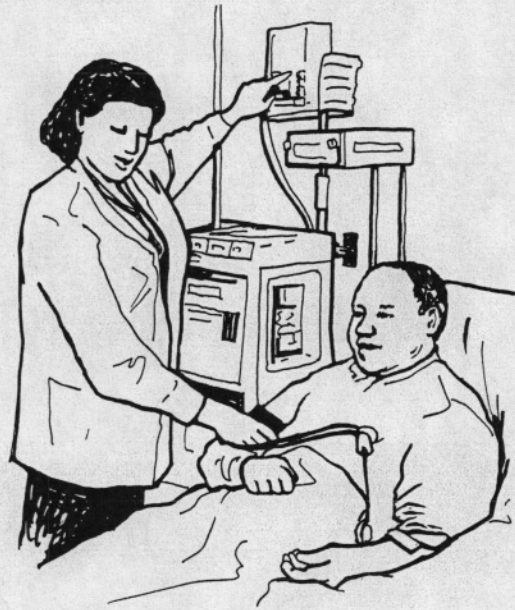
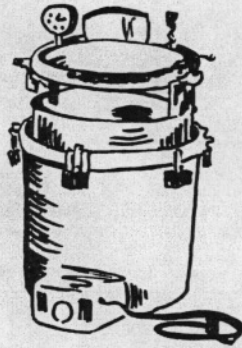
APPAREL AND TEXTILE

- Use *low formaldehyde-containing cross-linking agents* in textile manufacturing processes, when possible.
- Use a *roof exhaust fan* or other ventilation systems to remove formaldehyde vapors from stored apparel and to provide a *continuous supply of fresh air*.



MEDICAL AND HEALTH SERVICES

- Use other sterilization methods, such as *low temperature plasma* or *autoclaving*, instead of formaldehyde whenever possible.
- Use non-formaldehyde disinfectants. *Hydrogen peroxide-based solutions* may be suitable.
- Use formaldehyde-free fixatives for histopathological procedures, when possible.
- Use formaldehyde-based fixatives with the lowest concentration of formaldehyde possible.
- Incorporate *automatic dispensing systems* to replace manual formaldehyde handling procedures, such as washing, disinfecting, or dispensing.
- Conduct work with open containers in laboratory fume hoods or using other local exhaust ventilation systems.



- Ensure that *hemodialysis* drain line connections are airtight to prevent formaldehyde vapors from escaping into treatment rooms.
- Spend as little time as possible in areas where *hemodialyzers* are reprocessed.

FOUNDRY AND FURNITURE

- Convert to *low-emitting formaldehyde resins*, when possible.
- Use *formaldehyde-free wood products*.
- Provide a *continuous supply of fresh air* where furniture is stored.

ELECTRONICS

- Consider switching to *formaldehyde-free alternatives* in printed circuit boards. Carbon, graphite, organic-palladium, tin-palladium, sodium hypophosphite electroless copper, and conductive polymer technology are examples.

RESOURCES

REGULATIONS THAT HELP TO PROTECT WORKERS

- **Formaldehyde Standard.** This comprehensive standard, California Code of Regulations (CCR), (Title 8, Section 5217) requires employers to take specific actions to protect workers from allergic reactions, irritation, and cancer that can result from exposure to formaldehyde. See www.dir.ca.gov/title8/5217.html.
- **Hazard Communication Standard.** Under this standard (Title 8, Section 5194), your employer must tell you if you are working with any hazardous substances, must train you to use them safely, and must make Material Safety Data Sheets available. See www.dir.ca.gov/title8/5194.html.
- **Injury and Illness Prevention Program.** Every employer must have an effective, written Injury and Illness Prevention Program (IIPP) that identifies a person with the authority and responsibility to run the program (Title 8, Section 3203). The IIPP must include methods for identifying workplace hazards, methods for correcting hazards quickly, health and safety training at specified times, a system for communicating clearly with all employees about health and safety matters (including safe ways for employees to tell the employer about hazards), and recordkeeping to document the steps taken to comply with the IIPP. See www.dir.ca.gov/title8/3203.html.
- **Access to Medical and Exposure Records.** You have the right to see and copy your own medical records, and any records of toxic substance exposure monitoring (Title 8, Section 3204). These records are important in determining whether your health has been affected by your work. Employers who have such records must keep them and make them available to you for at least 30 years after the end of your employment. See www.dir.ca.gov/title8/3204.html.

WHERE TO GET HELP

- **HESIS.** Answers questions about formaldehyde and other workplace hazards for California workers, employers, and health care professionals. Call **1-866-282-5516**. HESIS also has many free publications available. To request publications, leave a message at **(866) 627-1586**, visit our website at www.cdph.ca.gov/programs/ohb, or write to HESIS at 850 Marina Bay Parkway, Building P, 3rd Floor, Richmond, CA 94804.
- **National Institute for Occupational Safety and Health (NIOSH).** Hazard Control 26 / *Controlling Formaldehyde Exposures During Embalming*: www.cdc.gov/niosh/hc26.html.
- **California Division of Occupational Safety and Health (Cal/OSHA).** Investigates workers' complaints and answers questions about workplace health and safety regulations. Complainants' identities are kept confidential. Contact the nearest Cal/OSHA Enforcement District Office. They are listed in the blue government section near the front of the phone book, under "State Government / Industrial Relations / Occupational Safety and Health / Enforcement" or visit their website at www.dir.ca.gov/DOSH.
- **Other resources for employees** may include your supervisor, your union, your company health and safety officer, your doctor, or your company doctor.
- **Cal/OSHA Consultation Service.** Helps employers who want free non-enforcement assistance to improve health and safety conditions. Employers can call **1-800-963-9424**.

To obtain a copy of this document in an alternate format, please contact: (510) 620-5757. (CA Relay Service: 800-735-2929 or 711). Please allow at least ten (10) working days to coordinate alternate format services.



Edmund G. Brown Jr., Governor
State of California



Diana S. Dooley, Secretary
Health and Human Services Agency
Mark B Horton, MD, MSPH, Director
Department of Public Health



Marty Morgenstern, Secretary
Labor and Workforce Development Agency
John C. Duncan, Director
Department of Industrial Relations

----- Forwarded Message -----

From: Robert Blewett <robertblewett@mac.com>

To: Tiffany Anderson <tiffanykayanderson@yahoo.com>

Sent: Friday, March 18, 2011 9:09 AM

Subject: Re: current events

Wow... that's a lot deal with all at once.

I'll call you when I take my lunch... if you're available at that time we can talk for a few, I'll call you again after work.

Hang in there... this may not play out as badly as you think.

RB.

On 3/18/11 6:39 AM, "Tiffany Anderson"
<tiffanykayanderson@yahoo.com> wrote:

Robert,

I received word from my mom in the middle of the night that my grandma is back in the hospital. She is scheduled for another surgery and it does not look as if she will make it.

My mom has fluid in her lungs, a death sentence for someone with emphysema. I am taking today off from work to support my mom. I am taking Monday off if grandma dies and then I may have to look at taking an extended amount of time using The Family Medical Leave Act.

I just want you to know whats going on with me so you can

make plans accordingly. You are welcome to stay here, I am just unclear as to what I will be doing.

Love
Tiff



Medical Management Guidelines for Formaldehyde

(HCHO)

CAS# 50-00-0

UN# 1198, 2209 (formalin)

 (</MHMI/mmg111.pdf>) **PDF Version, 78 KB** (</MHMI/mmg111.pdf>)

Synonyms include formalin, formic aldehyde, methanal, methyl aldehyde, methylene oxide, oxomethane, and paraform.

- Persons exposed only to formaldehyde vapor do not pose substantial risks of secondary contamination. Persons whose clothing or skin is contaminated with a solution of formaldehyde can cause secondary contamination by direct contact or through off-gassing vapor.
- Formaldehyde is a colorless, highly toxic, and flammable gas at room temperature that is slightly heavier than air. It has a pungent, highly irritating odor that is detectable at low concentrations, but may not provide adequate warning of hazardous concentrations for sensitized persons.
- It is used most often in an aqueous solution stabilized with methanol (formalin).
- Most formaldehyde exposures occur by inhalation or by skin or eye contact. Formaldehyde is absorbed well by the lungs, gastrointestinal tract, and, to a lesser extent, skin.

General Information

Description

Formaldehyde is a nearly colorless gas with a pungent, irritating odor even at very low concentrations (below 1 ppm). Its vapors are flammable and explosive. Because the pure gas tends to polymerize, it is commonly used and stored in solution. Formalin, the aqueous solution of formaldehyde (30% to 50% formaldehyde), typically contains up to 15% methanol as a stabilizer.

Routes of Exposure

Inhalation

Most formaldehyde exposures occur by inhalation or by skin/eye contact. Formaldehyde vapor is readily absorbed from the lungs. In cases of acute exposure, formaldehyde will most likely be detected by smell; however, persons who are sensitized to formaldehyde may experience headaches and minor eye and airway irritation at levels below the odor threshold (odor threshold is 0.5 to 1.0 ppm; OSHA PEL is 0.75 ppm). **For sensitized persons, odor is not an adequate indicator of formaldehyde's presence and may not provide reliable warning of hazardous concentrations. Odor adaptation can occur.** Low-dose acute exposure can result in headache, rhinitis, and dyspnea; higher doses may cause severe mucous membrane irritation, burning, and lacrimation, and lower respiratory effects such as bronchitis, pulmonary edema, or pneumonia. Sensitive individuals may experience asthma and dermatitis, even at very low doses. Formaldehyde vapors are slightly heavier than air and can result in asphyxiation in poorly ventilated, enclosed, or low-lying areas.

Children exposed to the same levels of formaldehyde as adults may receive larger doses because they have greater lung surface area:body weight ratios and increased minute volumes:weight ratios. In

In addition, they may be exposed to higher levels than adults in the same location because of their short stature and the higher levels of formaldehyde found nearer to the ground.

Skin/Eye Contact

Ocular exposure to formaldehyde vapors produces irritation and lacrimation. Depending on the concentration, formaldehyde solutions may cause transient discomfort and irritation or more severe effects, including corneal opacification and loss of vision. Formaldehyde is absorbed through intact skin and may cause irritation or allergic dermatitis; rapid metabolism makes systemic effects unlikely following dermal exposure.

Children are more vulnerable to toxicants absorbed through the skin because of their relatively larger surface area:body weight ratio.

Ingestion

Ingestion of as little as 30 mL (1 oz.) of a solution containing 37% formaldehyde has been reported to cause death in an adult. Ingestion may cause corrosive injury to the gastrointestinal mucosa, with nausea, vomiting, pain, bleeding, and perforation. Corrosive injuries are usually most pronounced in the pharyngeal mucosa, epiglottis and esophagus. Systemic effects include metabolic acidosis, CNS depression and coma, respiratory distress, and renal failure.

Sources/Uses

Formaldehyde is synthesized by the oxidation of methanol. It is among the 25 most abundantly produced chemicals in the world and is used in the manufacture of plastics, resins, and urea-formaldehyde foam insulation. Formaldehyde or formaldehyde-containing resins are used in the manufacture of chelating agents, a wide variety of organic products, glass mirrors, explosives, artificial silk, and dyes. It has been used as a disinfectant, germicide, and in embalming fluid. In the agricultural industry, formaldehyde has been used as a fumigant, preventative for mildew in wheat and rot in oats, a germicide and fungicide for plants, an insecticide, and in the manufacture of slow-release fertilizers. Formaldehyde is found in construction materials such as plywood adhesives. Formaldehyde also is or has been used in the sugar, rubber, food, petroleum, pharmaceuticals, and textiles industries.

Standards and Guidelines

OSHA PEL (permissible exposure limit) = 0.75 ppm (averaged over an 8-hour workshift)

OSHA STEL (short-term exposure limit) = 2 ppm (15 minute exposure)

NIOSH IDLH (immediately dangerous to life or health) = 20 ppm

AHA ERPG-2 (emergency response planning guideline) (the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action) = 10 ppm

Physical Properties

Description: Nearly colorless gas with a pungent, irritating odor

Warning properties: Odor is detectable at less than 1 ppm, but many sensitive persons experience symptoms below the odor threshold.

Molecular weight: 30.0 daltons

Boiling point (760 mm Hg): - 6°F (-21°C)

Vapor pressure: 3883 mm Hg at 77°F (25°C)

Gas density: 1.07 (air = 1)

Water solubility: 55% at 68°F (20°C)

Flammability: Flammable gas between 7% and 73% at 77°F (25°C) (concentration in air); combustible liquid (formalin)

Incompatibilities

Formaldehyde reacts with strong oxidizers, alkalis, acids, phenols, and urea. Pure formaldehyde has a tendency to polymerize.

Health Effects

- Formaldehyde is an eye, skin, and respiratory tract irritant. Inhalation of vapors can produce narrowing of the bronchi and an accumulation of fluid in the lungs.
- Children may be more susceptible than adults to the respiratory effects of formaldehyde.
- Formaldehyde solution (formalin) causes corrosive injury to the gastrointestinal tract, especially the pharynx, epiglottis, esophagus, and stomach.
- The systemic effects of formaldehyde are due primarily to its metabolic conversion to formate, and may include metabolic acidosis, circulatory shock, respiratory insufficiency, and acute renal failure.
- Formaldehyde is a potent sensitizer and a probable human carcinogen.

Acute Exposure

Formaldehyde vapor produces immediate local irritation in mucous membranes, including eyes, nose, and upper respiratory tract. Ingestion of formalin causes severe injury to the gastrointestinal tract. The exact mechanism of action of formaldehyde toxicity is not clear, but it is known that it can interact with molecules on cell membranes and in body tissues and fluids (e.g., proteins and DNA) and disrupt cellular functions. High concentrations cause precipitation of proteins, which results in cell death. Absorption from the respiratory tract is very rapid; absorption from the gastrointestinal tract is also rapid, but may be delayed by ingestion with food. Once absorbed, formaldehyde is metabolized to formic acid, which may cause acid-base imbalance and a number of other systemic effects.

Children do not always respond to chemicals in the same way that adults do. Different protocols for managing their care may be needed.

CNS

Malaise, headache, sleeping disturbances, irritability, and impairment of dexterity, memory, and equilibrium may result from a single, high level, exposure to formaldehyde.

Respiratory

Even fairly low concentrations of formaldehyde can produce rapid onset of nose and throat irritation, causing cough, chest pain, shortness of breath, and wheezing. Higher exposures can cause significant inflammation of the lower respiratory tract, resulting in swelling of the throat, inflammation of the

windpipe and bronchi, narrowing of the bronchi, inflammation of the lungs, and accumulation of fluid in the lungs. Pulmonary injury may continue to worsen for 12 hours or more after exposure.

Previously sensitized individuals can develop severe narrowing of the bronchi at very low concentrations (e.g., 0.3 ppm). Bronchial narrowing may begin immediately or can be delayed for 3 to 4 hours; effects may worsen for up to 20 hours after exposure and can persist for several days.

Exposure to certain chemical irritants can lead to Reactive Airway Dysfunction Syndrome (RADS), a chemically- or irritant-induced type of asthma.

Children may be more vulnerable to corrosive agents than adults because of the relatively smaller diameter of their airways.

Children may be more vulnerable because of relatively increased minute ventilation per kg and failure to evacuate an area promptly when exposed.

Metabolic

Accumulation of formic acid can cause an anion-gap acid-base imbalance. If formalin is ingested, absorption of the methanol stabilizer may contribute to the imbalance and can result in an osmolal gap, as well as an anion gap.

Immunologic

In persons who have been previously sensitized, inhalation and skin contact may cause various skin disorders, asthma-like symptoms, anaphylactic reactions and, rarely, hemolysis. The immune system in children continues to develop after birth, and thus, children may be more susceptible to certain chemicals.

Gastrointestinal

Ingestion of aqueous solutions of formaldehyde can result in severe corrosive injury to the esophagus and stomach. Nausea, vomiting, diarrhea, abdominal pain, inflammation of the stomach, and ulceration and perforation of the oropharynx, epiglottis, esophagus, and stomach may occur. Both formaldehyde and the methanol stabilizer are easily absorbed and can contribute to systemic toxicity.

Ocular

Exposure to low concentrations of formaldehyde vapor can cause eye irritation, which abates within minutes after exposure has ended. Formalin splashed in the eyes can result in corneal ulceration or cloudiness of the eye surface, death of eye surface cells, perforation, and permanent loss of vision; these effects may be delayed for 12 hours or more.

Dermal

Exposure to formaldehyde vapor or to formalin solutions can cause skin irritation and burns. In sensitized persons, contact dermatitis may develop at very low exposure levels.

Potential Sequelae

In survivors of inhalation injury, pulmonary function usually returns to normal. Eye exposure to high concentrations of formaldehyde vapor or formalin can eventually cause blindness. Narrowing of the esophagus and severe corrosive damage to the stomach lining can result from ingesting formalin.

Chronic Exposure

The major concerns of repeated formaldehyde exposure are sensitization and cancer. In sensitized

persons, formaldehyde can cause asthma and contact dermatitis. In persons who are not sensitized, prolonged inhalation of formaldehyde at low levels is unlikely to result in chronic pulmonary injury. Adverse effects on the central nervous system such as increased prevalence of headache, depression, mood changes, insomnia, irritability, attention deficit, and impairment of dexterity, memory, and equilibrium have been reported to result from long-term exposure. Chronic exposure may be more serious for children because of their potential longer latency period.

Carcinogenicity

The Department of Health and Human Services has determined that formaldehyde may reasonably be anticipated to be a carcinogen. In humans, formaldehyde exposure has been weakly associated with increased risk of nasal cancer and nasal tumors were observed in rats chronically inhaling formaldehyde.

Reproductive and Developmental Effects

There is limited evidence that formaldehyde causes adverse reproductive effects. The TERIS database states that the risk of developmental defects to the exposed fetus ranges from none to minimal. Formaldehyde is not included in *Reproductive and Developmental Toxicants*, a 1991 report published by the U.S. General Accounting Office (GAO) that lists 30 chemicals widely acknowledged to have reproductive and developmental consequences.

There have been reports of menstrual disorders in women occupationally exposed to formaldehyde, but they are controversial. Studies in experimental animals have reported some effects on spermatogenesis. Formaldehyde has not been proven to be teratogenic in animals and is probably not a human teratogen at occupationally permissible levels. Formaldehyde has been shown to have genotoxic properties in human and laboratory animal studies producing sister chromatid exchange and chromosomal aberrations.

Special consideration regarding the exposure of pregnant women is warranted, since formaldehyde has been shown to be a genotoxin; thus, medical counseling is recommended for the acutely exposed pregnant woman.

Prehospital Management

- Victims exposed only to formaldehyde gas do not pose significant risks of secondary contamination to personnel outside the Hot Zone. Victims whose clothing or skin is contaminated with a formaldehyde-containing solution (formalin) can secondarily contaminate personnel by direct contact or through off-gassing vapor.
- Inhalation of formaldehyde can cause airway irritation, bronchospasm, and pulmonary edema.
- Absorption of large amounts of formaldehyde via any route can cause severe systemic toxicity, leading to metabolic acidosis, tissue and organ damage, and coma.
- There is no antidote for formaldehyde. Treatment consists of supportive measures including decontamination (flushing of skin and eyes with water, gastric lavage, and administration of activated charcoal), administration of supplemental oxygen, intravenous sodium bicarbonate and/or isotonic fluid, and hemodialysis.

Hot Zone

Rescuers should be trained and appropriately attired before entering the Hot Zone. If the proper equipment is not available, or if rescuers have not been trained in its use, assistance should be obtained from a local or regional HAZMAT team or other properly equipped response organization.

Rescuer Protection

Formaldehyde is a highly toxic systemic poison that is absorbed well by inhalation. The vapor is a severe respiratory tract and skin irritant and may cause dizziness or suffocation. Contact with formaldehyde solution may cause severe burns to the eyes and skin.

Respiratory Protection: Positive-pressure, self-contained breathing apparatus (SCBA) is recommended in response situations that involve exposure to potentially unsafe levels of formaldehyde vapor.

Skin Protection: Chemical-protective clothing is recommended because formaldehyde can cause skin irritation and burns.

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible.

Victim Removal

If victims can walk, lead them out of the Hot Zone to the Decontamination Zone. Victims who are unable to walk may be removed on backboards or gurneys; if these are not available, carefully carry or drag victims to safety.

Consider appropriate management of chemically contaminated children, such as measures to reduce separation anxiety if a child is separated from a parent or other adult.

Decontamination Zone

Victims exposed only to formaldehyde vapor who have no skin or eye irritation may be transferred immediately to the Support Zone. All others require decontamination (see *Basic Decontamination* below).

Rescuer Protection

If exposure levels are determined to be safe, decontamination may be conducted by personnel wearing a lower level of protection than that worn in the Hot Zone (described above).

ABC Reminders

Quickly access for a patent airway, ensure adequate respiration and pulse. Stabilize the cervical spine with a collar if trauma is suspected. Administer supplemental oxygen as required. Assist ventilation with a bag-valve-mask device if necessary.

Basic Decontamination

Victims who are able may assist with their own decontamination. Remove and double-bag contaminated clothing and personal belongings.

Flush liquid-exposed skin and hair with plain water for 3 to 5 minutes. Wash area thoroughly with soap and water when possible. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Irrigate exposed or irritated eyes with plain water or saline for 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. If pain or injury is evident, continue eye irrigation while transferring the victim to the Support Zone.

In cases of formalin ingestion, **do not induce emesis**. Victims who are conscious and able to swallow should be given 4 to 8 ounces of water or milk. Gastric lavage with a small bore NG tube should be considered if it can be performed within 1 hour after ingestion. The effectiveness of activated charcoal administration is unknown, but it is suggested following lavage (administer activated charcoal at 1 gm/kg, usual adult dose 60-90 g, child dose 25-50 g). A soda can and straw may be of assistance when offering charcoal to a child.

Consider appropriate management of chemically contaminated children at the exposure site. Also, provide reassurance to the child during decontamination, especially if separation from a parent occurs. If possible, seek assistance from a child separation expert.

Transfer to Support Zone

As soon as basic decontamination is complete, move the victim to the Support Zone.

Support Zone

Be certain that victims have been decontaminated properly (see *Decontamination Zone* above). Persons who have undergone decontamination or who have been exposed only to vapor pose no serious risks of secondary contamination. Support Zone personnel require no specialized protective gear in such cases.

ABC Reminders

Quickly access for a patent airway. If trauma is suspected, maintain cervical immobilization manually and apply a cervical collar and a backboard when feasible. Ensure adequate respiration and pulse. Administer supplemental oxygen as required and establish intravenous access if necessary. Place on a cardiac monitor. Watch for signs of airway swelling and obstruction such as progressive hoarseness, stridor, or cyanosis.

Additional Decontamination

Continue irrigating exposed skin and eyes, as appropriate.

In cases of formalin ingestion, **do not induce emesis**. If water has not been given previously, administer 4 to 8 ounces of milk or water if the patient is able to swallow.

Advanced Treatment

In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, perform cricothyroidotomy if equipped and trained to do so.

Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. Cardiac sensitizing agents may be appropriate; however, the use of cardiac sensitizing agents after exposure to certain chemicals may pose enhanced risk of cardiac arrhythmias (especially in the elderly). Formaldehyde poisoning is not known to pose additional risk during the use of bronchial or cardiac sensitizing agents.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25-0.75 mL of 2.25% racemic epinephrine solution in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Patients who are comatose, hypotensive, or have seizures or cardiac dysrhythmias should be treated

According to advanced life support (ALS) protocols. Treat acidosis with intravenous sodium bicarbonate (adult dose = 1 ampule; pediatric dose = 1 Eq/kg). Further bicarbonate therapy should be guided by arterial blood gas (ABG) measurements. Hemodialysis should be considered in patients with severe acid-base disturbances that are refractory to conventional therapy or in cases with significant methanol levels.

If evidence of shock or hypotension is observed begin fluid administration. For adults, bolus 1,000 mL/hour intravenous saline or lactated Ringer's solution if blood pressure is under 80 mm Hg; if systolic pressure is over 90 mm Hg, an infusion rate of 150 to 200 mL/hour is sufficient. For children with compromised perfusion administer a 20 mL/kg bolus of normal saline over 10 to 20 minutes, then infuse at 2 to 3 mL/kg/hour. Follow with administration of dopamine (2 to 20 µg/kg/min) or norepinephrine (0.1 to 0.2 µg/kg/min), if necessary.

Transport to Medical Facility

Only decontaminated patients or patients not requiring decontamination should be transported to a medical facility. "Body bags" are not recommended.

Report to the base station and the receiving medical facility the condition of the patient, treatment given, and estimated time of arrival at the medical facility.

If formaldehyde has been ingested, prepare the ambulance in case the victim vomits toxic material. Have ready several towels and open plastic bags to quickly clean up and isolate vomitus.

Multi-Casualty Triage

If possible, consult with the base station physician or the regional poison control center for advice regarding triage of multiple victims.

Patients who have ingested formalin or have symptoms (e.g., severe wheezing or dyspnea) or obvious injuries (e.g., skin or eye burns) should be transported immediately to a medical facility for evaluation.

Patients who have no eye, skin, or throat irritation, or only mild or transient symptoms may be released from the scene after their names, addresses, and telephone numbers are recorded. Those discharged should be advised to seek medical care promptly if symptoms develop (see *Patient Information Sheet* below).

Emergency Department Management

- Hospital personnel in an enclosed area can be secondarily contaminated by direct contact, by vapors off-gassing from heavily soaked clothing, or from the vomitus of victims who have ingested formaldehyde. Patients do not pose serious contamination risks after contaminated clothing is removed and the skin is thoroughly washed.
- Inhalation of formaldehyde can cause airway irritation, bronchospasm, and pulmonary edema.
- Absorption of large amounts of formaldehyde via any route can cause severe systemic toxicity, leading to metabolic acidosis, tissue and organ damage, and coma.
- There is no antidote for formaldehyde. Treatment consists of supportive measures including decontamination (flushing of skin and eyes with water, gastric lavage, and administration of activated charcoal), administration of supplemental oxygen, intravenous sodium bicarbonate and/or isotonic fluid, and hemodialysis.

Decontamination Area

Previously decontaminated patients and patients exposed only to formaldehyde vapor who have no skin or eye irritation may be transferred immediately to the Critical Care Area. Other patients will require decontamination as described below. Because formaldehyde is absorbed (although poorly) through the skin, don butyl rubber gloves and apron before treating patients. Formaldehyde readily penetrates most rubbers and barrier fabrics or creams, but butyl rubber provides good skin protection.

Be aware that use of protective equipment by the provider may cause fear in children, resulting in decreased compliance with further management efforts.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants absorbed through the skin. Also, emergency room personnel should examine children's mouths for corrosive injury because of the frequency of hand-to-mouth activity among children.

ABC Reminders

Evaluate and support airway, breathing, and circulation. Children may be more vulnerable to corrosive agents than adults because of the smaller diameter of their airways. In cases of respiratory compromise secure airway and respiration via endotracheal intubation. If not possible, surgically create an airway.

Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. Cardiac sensitizing agents may be appropriate; however, the use of cardiac sensitizing agents after exposure to certain chemicals may pose enhanced risk of cardiac arrhythmias (especially in the elderly). Formaldehyde poisoning is not known to pose additional risk during the use of bronchial or cardiac sensitizing agents.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25-0.75 mL of 2.25% racemic epinephrine solution in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Patients who are comatose, hypotensive, or have seizures or ventricular dysrhythmias should be treated in the conventional manner.

Correct acidosis in the patient who has coma, seizures, or cardiac dysrhythmias by administering intravenously sodium bicarbonate (adult dose = 1 ampule; pediatric dose = 1 Eq/kg). Further bicarbonate therapy should be guided by ABG measurements. Hemodialysis should be considered in patients with severe acid-base disturbances that are refractory to conventional therapy or in cases with significant methanol levels.

If evidence of shock or hypotension is observed begin fluid administration. For adults, bolus 1,000 mL/hour intravenous saline or lactated Ringer's solution if blood pressure is under 80 mm Hg; if systolic pressure is over 90 mm Hg, an infusion rate of 150 to 200 mL/hour is sufficient. For children with compromised perfusion administer a 20 mL/kg bolus of normal saline over 10 to 20 minutes, then infuse at 2 to 3 mL/kg/hour. Follow with administration of dopamine (2 to 20 µg/kg/min) or norepinephrine (0.1 to 0.2 µg/kg/min), if necessary.

Basic Decontamination

Patients who are able may assist with their own decontamination.

Because contact with formalin may cause burns, ED staff should don chemical-resistant jumpsuits (e.g., of Tyvek or Saranex) or butyl rubber aprons, rubber gloves, and eye protection if the patient's clothing or skin is wet with formalin. After the patient has been decontaminated, no special protective clothing or equipment is required for ED personnel.

Quickly remove and double-bag contaminated clothing and personal belongings. Flush exposed skin and hair with water (preferably under a shower) for 5 minutes. If possible, wash hair and skin with soap and water, then rinse thoroughly with water. Use caution to avoid hypothermia when decontaminating children or the elderly. Use blankets or warmers when appropriate.

Flush exposed eyes with water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye. An ophthalmic anesthetic, such as 0.5% tetracaine, may be necessary to alleviate blepharospasm, and lid retractors may be required to allow adequate irrigation under the eyelids. If pain or injury is evident, continue irrigation while transporting the patient to the Critical Care Area.

In cases of formalin ingestion, **do not induce emesis**. If water has not been given previously, administer 4 to 8 ounces if the patient is alert and able to swallow. The effectiveness of activated charcoal administration is unknown, but may be beneficial (if not administered previously) following lavage if it can be performed within 1 hour after ingestion (administer activated charcoal at 1 gm/kg, usual adult dose 60-90 g, child dose 25-50 g). A soda can and straw may be of assistance when offering charcoal to a child. (More information is provided in *Ingestion Exposure* under *Critical Care Area* below.)

Critical Care Area

Be certain that appropriate decontamination has been carried out (see *Decontamination Area* above).

ABC Reminders

Evaluate and support airway, breathing, and circulation as in *ABC Reminders* above. Children may be more vulnerable to corrosive agents than adults because of the relatively smaller diameter of their airways. Establish intravenous access in seriously ill patients if this has not been done previously. Continuously monitor cardiac rhythm.

Patients who are comatose, hypotensive, or have seizures or cardiac dysrhythmias should be treated in the conventional manner. Correct acidosis in the patient who has coma, seizures, or cardiac dysrhythmias by administering intravenously sodium bicarbonate (adult dose = 1 ampule; pediatric dose = 1 Eq/kg). Further bicarbonate therapy should be guided by ABG measurements. Hemodialysis should be considered in patients with severe acid-base disturbances that are refractory to conventional therapy or in cases with significant methanol levels.

If evidence of shock or hypotension is observed begin fluid administration. For adults, bolus 1,000 mL/hour intravenous saline or lactated Ringer's solution if blood pressure is under 80 mm Hg; if systolic pressure is over 90 mm Hg, an infusion rate of 150 to 200 mL/hour is sufficient. For children with compromised perfusion administer a 20 mL/kg bolus of normal saline over 10 to 20 minutes, then infuse at 2 to 3 mL/kg/hour. Follow with administration of dopamine (2 to 20 µg/kg/min) or norepinephrine (0.1 to 0.2 µg/kg/min), if necessary.

Inhalation Exposure

Administer supplemental oxygen by mask to patients who have respiratory complaints. Treat patients who have bronchospasm with aerosolized bronchodilators. The use of bronchial sensitizing agents in

Situations of multiple chemical exposures may pose additional risks. Consider the health of the myocardium before choosing which type of bronchodilator should be administered. Cardiac sensitizing agents may be appropriate; however, the use of cardiac sensitizing agents after exposure to certain chemicals may pose enhanced risk of cardiac arrhythmias (especially in the elderly). Formaldehyde poisoning is not known to pose additional risk during the use of bronchial or cardiac sensitizing agents.

Consider racemic epinephrine aerosol for children who develop stridor. Dose 0.25-0.75 mL of 2.25% racemic epinephrine solution in 2.5 cc water, repeat every 20 minutes as needed, cautioning for myocardial variability.

Observe patients who are in respiratory distress for up to 12 hours and periodically repeat chest examinations and order other appropriate studies. Follow up as clinically indicated.

Skin Exposure

If formalin or high concentrations of formaldehyde vapor were in contact with the skin, chemical burns may result; treat as thermal burns.

Because of their relatively larger surface area:body weight ratio, children are more vulnerable to toxicants absorbed through the skin.

Eye Exposure

Continue irrigation for at least 15 minutes. Test visual acuity. Examine the eyes for corneal damage and treat appropriately. Immediately consult an ophthalmologist for patients who have severe corneal injuries.

Ingestion Exposure

Do not induce emesis. Give 4 to 8 ounces of water to alert patients who can swallow if not done previously. If a large dose has been ingested and the patient's condition is evaluated within 30 minutes after ingestion, consider gastric lavage and endoscopy to evaluate the extent of corrosive injury to the gastrointestinal tract. Care must be taken when placing the gastric tube because blind gastric-tube placement may further injure the chemically damaged esophagus or stomach. Extreme throat swelling may require endotracheal intubation or cricothyriodotomy. The effectiveness of activated charcoal in binding formaldehyde is unknown, but may be beneficial (if not administered previously) following lavage if it can be performed within 1 hour after ingestion (administer activated charcoal at 1 gm/kg, usual adult dose 60-90 g, child dose 25-50 g). A soda can and straw may be of assistance when offering charcoal to a child.

Because children do not ingest large amounts of corrosive materials, and because of the risk of perforation from NG intubation, lavage is discouraged in children unless intubation is performed under endoscopic guidance.

Toxic vomitus or gastric washings should be isolated (e.g., by attaching the lavage tube to isolated wall suction or another closed container).

Antidotes and Other Treatments

There is no antidote for formaldehyde. Treat patients who have metabolic acidosis with sodium bicarbonate (adult dose = 1 ampule; pediatric dose = 1 Eq/kg). Further correction of acidosis should be guided by ABG measurements.

Hemodialysis is effective in removing formic acid (formate) and methanol and in correcting severe

metabolic acidosis.

If methanol poisoning from ingestion of formalin is suspected, as indicated by a serum methanol level of greater than 20 mg/dL or elevated osmolal gap, start ethanol infusion. With 10% ethanol, the loading dose is 7.5 mL/kg body weight; maintenance dose is 1.0 to 1.5 mL/kg/hour; and maintenance dose during hemodialysis is 1.5 to 2.5 mL/kg/hour. In this setting, the target blood level of ethanol is 0.1 mg/dL.

Laboratory Tests

Routine laboratory studies for all exposed patients include CBC, glucose, and electrolyte determinations. Additional studies for patients exposed to formaldehyde include urinalysis (protein, casts, and red blood cells may be present), methanol level, osmolal gap, and ABG measurements (to monitor acidosis in severe toxicity). Chest radiography and pulse oximetry may be helpful in cases of inhalation exposure. Plasma formaldehyde levels are not useful.

Disposition and Follow-up

Consider hospitalizing patients who have evidence of systemic toxicity from any route of exposure.

Delayed Effects

Patients who have substantial ingestion exposure may develop aspiration pneumonitis or renal failure and should be admitted to an intensive care unit for observation. Corrosive gastritis, fibrosis of the stomach (shrinkage and contracture), hematemesis, or edema and ulceration of the esophagus may occur.

Patients who have inhalation exposure and who complain of chest pain, chest tightness, or cough should be observed and examined periodically for 6 to 12 hours to detect delayed-onset bronchitis, pneumonia, pulmonary edema, or respiratory failure.

Formaldehyde poisoning can cause permanent alterations of nervous system function, including problems with memory, learning, thinking, sleeping, personality changes, depression, headache, and sensory and perceptual changes.

Patient Release

Patients who are asymptomatic should be observed for 4 to 6 hours, then discharged if no symptoms occur during this period. Advise discharged patients to seek medical care promptly if symptoms develop (see the *Formaldehyde-Patient Information Sheet* below).

Follow-up

Obtain the name of the patient's primary care physician so that the hospital can send a copy of the ED visit to the patient's doctor.

Patients with symptoms of seizures, convulsions, headache, or confusion, need to be followed for permanent central nervous system dysfunction with neurobehavioral toxicity testing, with particular attention to problems with memory, personality changes, and perceptual dysfunction.

Patients with injury to the mucous membranes of the respiratory or gastrointestinal tracts should be monitored for the development of ulceration or fibrosis.

Patients who have corneal injuries should be reexamined within 24 hours.


Reporting

If a work-related incident has occurred, you may be legally required to file a report; contact your state or local health department.

Other persons may still be at risk in the setting where this incident occurred. If the incident occurred in the workplace, discussing it with company personnel may prevent future incidents. If a public health risk exists, notify your state or local health department or other responsible public agency. When appropriate, inform patients that they may request an evaluation of their workplace from OSHA or NIOSH. See Appendices III and IV for a list of agencies that may be of assistance.

Patient Information Sheet

This handout provides information and follow-up instructions for persons who have been exposed to formaldehyde.

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What is formaldehyde?

Formaldehyde is a nearly colorless, highly irritating gas with a sharp odor. It dissolves easily in water and is found in formalin (a solution of formaldehyde, water, and methanol). Formaldehyde is used in the manufacture of plastics; urea-formaldehyde foam insulation; and resins used to make construction materials (e.g., plywood), paper, carpets, textiles, paint, and furniture.

What immediate health effects can be caused by exposure to formaldehyde?

Formaldehyde can cause irritation of the eyes, nose, and throat, even at low levels for short periods. Longer exposure or higher doses can cause coughing or choking. Severe exposure can cause death from throat swelling or from chemical burns to the lungs. Direct contact with the skin, eyes, or gastrointestinal tract can cause serious burns. Drinking as little as 30 mL (about 2 tablespoons) of formalin can cause death. Formate, a formaldehyde metabolite, can cause death or serious systemic effects. Generally, the more serious the exposure to formaldehyde, the more severe the symptoms. Previously sensitized persons may develop a skin rash or breathing problems from very small exposures.

Can formaldehyde poisoning be treated?

There is no antidote for formaldehyde, but its effects can be treated, and most exposed persons get well. Patients who have had a serious exposure (with signs and symptoms such as tearing eyes, running nose, or severe or persistent coughing) may need to be hospitalized. Patients with direct exposure to very concentrated vapors or liquid or who have swallowed formalin may require intensive hospital treatment and may experience long-term effects.

Are any future health effects likely to occur?

A single small exposure from which a person recovers quickly is not likely to cause delayed or long-term effects. After a severe exposure, some symptoms may not occur for up to 18 hours. See *Follow-up Instructions* for signs and symptoms to watch for. If any of them occur, seek medical care. Long-term, repeated exposure to formaldehyde in the workplace may cause cancer of the nasal passages.

What tests can be done if a person has been exposed to formaldehyde?


Specific tests for the presence of formaldehyde in blood or urine may be available, but the results generally are not useful to the doctor. If a severe exposure has occurred, blood and urine analyses and other tests may show whether the lungs have been injured or if systemic effects are possible. If seizures or convulsions have occurred neurobehavioral toxicity testing may be necessary. Testing is not needed in every case.

Where can more information about formaldehyde be found?

More information about formaldehyde can be obtained from your regional poison control center; your state, county, or local health department; the Agency for Toxic Substances and Disease Registry (ATSDR); your doctor; or a clinic in your area that specializes in occupational and environmental health. If the exposure happened at work, you may wish to discuss it with your employer, the Occupational Safety and Health Administration (OSHA), or the National Institute for Occupational Safety and Health (NIOSH). Ask the person who gave you this form for help in locating these telephone numbers.

Follow-up Instructions

Keep this page and take it with you to your next appointment. Follow *only* the instructions checked below.

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Call your doctor or the Emergency Department if you develop any unusual signs or symptoms within the next 24 hours, especially:

- coughing, difficulty breathing or shortness of breath
- chest pain, irregular heart beats
- increased pain or a discharge from your eyes
- increased redness or pain or a pus-like discharge in the area of a skin burn or other wound
- fever
- unexplained drowsiness, fatigue, or headache
- stomach pain, vomiting, or diarrhea

No follow-up appointment is necessary unless you develop any of the symptoms listed above.

Call for an appointment with Dr. _____ in the practice of _____.

When you call for your appointment, please say that you were treated in the Emergency Department at _____ Hospital by _____ and were advised to be seen again in _____ days.

Return to the Emergency Department/Clinic on _____ (date) at _____ AM/PM for a follow-up examination.

Do not perform vigorous physical activities for 1 to 2 days.

You may resume everyday activities including driving and operating machinery.

Do not return to work for _____ days.

You may return to work on a limited basis. See instructions below.

Avoid exposure to cigarette smoke for 72 hours; smoke may worsen the condition of your lungs.

Avoid drinking alcoholic beverages for at least 24 hours; alcohol may worsen injury to your stomach or have other effects.

Avoid taking the following medications: _____

You may continue taking the following medication(s) that your doctor(s) prescribed for you:

_____] Other instructions: _____

- Provide the Emergency Department with the name and the number of your primary care physician so that the ED can send him or her a record of your emergency department visit.
- You or your physician can get more information on the chemical by contacting: _____ or _____, or by checking out the following Internet Web sites: _____; _____.

Signature of patient _____ Date _____

Signature of physician _____ Date _____

Where can I get more information?

If you have questions or concerns, please contact your community or state health or environmental quality department or:

For more information, contact:

Agency for Toxic Substances and Disease Registry

Division of Toxicology and Human Health Sciences

600 Clifton Road NE, Mailstop F-57

Atlanta, GA 30333

Phone: 1-800-CDC-INFO · 888-232-6348 (TTY)

Email: [Contact CDC-INFO \(http://www.cdc.gov/cdc-info/requestform.html\)](http://www.cdc.gov/cdc-info/requestform.html)

ATSDR can also tell you the location of occupational and environmental health clinics. These clinics specialize in recognizing, evaluating, and treating illnesses resulting from exposure to hazardous substances.

Information line and technical assistance:

Phone: 888-422-8737

To order toxicological profiles, contact:

National Technical Information Service

1285 Port Royal Road

Springfield, VA 22161

Phone: 800-553-6847 or 703-605-6000

Disclaimer

Some PDF files may be electronic conversions from paper copy or other electronic ASCII text files. This conversion may have resulted in character translation or format errors. Users are referred to the original paper copy of the toxicological profile for the official text, figures, and tables. Original paper copies can be obtained via the directions on the [toxicological profile home page](http://www.atsdr.cdc.gov/toxprofiles/index.asp) (<http://www.atsdr.cdc.gov/toxprofiles/index.asp>), which also contains other important information about the profiles.

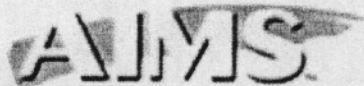
The information contained here was correct at the time of publication. Please check with the appropriate agency for any changes to the regulations or guidelines cited.

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Agency for Toxic Substances and Disease Registry, 4770 Buford Hwy NE, Atlanta, GA

30341
Contact CDC: 800-232-4636 / TTY: 888-232-6348





January 28, 2015

Gary Murata M.D.
Alpine Orthopaedic Medical Group
2488 N. California Street
Stockton, CA 95204

RE: Injured Worker: Tiffany Anderson
Date of Injury: 06/19/2008
Claim Number : VE0700184
Employer: San Joaquin County Mosquito Vector Control District

Dear Dr. Murata:

This office administers the workers' compensation program for the above employer.

We are in receipt of a request for the following procedure/service(s) received on **01/27/2015**:

1. Consult Dermatology Trunk Rash Chemical Exposure.

Please be advised that Utilization Review is being deferred in this matter in accordance with California Code of Regulations 9792.9 as **we are objecting to liability for this service for the following reason(s)**:

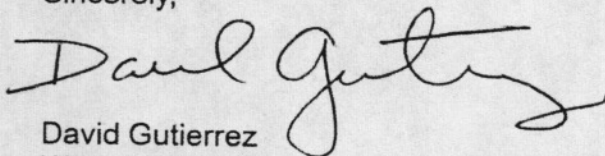
X The body part in this case has not been accepted.

Any disputes regarding this deferral and denial of care shall be resolved either by agreement of the parties or through the dispute resolution process of the Workers' Compensation Appeals Board.

You have a right to disagree with decisions affecting your claim. If you have questions about this information in this notice, please call me at (916) 563-1900 ex. 242 or fax (916) 563-1919. However, if you are represented by an attorney, please contact your attorney to discuss this notice.

For information about the workers' compensation claims process and your rights and obligations, go to www.dwc.ca.gov or contact an Information and Assistance Officer of the State Division of Workers' Compensation. For recorded information and a list of offices, call toll free 1-800-736-7401.

Sincerely,

A handwritten signature in cursive script that reads "David Gutierrez". The signature is written in black ink and is positioned above the printed name and title.

David Gutierrez
Workers Compensation Claims Examiner
(916) 563-1900 ex. 242

cc: Tiffany Anderson, 2 N. Avena Ave. , Lodi, CA 95242
Sara Skolnick - Stockwell, Harris, Woolverton & Muehl - Via Email

State of California, Division of Workers' Compensation
REQUEST FOR AUTHORIZATION
 DWC Form RFA

Attach the Doctor's First Report of Occupational Injury or Illness, Form DLSR 5021, a Treating Physician's Progress Report, DWC Form PR-2, or equivalent narrative report substantiating the requested treatment.

New Request Resubmission - Change in Material Facts
 Expedited Review: Check box if employee faces an imminent and serious threat to his or her health
 Check box if request is a written confirmation of a prior oral request.

Name (Last, First, Middle): Tiffany Anderson
 Date of Injury (MM/DD/YYYY): 06/19/14 Date of Birth (MM/DD/YYYY): 08/22/1970
 Claim Number: VE0700184 Employer: SJ MOSQUITO & VECTOR

Name: Gary Murata
 Practice Name: ALPINE ORTHOPAEDIC MEDICAL GROUP Contact Name: ERIKA 181
 Address: 2488 N. CALIFORNIA ST City: STOCKTON State: CA
 Zip Code: 95204 Phone: (209) 948-3333 Fax Number: (209) 948-3331
 Specialty: NPI Number: 1134174287
 E-mail Address:

Company Name: A.I.M.S Contact Name: KAREN ELLISON
 Address: P.O. BOX 269120 City: SACRAMENTO State: CA
 Zip Code: 95826 Phone: 916-563-1900 Fax Number: 916-563-1819
 E-mail Address:

List each specific requested medical services, goods, or items in the below space or indicate the specific page number(s) of the attached medical report on which the requested treatment can be found. Up to five (5) procedures may be entered; list additional requests on a separate sheet if the space below is insufficient.

Diagnosis (Required)	ICD-Code (Required)	Service/Good Requested (Required)	CPT/HCPCS Code (If known)	Other Information: (Frequency, Duration Quantity, etc.)
R LAT MENISC KNEE-C	836.1	Consult	99205	
ONDROMALACIA PATEL	717.7	Dermatology		
DROMALACIA NOT PAT	733.92	Trunk Rash		
		chemical exposure		

Requesting Physician Signature:  Date: 1/27/15

Approved Denied or Modified (See separate decision letter) Delay (See separate notification of delay)
 Requested treatment has been previously denied Liability for treatment is disputed (See separate letter)

Authorization Number (if assigned): _____ Date: _____
 Authorized Agent Name: _____ Signature: _____
 Phone: _____ Fax Number: _____ E-mail Address: _____
 Comments:

State of California

Additional pages attached

Division of Workers' Compensation

PRIMARY TREATING PHYSICIAN'S PROGRESS REPORT (PR-2)

Periodic Report (required 45 days after last report) Change in treatment plan Released from care
 Change in work status Need for referral or consultation Response to request for information
 Change in patient's condition Need for surgery or hospitalization Request for authorization
 Other:

Last ANDERSON First TIFFANY M.I. _____ Sex F
 Address 2 N Avens Ave City Lodi State CA Zip 95240
 Date of Injury _____ Date of Birth 8/22/1970
 Occupation _____ SS # 549-23-5133 Phone (209) 625-8587
 Claims Administrator:
 Name A.I.M.S. Claim Number VE0700184
 Address _____ City _____ State _____ Zip _____
 Phone () _____ FAX () _____
 Employer name: _____ Employer Phone _____

Work Status: This patient has been instructed to:
 Remain off-work until _____
 Return to *modified* work on _____ with the following limitations or restrictions:
 (List all specific restrictions re: standing, sitting, bending, use of hands, etc.):
 Return to full duty on _____ with no limitations or restrictions.

Date of exam: 1/21/2015
Subjective complaints:

Ms. Anderson continues to have pain and weakness as well as catching about her right knee. In the past she has had improvement with these symptoms with physical therapy. She is interested in another course of physical therapy. She also notes improvement with over-the-counter topical essential oils as well as ingested oils. She brought in a number of her records outlining exposures and different types of complaints. Apparently in June of 2004, she had a first exposure with a rash. On January 25 th, she had a second exposure. On October 1 st, she had a third exposure where she fell into a ditch with water. She documents injuries to her right knee in June of 2008, March 2009, and July 2009. On November 17, 2009, she noted a whistle blower complaint. She states she had a fourth injury on June 29, 2011, with another exposure. She contacted OSHA from December 9, 2009, to April 4, 2014, noting no training, problems with gaining access to properties, no MSDS for all chemicals being applied, poor training, and working around water without a flotation device. She states there are other violations from March of 2004 to January of 2013. She also wanted me to be aware that she was ill in 2012 for six months. She apparently had a room mate who had clostridium difficile and died from aspiration pneumonia. She had exposure to this person.

The above history was reviewed. No fever or chills. She went to PT with good improvement. She is feeling better from the PT and from the last visit. She is interested in more PT and requesting for the PT again. Today she states that she feels more pain and a rash about her trunk and head secondary to toxic exposure from her most recent knee injury.

Diagnoses:

1. TEAR LAT MENISC KNEE-CUR ICD-9 838.1
2. CHONDROMALACIA PATELLAE ICD-9 717.7
3. CHONDROMALACIA NOT PATELLAR ICD-9 733.02

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1

ANDERSON, TIFFANY

PRIMARY TREATING PHYSICIAN'S PROGRESS REPORT (PR-2)

Objective findings:

RIGHT KNEE:

Range of motion of the right knee is 0-120 degrees. Quadriceps strength again is 4+/5. She has mild diffuse joint tenderness. No effusion. Ligaments are stable. Gait pattern is normal.

About the right lower extremity, nontender leg rolling of the right hip.
About her trunk she has a mild generalized rash. No infection.

Treatment Plan:

Diagnosis and treatment options were thoroughly discussed with the patient at this point. She again states that she has had multiple chemical exposures. Again I advised her that I am not an expert in this type of injury. I have recommended a CONSULTATION to Dermatology trunk rash chemical exposure. I have recommended and ordered PT 8 more visits for her right knee. Follow-up in the office in six weeks. She would like to keep her future treatment open. I renewed her Norco that she will use sparingly

Work Status: Standing and walking occasional. No kneeling or squatting.

Primary Treating Physician: (original signature, do not stamp)

Date of exam: 1/21/2015

I declare under penalty of perjury that this report is true and correct to the best of my knowledge and that I have not violated Labor Code § 139.3.

Signature: _____

Cal. Lic. # 1134174287

Executed at: _____

Date: 1/22/2015

Name: Gary Murata

Specialty: _____

Address: 2488 N. California Street

Phone: 209-848-3333

BEFORE THE WORKERS' COMPENSATION APPEALS BOARD
OF THE STATE OF CALIFORNIA

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2
3
4
5 Tiffany Anderson,) WCAB No.: 1) ADJ7004221; 2) ADJ7004227;
6) 3) ADJ7010682; 4) ADJ7976768;
7 Applicant,) 5) ADJ9066508
8 vs.)
9) **ORDER**
10 San Joaquin County MVCD; AIMS Insurance)
11 (Sacramento),)
12 Defendant.)

13 Based upon defendant's Petition, and good cause appearing, it is hereby ordered that:

14 _____ The Status Conference set for 4/21/15 is converted to an MSC.

15
16
17 _____ The stay on proceedings is hereby lifted.

18
19 Date: _____

20 _____
21 Judge Kearsce McGill
22
23
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28

Uniform Assigned Name: STOCKWELL HARRIS SACRAMENTO
EAMS Administrator Name: KALIE WIKEL
EAMS Administrator's Phone: (916) 924-1862
EAMS Administrator's Email: Kalie_Wikel@shww.com

PROOF OF SERVICE

STATE OF CALIFORNIA

COUNTY OF SACRAMENTO

I am in the County of Sacramento, State of California. I am over the age of 18 years and not a party to the within action. My business address is 1545 River Park Drive, Suite 330, Sacramento, California 95815-4616.

I served the foregoing document described as: **PETITION TO LIFT STAY AND REINSTATE MSC; PROPOSED ORDER** on all interested parties in this action by placing a true copy thereof enclosed in a sealed envelope with postage thereon fully prepaid in the United States mailed at Sacramento, California, addressed as follows:

Workers' Compensation Appeals Board (E-Filed)
31 E. Channel Street, Room 344
Stockton, CA 95202

Mr. David Gutierrez
AIMS Insurance
P.O. Box 269120
Sacramento, CA 95826-9120

Ms. Tiffany Anderson
2 N. Avena Ave
Lodi, CA 95240

Mr. Eddie Lucchesi
San Joaquin County Mosquito & Vector Control District
7759 S. Airport Way
Stockton, CA 95206

I certify, under penalty of perjury, that the foregoing is true and correct.

Executed on February 11, 2015, at Sacramento, California.

By: Michelle Anderson
Michelle Anderson



Master Case Number*: _____

Enter Companion Case Number: _____

Companion Case Number: _____

Companion Case Number:

Case Type*: ---select--- ' (You must select Case Type before selecting Doc Type)

Document Type*: ---select--- ' (You must select Doc Type before selecting Doc Title)

Document Title*: ---select--- ' (You must select Doc Type before selecting Doc Title)

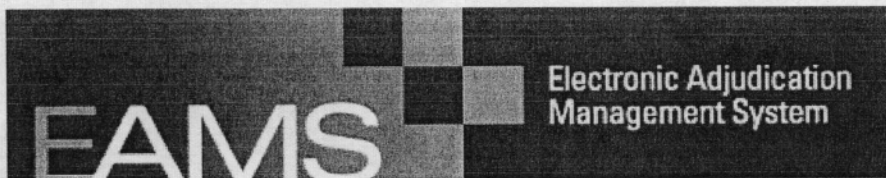
Author: _____

Document Date: _____ (mm/dd/yyyy)

File Upload*:

Uploaded Documents

Master Case Reference	Case ID	Case Type	Document Type	Document Title	File Name	
ADJ7004221	ADJ7004227,ADJ7010682,ADJ7976768,ADJ9066508	ADJ	LEGAL DOCS	PETITION - OTHER	E:\PETITION TO LIFT STAY AND REINSTATE MSC_ANDERSON.pdf	<input type="button" value="Delete"/>
ADJ7004221	ADJ7004227,ADJ7010682,ADJ7976768,ADJ9066508	ADJ	LEGAL DOCS	PROPOSED ORDER/AWARD	E:\PROPOSED ORDER_ANDERSON.pdf	<input type="button" value="Delete"/>
<input type="button" value="Submit"/>						



Submission of this eform through EAMS constitutes service upon any internal DWC unit.

Batch ID: 21641459 Date: 02/11/2015 01:24:19 PM

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