

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 1 of 9
PHOTOSENSITIVITY		

POLICY: To establish guidelines for preventing and monitoring photosensitivity reactions.

DEFINITIONS:

- I. Photosensitivity refers to an increase in the reactivity of the skin to sunlight due to either phototoxic or photoallergic reactions.
- II. A phototoxic reaction may result when a drug present in the skin reacts with sunlight of a certain wavelength. The drug absorbs the light energy and upon releasing the excess energy, the surrounding skin is damaged. The reaction typically appears as an exaggerated sunburn and is present only on the skin surfaces exposed to sunlight. The reaction may occur on the first exposure to the drug and is visible within minutes to hours of sun exposure.
- III. Photoallergic reactions result when the radiant energy from the sun binds into a stable complex with the drug. The resultant happen (**i.e., a small molecule that can elicit an immune response only when attached to a large carrier such as a protein**) further binds with skin protein producing an antigen (**i.e., a substance that can induce an immune response**). The antigen elicits a cell mediated allergic reaction, which in acute phase presents as a contact dermatitis (*i.e., inflammation of the skin*). Chronically, the condition is characterized by an inflammatory disease with abrasive, lichen-planus lesions (*i.e., small, flat discolored pimples that may combine together to form plaques*). The reaction does not occur on the first exposure to drug and sunlight and onset of symptoms is usually 24-48 hours. The reaction may become generalized and involve skin not exposed to sunlight.
- IV. **Photosensitizers are** chemical compounds, such as some drugs, which can combine with light and result in the development of a skin disease. **(See Appendix A)**

DISCUSSION:

Risk factors for photosensitivity reactions include exposure to direct sunlight, especially between 10:00 am and 4:00 pm, and use of high dosages of photosensitizing medications (see Appendix A for >1% incidence, and Appendix B for <1% incidence). Inmates using these medications do not require restrictions which would prohibit working outdoors unless they have shown that they have photosensitivity as defined above and they have failed the protective measures outlined below.

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 2 of 9
PHOTOSENSITIVITY		

PROCEDURES:

- I. Workers will be provided and required to use **clothing** appropriate to the effective temperatures and hazards imposed by sunburn. If available, lightweight, long-sleeved white shirts and brimmed caps may be used to an advantage when working in direct sunlight from late Spring to early Fall.
- II. **Sunscreens** with an effective SPF of 15 or greater should be considered for inmates on medications classified as photosensitizers (see Appendix A). If used, they should be applied prior to and during work assignments. Generally, no sunscreens are necessary for the drugs listed in Appendix B, although in certain cases sunscreens may be considered for persons on these drugs.
- III. **Inmates with photosensitivity reactions** may be treated with cool compresses acutely, and with emollients, topical steroids and/or antihistamines as required in the chronic phase. Identify the offending drug and discontinue, if possible. At the discretion of the facility medical authority, appropriate work restrictions may be imposed and documented on the HSM-18, *Health Summary for Classification*, form. Inmates should be educated about the photosensitivity reaction and its management.

References:

- 1.) Moore DE. Drug-Induced Cutaneous Photosensitivity: Incidence, Mechanism, Prevention, and Management. *Drug Safety* 2002;25(5):345-372.
- 2.) Shields KM. Drug-Induced Photosensitivity. *Pharmacist's Letter/Prescriber's Letter*. Therapeutic Research Center, Stockton CA. 2004.
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- 5.) Frishman WH, Brosnan BD, Grossman M, et al. Adverse Dermatologic Effects of Cardiovascular Drug Therapy: Part I. *Cardiology in Review* 2002;10(4):230-246.
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- 7.) Frishman WH, Brosnan BD, Grossman M, et al. Adverse Dermatologic Effects of Cardiovascular Drug Therapy: Part III. *Cardiology in Review* 2002;10(6):337-348.
- 8.) PL Detail-Document, Drugs that Increase Photosensitivity. Pharmacist's Letter/Prescriber's Letter. July 2012.
- 9.) Kutlubay Z, Sevim A, Engin B, Tüzün Y. Photodermatoses, including phototoxic and photoallergic reactions (internal and external). *Clinics in Dermatology* 2014; 32:73-79.
- 10.) Dawe RS, Ibbotson SH. Drug-induced photosensitivity. *Dermatol Clin* 2014; 32:363-368.
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CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 3 of 9
PHOTOSENSITIVITY		

and Prevention. *Drug Saf* 2011;34(10):821-837.

12.) Millard TP, Hawk JLM. Photosensitivity disorders cause, effect and management. *Am J Clin Dermatol* 2002;3(4):239-246.

APPENDIX A DRUGS COMMONLY ASSOCIATED WITH PHOTOSENSITIVITY

Special precautions MAY BE CONSIDERED for inmates prescribed these drugs.

ANTICONSULSANTS
<ul style="list-style-type: none"> • Lamotrigine
ANTIPSYCHOTICS
<ul style="list-style-type: none"> • Phenothiazines (e.g., chlorpromazine, fluphenazine, perphenazine, thioridazine, trifluoperazine) • Risperidone • Ziprasidone
ANTIFUNGALS
<ul style="list-style-type: none"> • Voriconazole
ANTIMICROBIALS
<ul style="list-style-type: none"> • Quinolone Antibiotics (e.g., ciprofloxacin, levofloxacin, moxifloxacin, ofloxacin) • Sulfonamide Antibiotics (e.g., sulfamethoxazole/trimethoprim) • Tetracycline Antibiotics (e.g., demeclocycline, doxycycline, minocycline, tetracycline)
ANTINEOPLASTICS
<ul style="list-style-type: none"> • Dacarbazine • Methotrexate
ANTIRETROVIRALS
<ul style="list-style-type: none"> • Efavirenz
CARDIOVASCULAR
<ul style="list-style-type: none"> • Amiodarone
DIURETICS
<ul style="list-style-type: none"> • Thiazides (e.g., hydrochlorothiazide)
HYPOGLYCEMICS
<ul style="list-style-type: none"> • Glimepiride • Glipizide • Glyburide
MISCELLANEOUS
<ul style="list-style-type: none"> • Acitretin • Isotretinoin

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 4 of 9
PHOTOSENSITIVITY		

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| <ul style="list-style-type: none"> • Psoralens • Sulfasalazine • Tacrolimus • Tazarotene • Tretinoin |
| <p><u>NSAIDS</u></p> <ul style="list-style-type: none"> • Naproxen • Piroxicam |

References:

- 1.) Moore DE. Drug-Induced Cutaneous Photosensitivity: Incidence, Mechanism, Prevention, and Management. *Drug Safety* 2002;25(5):345-372.
- 2.) Shields KM. Drug-Induced Photosensitivity. *Pharmacist's Letter/Prescriber's Letter*. Therapeutic Research Center, Stockton CA. 2004.
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- 7.) Drucker AM, Rosen CF. Drug-induced photosensitivity Culprit Drugs, Management and Prevention. *Drug Saf* 2011;34(10):821-837.
- 8.) Millard TP, Hawk JLM. Photosensitivity disorders cause, effect and management. *Am J Clin Dermatol* 2002;3(4):239-246.
- 9.) Blakely KM, Drucker AM, Rosen CF. Drug-induced photosensitivity Culprit Drugs, Management and Prevention. *Drug Saf* 2019;42(7):827-847.

**APPENDIX B
OTHER DRUGS LESS COMMONLY ASSOCIATED WITH PHOTOSENSITIZING
POTENTIAL**

Special precautions ARE NOT ROUTINELY ADVISED for inmates prescribed these drugs.

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| <p>ANTICOAGULANTS</p> <ul style="list-style-type: none"> • Warfarin |
| <p>ANTICONVULSANTS</p> <ul style="list-style-type: none"> • Carbamazepine • Felbamate |

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 5 of 9

PHOTOSENSITIVITY

<ul style="list-style-type: none"> • Gabapentin • Oxcarbazepine • Phenytoin • Pregabalin • Topiramate • Valproic Acid
<p>ANTIDEPRESSANTS</p> <ul style="list-style-type: none"> • Bupropion • Mirtazapine • Selective Serotonin Reuptake Inhibitors (e.g., citalopram, fluoxetine, paroxetine, sertraline) • Trazodone • Tricyclic Agents (e.g., amitriptyline, clomipramine, desipramine, doxepin, imipramine, nortriptyline) • Venlafaxine • Duloxetine
<p>ANTIFUNGALS</p> <ul style="list-style-type: none"> • Griseofulvin • Itraconazole • Ketoconazole
<p>ANTIHISTAMINES</p> <ul style="list-style-type: none"> • Cetirizine • Diphenhydramine • Loratadine • Promethazine
<p>ANTILIPEMIC AGENTS</p> <ul style="list-style-type: none"> • HMG CoA Reductase Inhibitors (e.g., atorvastatin, fluvastatin, lovastatin, pravastatin, simvastatin) • Fenofibrate
<p>ANTIMALARIAL</p> <ul style="list-style-type: none"> • Atovaquone • Hydroxychloroquine • Pyrimethamine
<p>ANTIMICROBIALS</p> <ul style="list-style-type: none"> • Azithromycin • Cefazolin • Cefotaxime • Ceftazidime • Dapsone

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 6 of 9
PHOTOSENSITIVITY		

<ul style="list-style-type: none"> • Gentamicin • Metronidazole
<p>ANTINEOPLASTIC</p> <ul style="list-style-type: none"> • Bexarotene • Capecitabine • Epirubicin • Flutamide • Fluorouracil • Hydroxyurea • Interferon • Imatinib • Paclitaxel • Pentostatin • Procarbazine • Sildenafil • Thalidomide • Vandetanib • Vinblastine
<p>ANTIPLATELET</p> <ul style="list-style-type: none"> • Clopidogrel
<p>ANTIPSYCHOTICS</p> <ul style="list-style-type: none"> • Aripiprazole • Clozapine • Haloperidol • Loxapine • Olanzapine • Quetiapine • Thiothixene
<p>ANTIRETROVIRALS</p> <ul style="list-style-type: none"> • Ritonavir • Saquinavir • Zalcitabine
<p>ANTITUBERCULOUS</p> <ul style="list-style-type: none"> • Isoniazid • Pyrazinamide
<p>ANTIVIRALS</p> <ul style="list-style-type: none"> • Acyclovir • Amantadine

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 7 of 9
PHOTOSENSITIVITY		

- Simeprevir

ANXIOLYTICS/HYPNOTICS

- Alprazolam
- Chlordiazepoxide
- Zaleplon
- Zolpidem

CARDIOVASCULAR

- ACE Inhibitors (e.g., benazepril, captopril, enalapril, fosinopril, lisinopril, ramipril)
- Amlodpine
- Beta blockers (e.g., atenolol, carvedilol, metoprolol, propranolol, sotalol)
- Diltiazem
- Hydralazine
- Labetalol
- Losartan
- Methyldopa
- Minoxidil
- Nifedipine
- Quinidine
- Valsartan

DIURETICS

- Amiloride
- Chlorthalidone
- Loop diuretics (e.g., bumetanide, furosemide, torsemide)
- Metolazone
- Spironolactone
- Triamterene

MISCELLANEOUS

- Benzocaine
- Benzoyl Peroxide
- Chlorhexidine
- Coal Tar
- Contraceptives, Oral
- Cyclobenzaprine
- Dantrolene
- Esomeprazole
- Hexachlorophene
- Leflunomide
- Mesalamine

CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 2/25/2019	NUMBER: D-27.3
	Replaces: 3/18/2015	
	Formulated: 8/97 Reviewed: 01/2022	Page 8 of 9
PHOTOSENSITIVITY		

<ul style="list-style-type: none"> • Omeprazole • Ranitidine • Selegiline • Sulfasalazine • Sumatriptan
NSAIDS
<ul style="list-style-type: none"> • All
SUNSCREENS
<ul style="list-style-type: none"> • Benzophenones • Cinnamates • Oxybenzone • Para-aminobenzoic acid (PABA and its esters)
VITAMINS
<ul style="list-style-type: none"> • Pyridoxine (B6)

* Incidence not able to be determined

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- 1.) Frishman WH, Brosnan BD, Grossman M, et al. Adverse Dermatologic Effects of Cardiovascular Drug Therapy: Part I. *Cardiology in Review* 2002;10(4):230-246.
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CORRECTIONAL MANAGED HEALTH CARE POLICY MANUAL	Effective Date: 03/18/15	NUMBER: D-27.3
	Replaces: 02/12/2014	
	Formulated: 8/97 Reviewed: 01/18	Page 9 of 9
PHOTOSENSITIVITY		

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