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# Sunbed study

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Jenna Cloke

Vale of Glamorgan

October 2008 – January 2009

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# Introduction: Thanks to.....

- CIEH for providing the equipment and funding the research and the Vale of Glamorgan council for supporting the field measurements.
  - Also Merthyr Tydfil CBC and Rhondda-Cynon-Taf CBC for assistance in completing additional field monitoring of premises
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# Background

- Concerns about exposure to UV radiation, particularly from sunbeds and other ‘tanning equipment’ has been expressed for several years now e.g. 5<sup>th</sup> International Conference of the European Society of Skin Cancer Prevention (EUROSKIN) 2007. This proposed a set of minimum requirements, embodied in a Code of Practice.
  - “EUROSKIN advises against artificial tanning, recognizing its potential for detrimental effects on health.”
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# Background

Euroskin's view, is that a Code of Practice, accepted across Europe, would be a powerful instrument towards achieving:

1. A consistent minimum standard of health and safety for members of the public using artificial tanning equipment.
  2. Specific minimum engineering, labelling, operating and use requirements for premises offering a tanning service to the public.
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# Background

- “It has been estimated that in the UK, sunbeds increase the mortality to malignant melanoma by about 6%” (Diffey, 2003)

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# Background

1. WHO Fact sheet No 287, 2005: Sunbeds, tanning and exposure.  
“As with sun exposure, recent studies indicate a relationship between the use of sunbeds and malignant melanoma, as well as non-melanoma skin cancers.”
  2. Oliver, Ferguson and Mosely, 2007:  
“Sunbeds in current use carry a cancer risk comparable to Mediterranean sunlight.”
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# Oliver et al (2007): Ninewells Hospital and Medical School, Dundee

This research concluded that:

“Sunbeds in current use carry a cancer risk comparable to Mediterranean sunlight. This is due to the use of new, high power lamps. New British and European standards are largely being ignored, with more than four out of five sunbeds exceeding the limit specified in the standard. There is a strong case for regulation of sunbed operators coupled to improved public education”.

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# Chartered Institute of Environmental Health

- The CIEH are concerned at the risks associated with the use of artificial tanning equipment and have strongly advocated their removal from local authority leisure activities.
  - At the present time, six of the twenty-two local authorities in Wales, continue to operate sunbeds.
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# Project Aim

- The key aim of this project was to follow the Scottish study as closely as possible, however - they had 12 months and surveyed 50 premises with 133 beds.
  - In 3 months we surveyed 23 premises and 65 beds, using a similar methodology.
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# Selection of Premises

- All premises in the Vale of Glamorgan that were known and contactable were included – Total: 16 premises
  - Other local authorities in SE Wales area contacted – Premises lists received from Merthyr Tydfil CBC and Rhondda-Cynon-Taf CBC = 8 premises
  - Initial contact – phone call to make appointments
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# Selection of Premises

- Refusal – only one in Vale, so returned with an EHO and conducted an ‘enforcement visit’ which resulted in the service of 3 enforcement notices. Premises now closed!!!
  - Significantly more refusals experienced outside the Vale of Glamorgan.
  - Contact was made with relevant premises until required number of 65 beds had been reached.
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# Adaptation of Oliver's Methodology

The research team had concerns about:

1. Undue exposure of person undertaking measurement to UVR -their location inside/on a sunbed was not acceptable risk – all measurements were made outside of the 'bed.' The sensor was located at various positions (See details below)
  2. Protective clothing, eye protection and factor 50 suncream were made available and a safe system of work was developed.
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# Adaptation of Oliver's Methodology

- Use of a 'cover' for the base of horizontal sunbeds – dismissed as unrepresentative of actual sunbed use.
  - The use of a 'special stand' to hold the UVR sensor when measuring the top radiator panel on a horizontal bed was dismissed and a small tripod was used for this purpose.
  - 'Solarium mode' enabled on monitoring equipment.
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# Sola-Check System



- Scans UV Source in range 250nm – 400nm
- 1nm resolution
- Stores Data with time and date stamp
- Displays Spectrum
- Displays Energetic data
- Convolutes with EAS to display “effective data”
- Defines UVB/UVA ratio
- Downloads to PC

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# Applicable Standard: BS EN 60335-2-27

**“Household and similar electrical appliances – Safety: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation.”**

## Key Points:

- 1) Defines the ‘UV type’ of an appliance
  - 2) Requirements for marking of appliances with safety information
  - 3) Instructions for use of the appliance
  - 4) UVR testing methodology
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# The Measured Quantities: $Wm^{-2}$

<i>Type</i>	<i>250-320nm</i>	<i>320-400nm</i>	<i>Comments</i>
1	<0.0005	<=0.15	UVA lamp
2	0.0005–0.15	<=0.15	UVA plus some UVB
3*	<0.15	<0.15	UVB plus some UVA
4	<=0.15	<0.15	Strong UVB lamp
Note *	Type 3 must 250-320nm	have <0.15%	energetic

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# Additional note from BS EN

- UV Type 1 & 2 – *Intended to be used in tanning salons, beauty parlours and similar premises under supervision of appropriately trained persons*
  - UV Type 3 – *May be used by unskilled persons*
  - UV Type 4 – *Medical advice required*
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# Methodology

- Equipment set to indicate UVA and UVB areas and to measure 'effective irradiance'  $\text{Wm}^{-2}$
- Adaptation of the methodology:  
Vertical – readings at head, mid, lower leg.  
Horizontal – readings at head, mid, lower leg for both canopy and bottom of bed.

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# Methodology

- Camera tripods were used to simulate the client height for each reading. Two types of tripod used for the different types of 'beds'.
  - Each reading was saved manually immediately after it was taken, using the name of the premises and the number of the reading.
  - Tokens/coins were used one at a time, allowing the bed to turn off before adjusting the height/position of the sensor.
  - Each bed was allowed 30 seconds to warm up before measurements were taken.
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# Results - UV type (Horizontal)

- Type UV1 = 0
  - Type UV2 = 48%
  - Type UV3 = 52%
  - Type UV4 = 0
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- *Average = UVA – 149.56mWm<sup>-2</sup>  
UVB – 21.88mWm<sup>-2</sup>*

*Max.*

*(UVA) 234.18mWm<sup>-2</sup>*

*(UVB) 58.02mWm<sup>-2</sup>*

■ *Min.*

*(UVA) 48.52mWm<sup>-2</sup> (UVB) 0.00mWm<sup>-2</sup>*

# Results - UV type (Vertical)

- Type UV1 = 0
- Type UV2 = 13%
- Type UV3 = 87%
- Type UV4 = 0
- *Average = UVA – 101.76mWm<sup>-2</sup>  
UVB – 28.11mWm<sup>-2</sup>*
- *Max.*  
*(UVA) 184.56mWm<sup>-2</sup>      (UVB) 110.36mWm<sup>-2</sup>*
- *Min.*  
*(UVA) 40.83mWm<sup>-2</sup>      (UVB) 0.00mWm<sup>-2</sup>*

## Results - UV type (Facial 'burners')

- Type UV1 = 31%
- Type UV2 = 14%
- Type UV3 = 55%
- Type UV4 = 0
- *Average = UVA – 139.52mWm<sup>2</sup>  
UVB – 19.99mWm<sup>2</sup>*
- *Max.*  
*(UVA) 263.70mWm<sup>2</sup>      (UVB) 129.74mWm<sup>2</sup>*
- *Min.*  
*(UVA) 53.08mWm<sup>2</sup>      (UVB) 0.00mWm<sup>2</sup>*

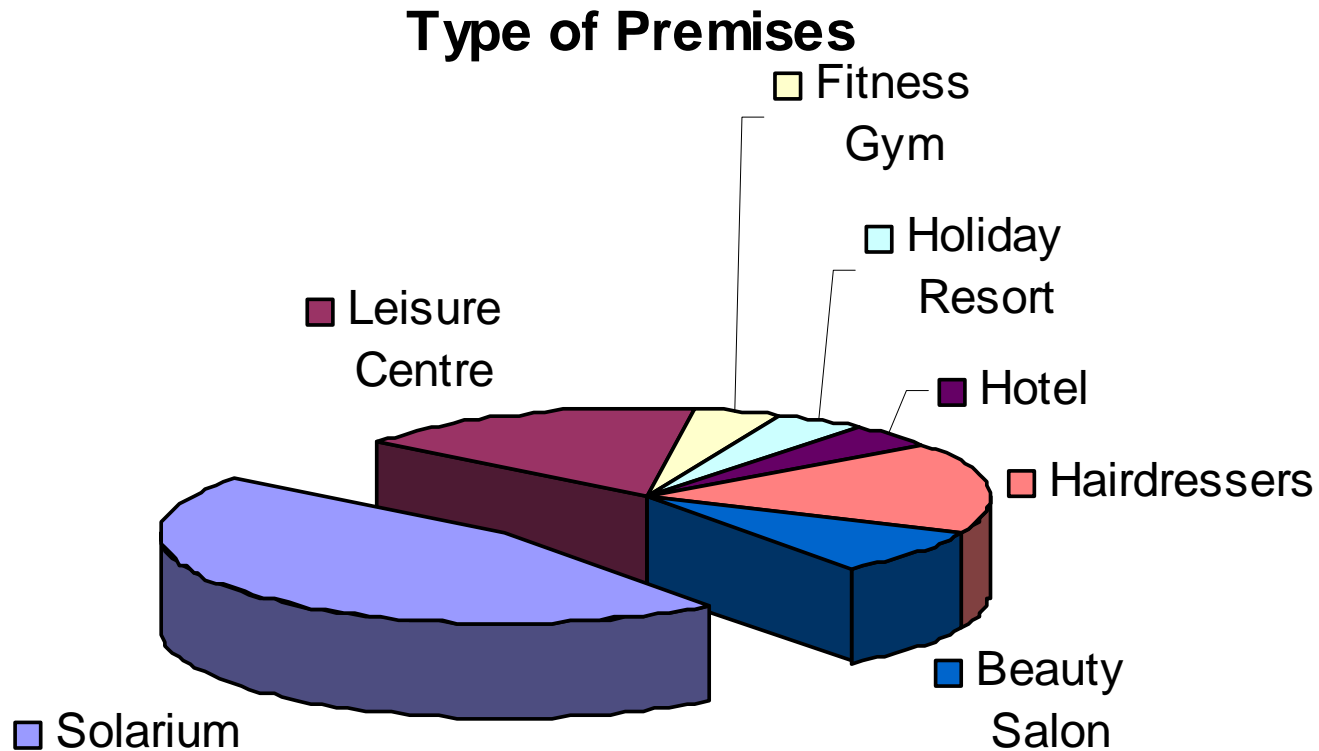
# Variations in Results

- Example of results – Bed 'X' (6 points)

UVa (mWm <sup>-2</sup> ) – 84.59	UVb (mWm <sup>-2</sup> ) – 21.33
165.69	45.04
133.05	38.62
123.71	28.05
205.51	49.12
176.48	30.10

- Large variation in results taken from the same bed
- Many results were border line of Type 2 – Type 3  
i.e. – Compliant or not Compliant

# Main work activity of the premises



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# Survey - Staffing

- **How many premises had staff present throughout the day?**

*Staffed – 20 premises*

*Un staffed – 4 premises*

- **How many of those staffed premises had staff trained and specifically responsible for the use of the sunbed and the subsequent supervision of those beds?**

- *11 premises had staff on hand/close proximity to beds*
  - *13 premises either had no staff at all or those staff were in another area of the building, had other duties, where performing other jobs etc*
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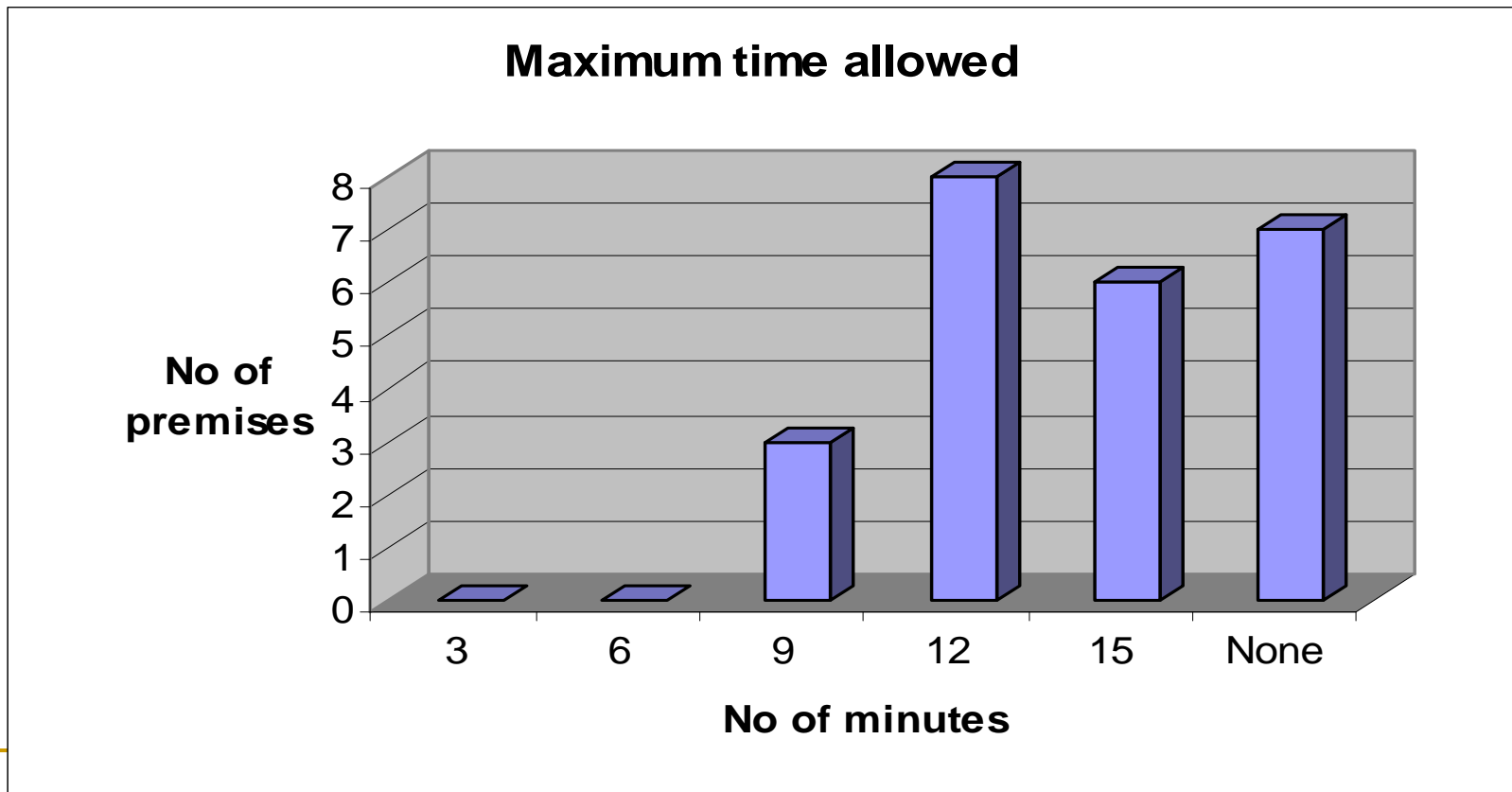
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# Survey - Operation

- **How many of the beds were money operated / coin operated?**
    - Money – 11
    - Token – 13
  - **Was there any mention of number of tokens coinciding with the skin type of the customer?**
    - Yes – 8
    - No – 16
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# Time limitations

**Was a limit mentioned on the amount of minutes a customer can purchase in any one session?**



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# Survey – skin type

- **How many premises gave guidance on skin type?**
  - All premises had at least a poster detailing the 4 skin types –
  - Looking at this guidance 15 out of the 24 premises would allow over 12 minutes or were unsure of the maximum allowed.
  - Only one premises allowed for a maximum of 15 minutes with a Type 5 skin type, the example of the colour skin given was that of an African / Caribbean person.
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# Survey – TSA members?

## Members of the Sunbed Association

- YES – 9
  - NO – 8
  - NOT SURE – 7
  - HOW many of those had guidance/premises to hand from the Association – 5
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# Skin Types – The Sunbed Association

- Skin Typing

“There are six basic categories of skin type. See if you can identify your skin type using the table below. Your TSA sunbed operator will always assist you.”

“ NB: Skin Types 4, 5 and 6: These skin types need to exercise precaution on initial exposure. Initial exposure should also be moderate. This particularly applies if living in the UK as natural skin protection factor is depleted through lack of regular exposure to sunshine.”

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SKIN TYPE	SKIN DESCRIPTION	REACTION TO TANNING
1	Very fair Usually lots of freckles, red or sandy hair; blue or grey eyes	High burn risk; skin turns red and peels. Advised not to tan in sunlight Do NOT use a sunbed
2	Fair Possibly with freckles; blond to brown hair; blue, green and grey eyes	High burn risk. Great care should be taken in tanning. Tanning tends to be light
3	Fair to light brown No freckles; dark blond or brown hair, grey or green eyes	Medium risk of burning. Capable of building up a moderate tan
4	Light brown Dark brown hair and eyes	Burning is rare; tanning is rapid and deep See additional note below
5	Deep brown skin Dark hair and eyes	Burning is seldom; tanning is rapid and deep. This type of skin has its own natural protection. See additional note below
6	Very dark skin ? Black hair and dark eyes	Never burns in natural sunlight. See additional note below

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# WHO Factsheet No 287, March 2005

## **Some skin types are unsuitable for tanning**

- People with skin type I are more likely to use sunbeds than people with darker skin.
  - The ability of the consumer to recognize their skin type as not suitable for sunbed use is based on either self-diagnosis, or worst, a bad experience of sunburn. *For this reason sunbed operator training is needed to ensure correct skin type diagnosis.* While skin type II and higher can tan, skin damage can still occur following excessive exposure to UV.
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# Survey - Maintenance

## **How often were the beds cleaned?**

- All operators claimed to do some sort of daily cleaning of the bed and the area surrounding the bed and the room in which it was contained.
- With the un-manned premises, reliance is upon the customer to clean down using spray (contents not really known) and blue paper. However, on very few occasions would there be any used paper in the waste bins provided.

## **How many beds were serviced on a regular basis?**

- Unknown – 3
  - Yearly – 12
  - None – 9
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# Survey – Age/Session Restriction

- **Were the operators aware of the guideline on age limits?**
  - All of the operators replied 16, 17 or 18 for this question. However, checks were visual, and no record was kept on the ID seen eg driving licence numbers etc.
  - **How many gave examples of the record cards they keep?**
  - Only 4 premises were able to provide copies of record cards, leading me to believe that either the others had none at all or felt that what they did have was inadequate for it's purpose.
  - **How many operators were aware of the safe number of sessions recommended by either the HSE or the Sunbed Association?**
  - HSE – 6
  - Sunbed Association – 1
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# Survey - Tubes types and maintenance

## **How often are the tubes changed?**

- Not known – 6
- As and when needed – 2
- Over 1 year ago – 4
- Set periods of time and all tubes changed – 11

## **What is the wattage of the tubes being used?**

- Unknown (information illegible) - 4
  - 160 W – 17
  - 180 W – 4
  - 200 W – 28
  - 225 W – 4
  - 235 W – 4
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# Conclusions

- Zero control apparent in ‘unmanned premises’
  - Lack of training evident in many premises
  - Guidance only – No legislation
  - No formal control available for ‘coin’ operated beds
  - Methodology questionable – variables affecting results:
    - e.g. Variation in results, No. of hours used, last tube change, whether bed was ‘warm’
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# Lessons to be learned

- Asbestos
- Smoking
- SUNBEDS.....

How long do we have to wait before we act???

Action is needed NOW

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# Zita's Story

- **Mother dies after daily sunbeds**
- The family say sunbeds ruined their lives
- **29-year-old mother died of skin cancer after using sunbeds twice a day for seven years.**
- Zita Farrelly started using sunbeds at 14 and gave up when she was 21 - but was diagnosed with melanoma last year.



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# Recommendations

- BS EN needs urgent updating – highlighting a updated/clearer methodology
  - Legal requirements that follow the Scottish lead:
    1. Stricter controls on age controls - >18's
    2. Tighter regulation/ Licensing of premises
    3. Compulsory training of staff
    4. Prohibit the use of 'coin' operated beds
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