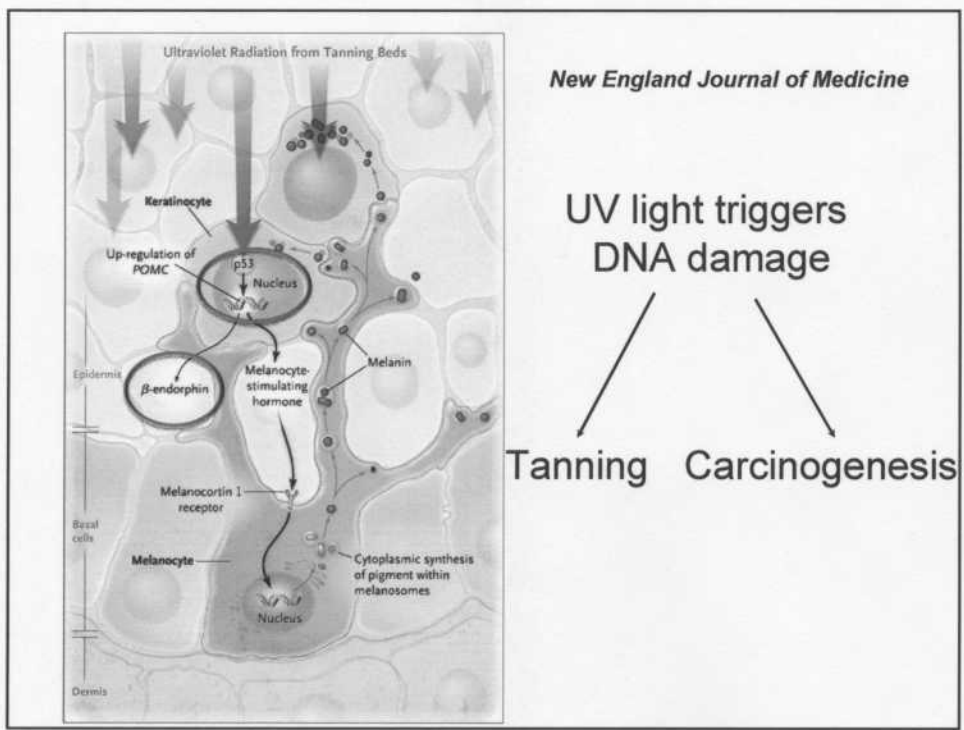
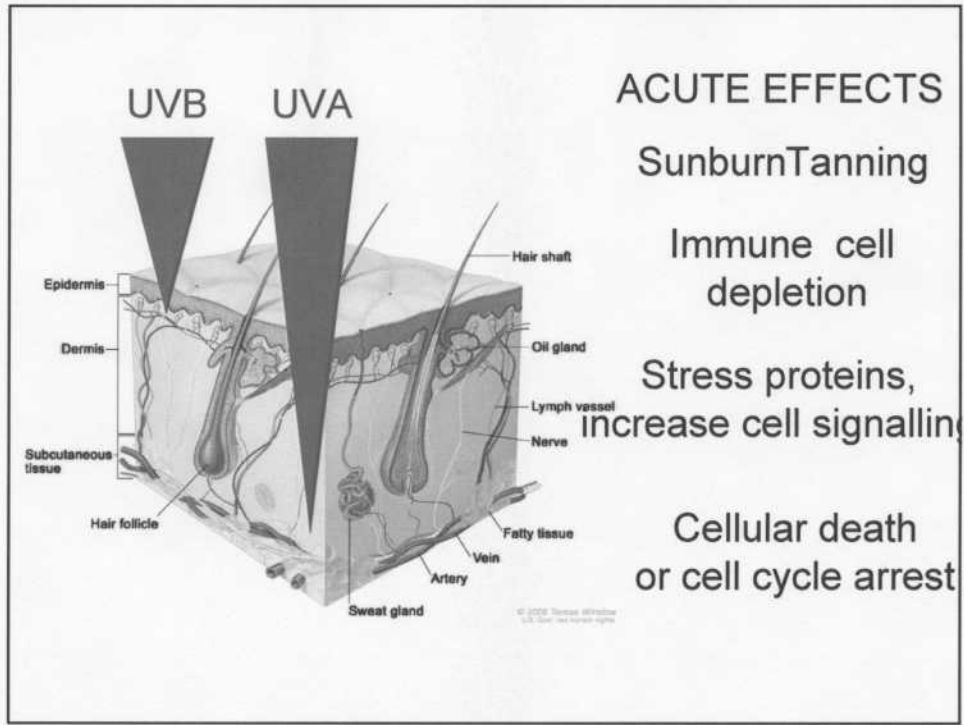


Indoor Tanning: it's worse than you think

Dr Peter J Green MD FRCPC
Associate Professor
Division of Dermatology
Dalhousie University

The case for regulation in NS

- Significant knowledge gap regarding dangers of tanning beds
- Tanning industry not able to self regulate
- Target demographic is young females
- Demonstrated association between tanning beds and melanoma
- Melanoma rates in NS highest in the country



Significance of p53 and tanning response

- Tanning response directly linked to p53 tumor suppressor pathway
- Endorphin release may explain addictive behavior
- Tanning does not occur without DNA damage
- Tanning without risk of carcinogenesis “may be scientifically impossible”

How are tanning beds different from other source of uv?

Dosing in tanning beds

- Amount of UVA and UVB output significantly greater than mid day sun in the summer
- Average UV measured in Washington D.C. at noon in summer
 - **UVA** 48 W/m²
 - **UVB** 0.18 W/m²
- UV measured at a tanning bed in Halifax, NS
 - **UVA** 280 W/m² (6 X)
 - **UVB** 0.27 W/m² (1.5X)

NB: "High output" UVA beds even stronger

The actual dose of UV received

- Exposure dose = UV output X TIME
- Exposure dose = 280 W/m² X 20 minutes
33 Joule/cm²
- Starting dose for UVA at medical facility is 36 seconds i.e. **1 J/cm²**
- Lifetime maximum recommended UVA dose achieved in 15 weeks tanning 3X per week for 20 minutes

Evidence for tanning beds causing melanoma

- Int. J Cancer 2006: Meta-analysis of 7 studies (over 7000 patients) showed indoor tanning before age 35 increased risk of MM by 75%
- IARC* Classifies tanning beds as group 1 carcinogen(2009)

**International Agency for Research on Cancer*

More evidence

- Lazovich (2010) published in *Cancer Epidemiology, Biomarkers and Prevention*
- Involved over 1000 patients with melanoma between 2004-2007
- Tanning beds use increased melanoma risk by 74%
- Greatest risk with more than 50 hours of use, more than 100 session and use more than 10 years

Latest study

Sunbed use during adolescence and early childhood is associated with increased risk of early onset melanoma: Int J cancer 2010

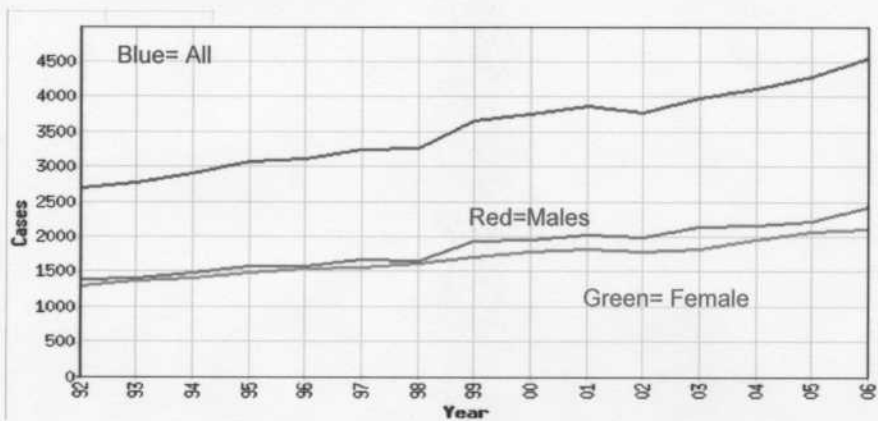
- 604 patients , ages 18-39
- Increased risk of melanoma with ever use
 - 41% higher risk
- Increasing risk with more than 10 lifetime sessions
 - Double the risk of MM

Risk with young age

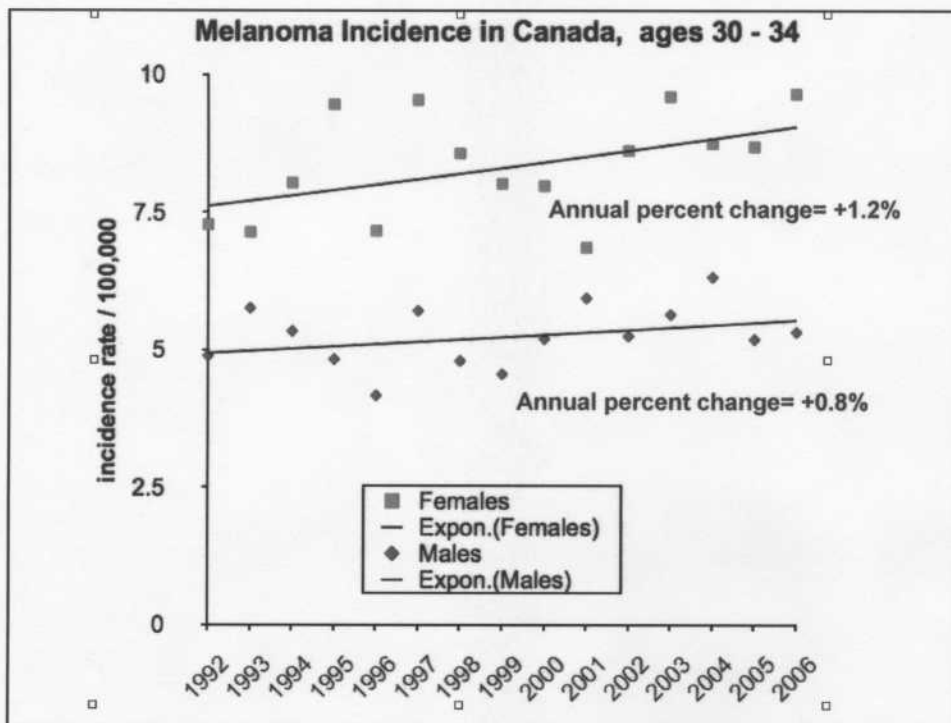
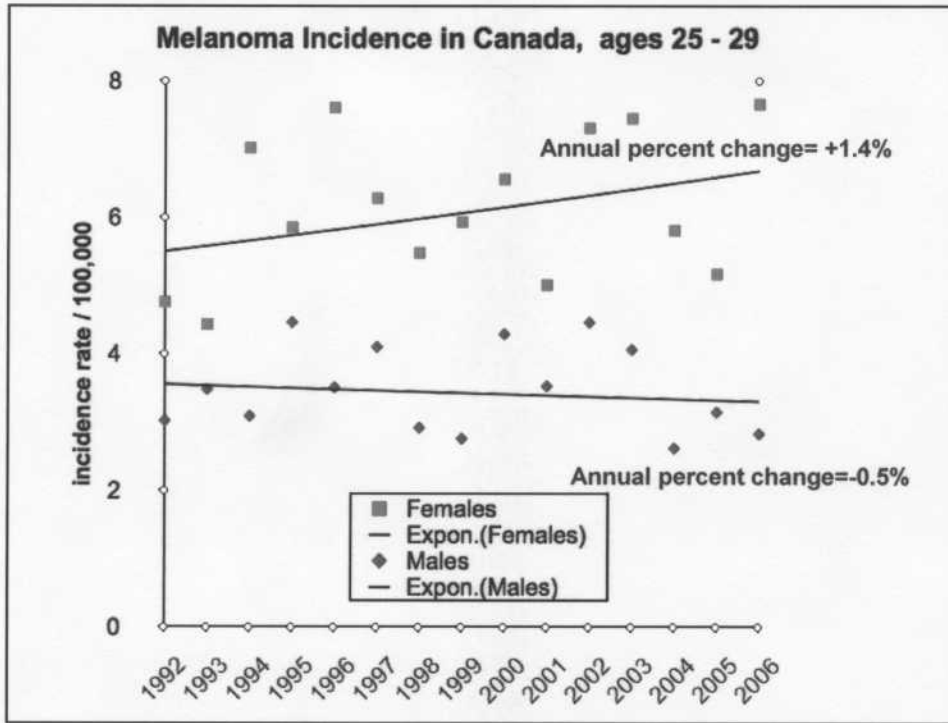
- Stronger association of developing melanoma with earlier age of first use
- 6 times more likely to have used tanning bed when melanoma diagnosed under age of 30
- When melanoma diagnosed under age 30, 76% of the time attributable to sunbed use

Melanoma In Canada

**Cases of Melanoma Per Year In Canada
1992-2006**



Public Health Agency of Canada



What about NS?

Rates of Malignant Melanoma per 100 000

	<i>Canada</i>	<i>Nova Scotia</i>
<i>Males</i>	13	20
<i>Females</i>	11	16

Source: Canadian Cancer Society 2009

Take home points

- Tanning beds are a known carcinogen and risk factor for melanoma development
- Teen tanning behavior and vulnerability to UV demand legislated restriction
- Regulation of the tanning industry is a necessary and responsible public health measure

In a patient's words

My name is Michelle. I am a 38 year old mother of 3 beautiful children. I have a wonderful husband, loving and supportive network of family and friends and a very fulfilling career. I also had skin cancer. I had a small mole on my arm that changed very quickly from a small, light brown dot to a black, grey and purple lump the size of a pencil eraser. At my husband's insistence I got a referral to see Dr. Green in his dermatology clinic and shortly thereafter in June 2008 I was diagnosed with melanoma. I am not dark complected, in fact, very fair and had never been able to get a tan - I would burn and it would fade. Several years ago during the early stages of planning a trip to Dominican Republic a friend suggested I try tanning beds and basically guaranteed I would tan and be able to go away with a "good base" and wouldn't burn while there. They were right and to be honest I was thrilled. My tanning continued for the next several years at times attending sessions every other day for 20 minutes at a time. Specifically during these periods I noticed my skin changing. It was becoming "leathery" looking and moles began popping up all over the place. I noticed this particular mole darkening in 2005 and was looked at by Dr. Green. At the time I was told to keep a close eye on it and return should it change shape, color, diameter etc. In late 2007 I became pregnant with my second child and the mole on my arm began to darken and grow. I suppose I didn't pay much attention to it as the adage "it will never happen to me" played in the back of my mind. At 8 months pregnant I had surgery which included general anesthetic. Terrified of all that could possibly happen to my unborn baby I understood that an operation wasn't something my doctors were taking lightly and it wouldn't have been an option during that stage of my pregnancy unless absolutely necessary. My surgery was a success and the margins came back clear. I was lucky but to this day I won't be surprised to have another diagnosis of melanoma in my future.

I recently ran into the owner of the tanning studio where I used to tan. He mentioned that he hadn't seen me in a while and asked if I had moved. I pulled up my sleeve and showed him my battle wound and said, "you won't see me there again". Looking back I find it quite ironic that even the pamphlets in the lounge area praise the use of tanning beds as a way to get vitamin D into your body and they imply that if you don't burn you probably won't be at risk for developing skin cancer.

I wear the large 4 inch scar on my arm as a constant reminder of what my vanity could have cost me. Trying to force a tan on skin that doesn't want to be tanned is something I regret but also learned a valuable lesson from. If asked, I gladly recite my tale and say, "this is what skin cancer looks like". Maybe some will take it to heart, maybe not but I firmly believe my cancer was exacerbated if not caused by tanning booths. And if that is the case if the government has decided to take cigarettes out of the hands of minors because they cause cancer shouldn't the same consideration be given to tanning beds? Although I'm certainly not an expert I can't think of 1 reason for a healthy tan to be considered a necessity.

From: <mjcollins@staff.ednet.ns.ca>
To: <sagadoma@gov.ns.ca>
Date: 2010-11-30 4:22 PM
Subject: matt Collins - Letter for Dr Green

My name is Matt Collins. In the winter of 2008 I was going through a stressful time in my life. It had been recommended to me that tanning beds were quite helpful and relaxation and reduction of stress. I took the advice and purchased a package for twelve sessions. I also could have got a deal on some tanning oils and other products that would enhance my ?natural glow? but I was not interested in darkening my skin so much as I was interested in trying to help myself relax.

I went to ten sessions over a period of about twelve weeks. My first session was only seven minutes. None of the sessions were longer than twelve to fifteen minutes. During the process I found that the sessions helped me find a warming calm in the dead of winter. Less than twelve months after the process I found out I had Stage Three Melanoma.

I would ask that all parties seriously consider the importance of passing this act. Nova Scotia consumers deserve the right make informed choices and must be protected in situations where this is not taking place. I am convinced that tanning beds are in part responsible for my diagnosis of cancer. I am also convinced had I been informed of the possible health risks associated with using the beds at the time of purchased I may have made a different choice. Thank-you.