**HENRY FORD HOSPITAL**

**CENTER FOR**

**INTERVENTIONAL BRONCHOSCOPY:**

**PHOTODYNAMIC THERAPY**

It is important that you understand what is involved with photodynamic therapy to provide you with the best possible results. Photodynamic therapy is a technologically advanced laser technique to treat lung cancer. We have constructed this information sheet to help with the questions that you may have concerning the day of injection, treatment and post treatment care.

# What is Photodynamic Therapy?

Photodynamic therapy is one of the techniques used at Henry Ford Hospital for the treatment of lung cancer. A medication, PHOTOFRIN, will be injected into your veins several days before the laser treatment. PHOTOFRIN is not a chemotherapy drug that kills cancer cells, rather it goes into the cells throughout your body including the cancer. Cancer cells will have a higher concentration of PHOTOFRIN in them than normal cells several days after it has been injected (normal cells clear PHOTOFRIN more effectively than cancer cells). A special type of laser is then directed at the cancer. This laser activates the PHOTOFRIN in the cancer cells. The activated PHOTFRIN causes a reaction in the cancer cells, destroying many of them.

What to I Have to Do While Receiving Photodynamic Therapy?

**Of most importance is that you avoid light, you will be photosensitive (sunlight can injure you) after being injected with PHOTOFIRN.** Sunlight is a mixture of many forms of light. One of the parts of sunlight is very similar to the light from the laser used in photodynamic therapy. Sunlight, therefore, can also activate PHOTOFRIN that may still be in cells in the body (predominately in the skin and eyes). As a result you will be photosensitive and you must observe precautions to avoid exposure of your skin and eyes to direct sunlight or bright indoor lights (i.e. uncovered incandescent bulbs, home halogen lights, or high intensity spot lights) for at least 30 days. Fluorescent lights and incandescent lights with shades on them are acceptable. This photosensitivity is due to residual drug that will be present in all parts of the skin, and will diminish with time as the drug is slowly cleared by the body. Again, normal indoor lights (fluorescent lights and covered incandescent bulbs) will not harm you, and therefore, you should not stay in a darkened room during this period.

The level of photosensitivity varies for different areas of the body. This can depend on the extent of previous exposure to light (for example your lower arms will be less sensitive than perhaps your abdomen). Whether you have a fair or darker complexions can also effect the degree of photosensitivity you may experience (fairer people have more problems with photosensitivity).

Ocular sensitivity is injury occurring to the eye itself. Symptoms include discomfort of the eyes when exposed to the sun, bright lights, or car headlights. This condition has been reported in patients who receive PHOTFRIN. For 30 days, when outdoors, you must wear dark sunglasses which have an average light transmittance of less that 4%.

**What to Bring on \_\_\_/\_\_\_/\_\_\_\_\_ (the day of PHOTOFRIN injection)**

You will need to protect yourself from photosensitivity (increased sensitivity to light) on the day of your scheduled injection. You must protect yourself anytime you are exposed to sunlight, including when you are outside or in the car.

**What to Wear**

* Wear long sleeves and pants that are opaque (when you hold them up to the light you should not be able to see through them).
* Wear dark sunglasses.
* Wear a wide-brimmed had.
* Wear a scarf or something to cover your lower face (especially if you will be traveling in a car. You can receive direct light from many angles while driving).
* Wear opaque gloves to protect your hands. Watch exposure to your wrists (Gardening gloves work if you can not find other types).

**Other Important Points About the Day of Injection**

* Limit your outdoor and travel activities to the evening or early morning hours for the first 2 weeks after injection with PHOTOFRIN whenever possible.
* Avoid bright sunny unshaded windows.
* Avoid bright lights (especially halogen bulbs) that are directly focused on your skin.
* Follow the light exposure schedule as listed below.

# PLEASE NOTE

* Sunscreens do not work as we are avoiding visible light, not ultraviolet light (that part of light which leads to sunburn).
* You can remove your protective clothing upon entering a building.

# Photodynamic Therapy Treatment Protocol

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| Monday | Come to clinic for injection of PHOTOFRIN. This will take about 1 hour. |
| Tuesday | Stay at home and relax. No sun exposure as mentioned above. |
| Wednesday | Photodynamic therapy performed in the operating room.  You will need to have somebody to drive you home several hours later (this varies from person to person on how you respond to waking up from anesthesia). |
| **Thursday and/or Friday** | Your Doctor will instruct you as to which day they will want  you to return to the Pulmonary Clinic for the first “clean  out” bronchoscopy. Tumor destroyed by the photodynamic  therapy will be removed from your bronchial tubes. |

Your Doctor will instruct you if further bronchoscopies are necessary and when they will

be scheduled. Several bronchoscopies are usually required after photodynamic therapy.

### After Treatment Care

You will not be sick after this treatment; however you will be bound to the indoors. Make the best of it. Modify your lifestyle to take advantage of the time indoors and the evenings. Go to a movie, go to the mall, go out to dinner.

* Keep well hydrated.
* Relax, pamper yourself, you deserve it!
* Avoid “overdoing it”.

# Side Effects

After treatment with photodynamic therapy some mild side effects are expected. The following are the most significant you should be aware of:

* Cough with secretions, which may be thick and difficult to clear.
* Slight temperature, but not above 100.5o F.
* Possible shortness of breath or wheezing. There may be some narrowing of the bronchial tubes for the first 48 hours after photodynamic therapy. This will improve over several days.
* Occasional mild chest discomfort.
* Fatigue.

None of these symptoms should be severe or last for more than 7 days after injection of PHOTOFRIN, if they are, call 911 or go to the nearest Emergency Room and have the doctor who performed your procedure called by the emergency room doctors immediately.

# Guide to Light Exposure after Photodynamic Therapy

One week after injection with PHOTOFIRN, you can begin exposing some of your skin to outdoor lighting as follows:

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| Day 1 | PHOTFRIN injection |
| 1st Week after injection | No outdoor exposure without the precautions listed above. |
| 2nd Week after injection | You can attempt exposure of your arms to light for 1 minute per day. You should use a clock and make sure your exposure is no greater than 1 minute. If there is not photosensitivity reaction (redness, swelling or blistering) 24 hours after the exposure, you may increase your sun exposure to 2 minutes. |
| 3rd Week after injection | Expose your arms and legs to 3-5 minutes of light. Be cautious looking for the signs of a photosensitivity reaction. |
| 4th Week after injection | Gradually increase light exposure to 5-10 minutes per day. Be cautious based on reactions from the previous weeks. |
| 5th & 6th Weeks after injection | Continue to increase your time in sunlight. Be aware exactly how much time you have to do things outside so that you can plan your day accordingly. Remember that time in the car and traveling out of doors also counts toward total time spent outside. |

You can gradually resume normal outdoor activities, initially continuing to exercise

caution and gradually allowing increased sun exposure. The skin around your eyes may be more sensitive, so caution should be taken to protect yourself. If you are planning on travel to an area with more sunshine soon after photodynamic therapy, you must carefully evaluate the level of your skin sensitivity to sunlight prior to leaving. Remember that sunscreens, which screen out UV light, are of no value in protecting you against photosensitivity reactions.

##### **In Conclusion**

**It is important that you understand what is involved with photodynamic therapy to provide you with the best possible results.** Photodynamic therapy is one of the tools we use in the treatment of lung cancer. No treatment is without risk. We have carefully considered the variety of therapies we offer and feel that photodynamic therapy will be of the greatest benefit to you.

Please feel free to call your physician or the Pulmonary Clinic at 313-916-3650 with questions or concerns.