

SKIN CANCER

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Objectives

- Know how to recognize skin cancer
 - Basal cell carcinoma
 - Squamous cell carcinoma
 - Melanoma
- Learn the risk factors for skin cancer
 - UVA vs. UVB
 - Tanning beds
- Review methods of skin cancer prevention
 - What is the correct way to use sunscreen?

Skin Cancer Facts

- More than 1 million new cases of skin cancer will be diagnosed in the United States in 2008
- 1 in 5 Americans will develop skin cancer in their lifetime
- Total direct costs for non-melanoma skin cancer was 1.5 billion dollars in 2004

Skin Cancer Types



Basal cell

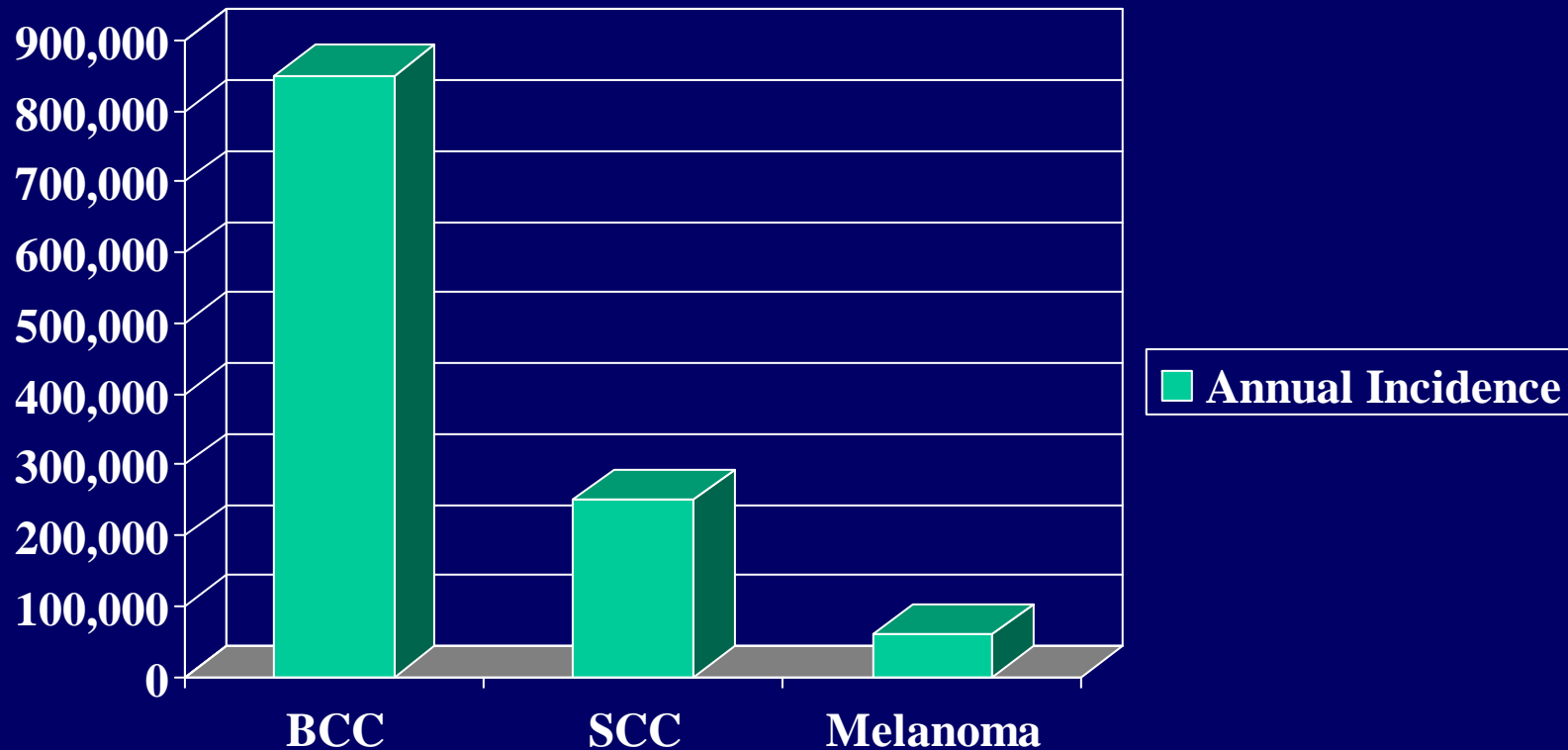


Squamous cell

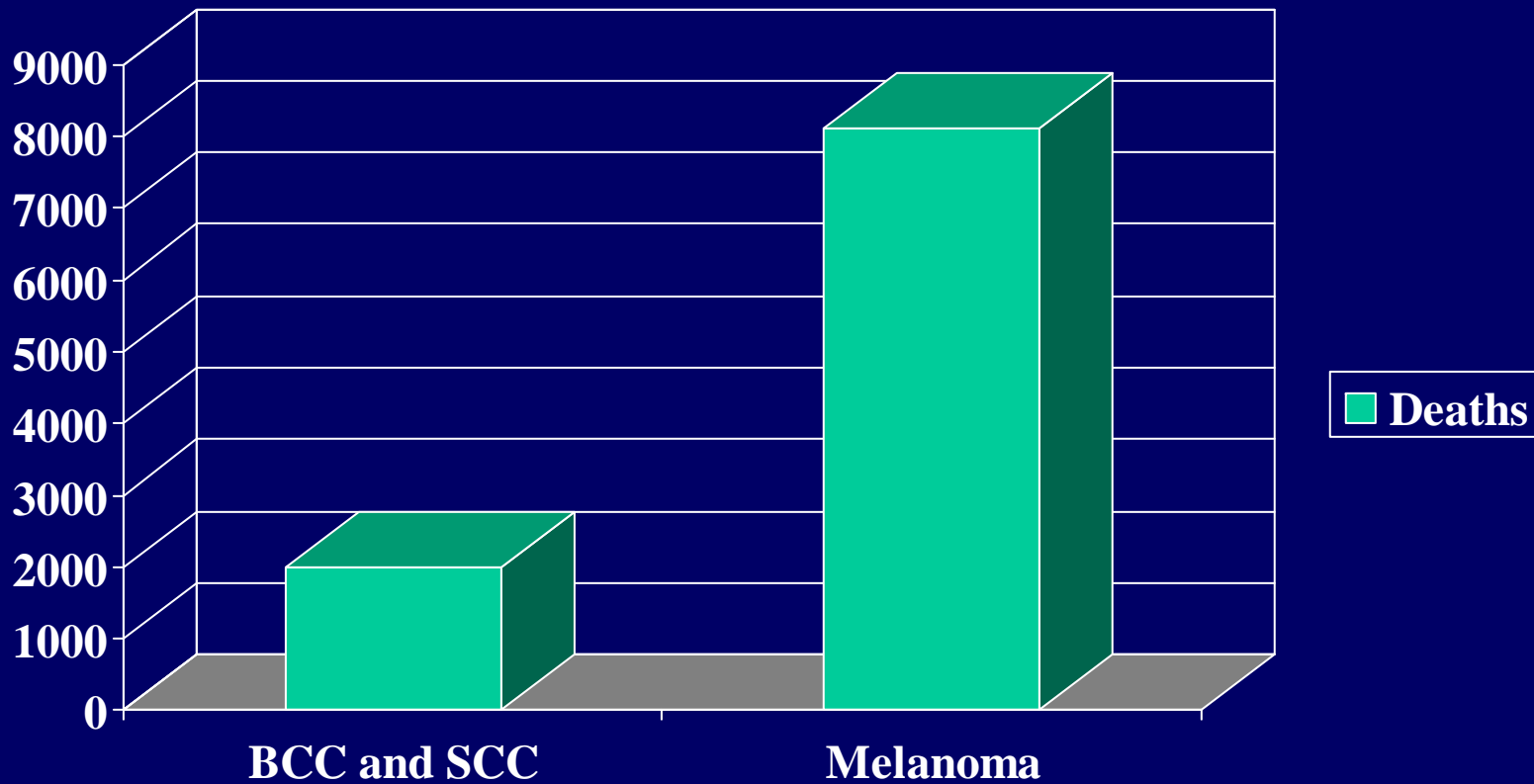


Melanoma

Skin Cancer Incidence



Skin Cancer Deaths



Basal Cell Carcinoma

- Most common malignancy in the US, more than 800,000 new cases annually in the US
- Locally invasive, but rarely metastasize

Basal Cell Carcinoma

SUBTYPES

- Superficial (15%)
- Nodular (75%)
 - Micronodular
 - Pigmented (6%)
- Infiltrative (5%)
- Sclerosing/Morpheaform (3%)



Non-melanoma Skin Cancer

TREATMENT

- Topical 5-fluoruracil
- Topical Imiquimod
- Cryosurgery
- Electrodesiccation and Curettage
- Excision
- Mohs micrographic surgery
- Radiation

Actinic Keratosis

(Intraepidermal neoplasia)

- Most common pre-malignant skin neoplasm
- 1 out of 1000 within 1 year develop into squamous cell carcinoma if untreated



Actinic Keratosis

TREATMENT

- Cryosurgery
 - Liquid nitrogen (boiling point of -196 C)
- Topical 5-fluoruracil
- Topical Imiquimod
- Topical Diclofenac
- Photodynamic therapy
- Sun protection



Squamous cell carcinoma

- Second most common cutaneous malignancy, 200,000 new cases in US each year
- Occur much more commonly in immunosuppressed pts, especially organ transplant pts
- Other risk factors: UV damage, thermal injury, radiation, HPV, burn scars (Marjolin's ulcer) and chronic injury (i.e. EB)

Squamous cell carcinoma

SUBTYPES

- SCC in situ (Bowen's disease)
- Keratoacanthoma
- Invasive SCC



Keratoacanthoma

Clinical Features

- Distribution- primarily sun-exposed skin
- Rapid growth over 6-8 weeks
- Size- 1-3 cm (rarely >10 cm)
- Crateriform endophytic and exophytic nodule with central keratin plug
- Complications- deep invasion without regression in 10-20%

Squamous Cell Carcinoma

- Hyperkeratotic papule with variable size and thickness
- Typically found on chronically sun damaged skin
- Metastasis occurs in 0.3-5%, but is more common in SCC of the lip (10-30%)

Malignant Melanoma

ABCD Guidelines

- A = Asymmetry
- B = Border irregularity
- C = Color variegation
- D = Diameter greater than 6 mm



Malignant Melanoma

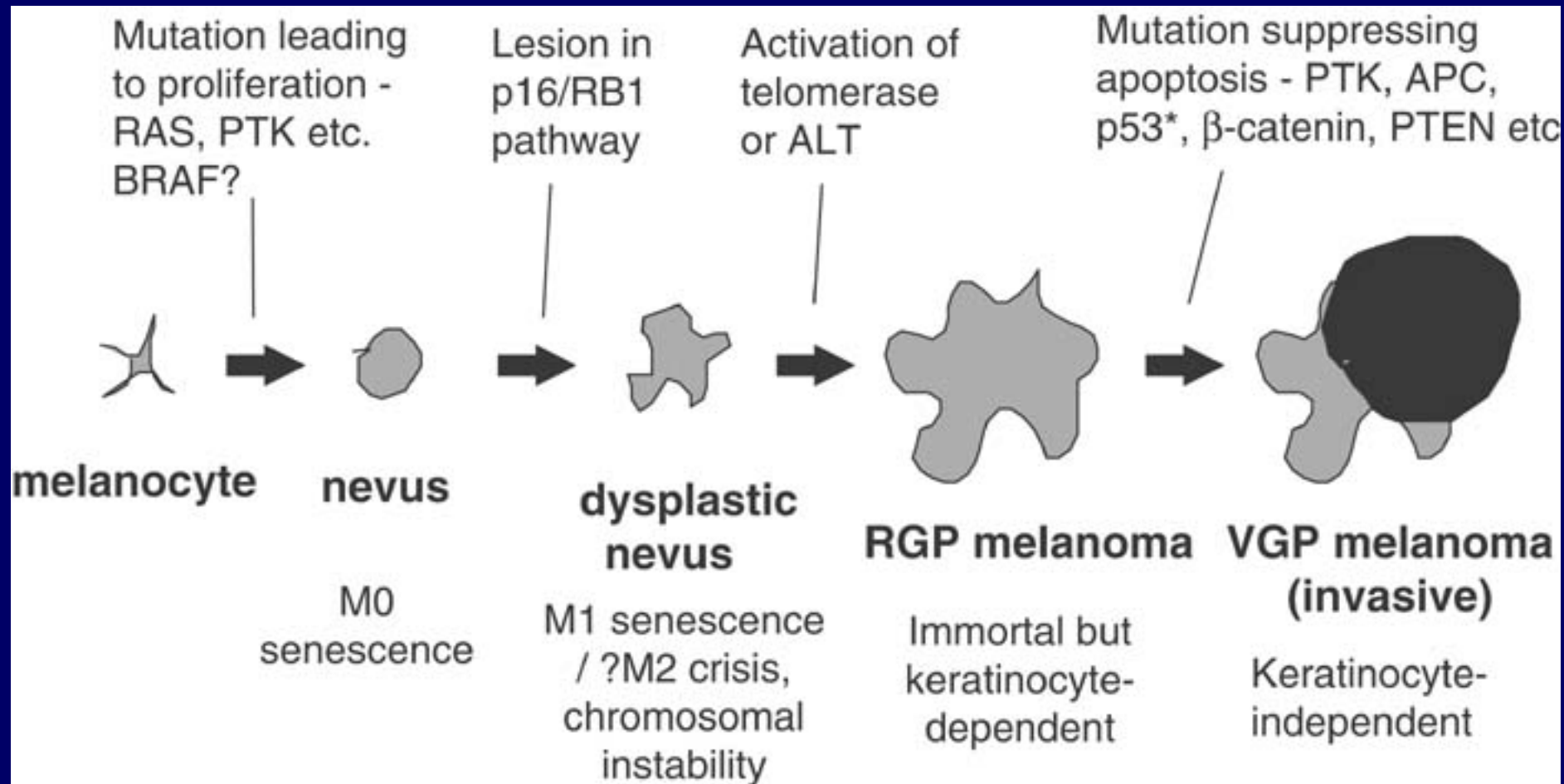
ABCDE Guidelines

- A = Asymmetry
- B = Border irregularity
- C = Color variation
- D = Diameter greater than 6 mm
- E = Evolution (or change)



The Ugly Duckling





Melanoma Facts 2008

- There will be approx. 116,500 new cases of melanoma in 2008
- Melanoma is the most common form of cancer in young adults 25-29 years old
- 1 in 58 Americans will be diagnosed with melanoma in their lifetime
- 1 American dies of melanoma every hour

Malignant Melanoma

USA Statistics

- 108,230 new cases of melanoma in 2007
 - 48,290 in situ (noninvasive)
 - 59,940 invasive
 - 33,910 men and 26,030 women
- 8,110 deaths attributed to melanoma in 2007
- Overall 5 year survival rate 92%
 - Up from 82% in the 1970s
 - 99% 5 year survival rate if detected early

Malignant Melanoma

Colorado Statistics

| Type of Cancer | Number of Cases in 2007 |
|-----------------|----------------------------|
| All Cancer | 19,190 |
| Prostate | 3,160 |
| Female Breast | 2,660 |
| Lung & Bronchus | 2,100 |
| Colon & Rectum | 1,790 |
| Melanoma | 1,210 |

Malignant Melanoma Statistics

- Rapidity of increased exceeds all malignancies except for lung cancer in women
- Lifetime risk
 - 1935- 1:1,500
 - 1960- 1:600
 - 1992- 1:105
 - 2000- 1:75 (estimated)
- Colorado lifetime risk for men- 1:43

Malignant Melanoma

Clinical Features

- Affects all age groups
 - 53 years = median
- Distribution
 - Blacks- acral and mucosa
 - Men- back
 - Women- legs

Malignant Melanoma

Clinical Variants

- Superficial spreading- 70%
- Nodular- 15-30%
- Lentigo maligna melanoma- 5%
- Acral lentiginous- 2-10%

Malignant Melanoma Treatment

- Surgical excision
 - MM in-situ: 0.5 cm with subcutaneous tissue
 - $MM \leq 1$ mm: 1 cm margin to fascia
 - $MM > 1$ mm: 1-2 cm margins to fascia with sentinel node biopsy

Malignant Melanoma

Relative Risk

| | |
|------------------------------------|-------|
| Fair skin | 2-3 |
| Excessive sun exposure | 3-5 |
| Immunosuppression | 2-8 |
| MM in a first degree relative | 2-8 |
| Whites | 12 |
| Large congenital nevus | 17-21 |
| Sporadic dysplastic nevus syndrome | 7-70 |
| FAMMM | 148 |

Non-melanoma Skin Cancer

RISK FACTORS

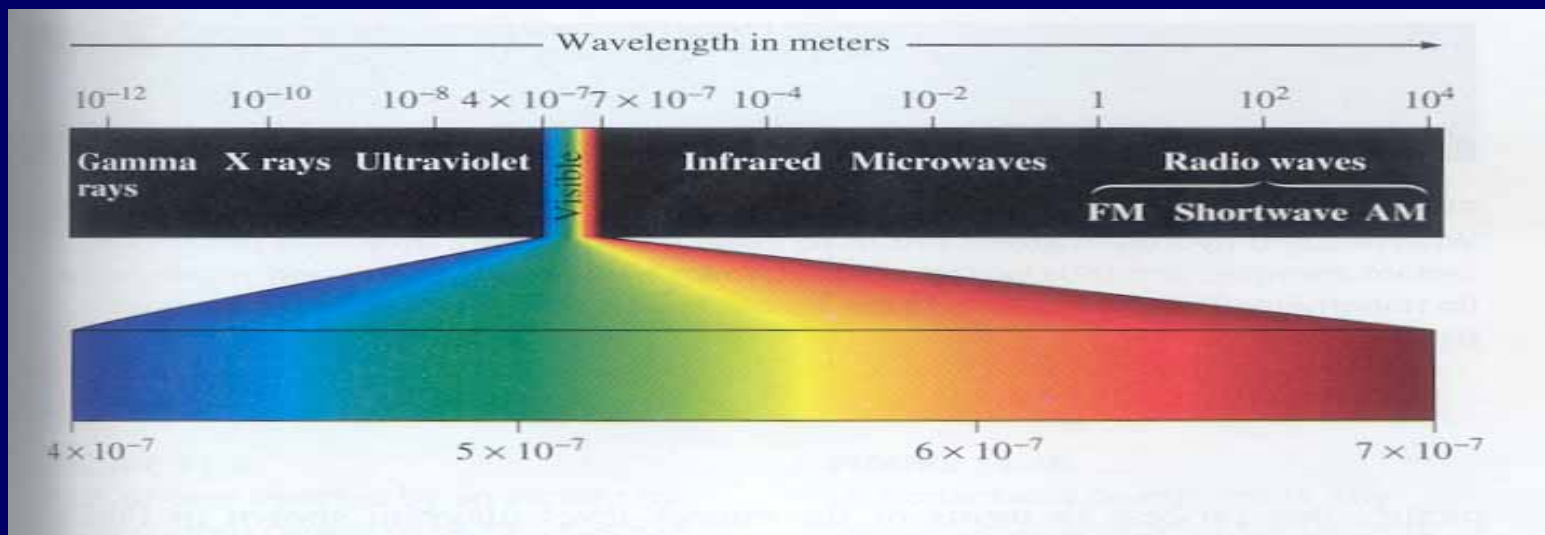
- Occurs more frequently in fair skinned individuals in geographic areas with higher UV exposure
- UV radiation is the most common cause of BCC
- Also occur after ionizing radiation, arsenic or polycyclic hydrocarbon exposure

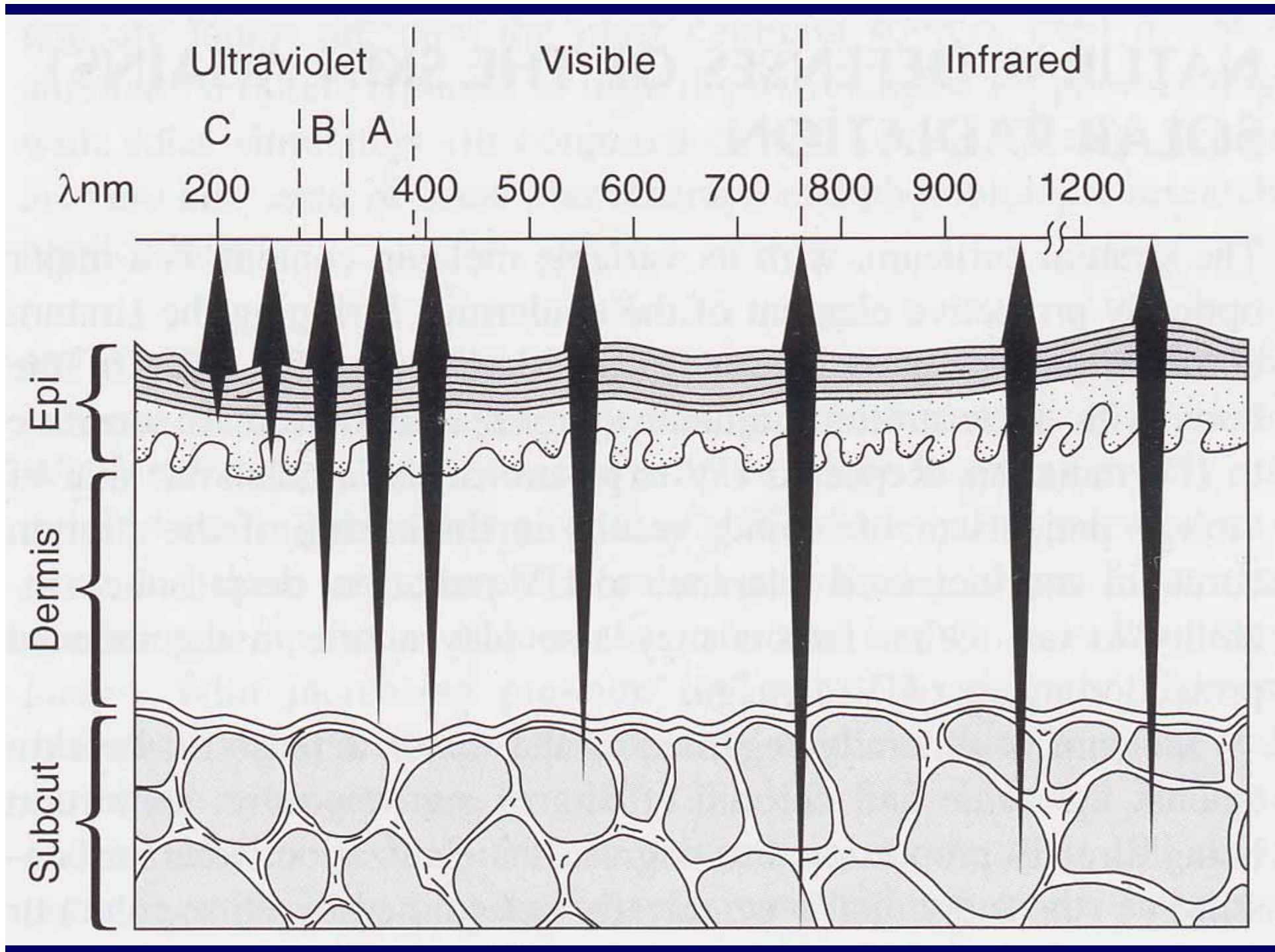
Fitzpatrick Skin Types

- I Always burns, never tans, extremely sun sensitive
- II Usually burns easily, tans minimally,
very sun-sensitive
- III Sometimes burns, tans gradually to light brown,
sun-sensitive skin
- IV Burns minimally, always tans to moderate brown,
minimally sun-sensitive
- V Rarely burns, tans well, sun-insensitive skin
- VI Never burns, deeply pigmented, sun-insensitive skin

Sun and the Skin

- Infrared: 750 nm – 1mm
- Visible Light: 400-750 nm
- UVA: 320-400 nm
- UVB: 320-290 nm
- UVC: 290-200 nm





Skin Cancer and Transplant Pts

- SCC = 65 fold risk
- BCC = 10 fold risk
- Melanoma = 3.4 fold risk
- Kaposi's sarcoma = 84 fold risk

Skin Cancer and Transplant Pts

RISK FACTORS

- Age, Skin type, UV radiation
- Genetic Factors
- HPV (in 65-90% of SCC)
- Level of immunosuppression:
 - CD4 count
 - Medications
 - Heart > Kidney > Liver

Skin Cancer and Transplant Pts

STATISTICS

- Non-transplant pts SCC:BCC = 1:4
- Transplant pts SCC:BCC = 4:1
- Incidence of skin cancer increases with number of years post-transplant:
 - 7% after 1 year in an Australian study, and 82% after 20 years
 - 0.2% after 1 year in a Dutch study, and 47% after 20 years

Skin Cancer Prevention

- Sun avoidance (Avoid mid-day sun)
- Sun protective clothing (Long-sleeved shirt)
- Shade
- Sunscreen
- Sombrero (Wide-brimmed Hat)
- Sunglasses

Who needs sunscreen?

- Everyone. An SPF of at least 15 should be used year round.

What is SPF?

- SPF stands for Sun Protection Factor.
- The SPF only reflects the product's screening ability for UVB rays.
- A sunscreen with SPF 15 prolongs burning time by a factor of 15. In other words, it would take 15 times longer to develop a sunburn than without sunscreen.

When should sunscreen be used?

- Sunscreen should be applied every day to sun exposed skin, not just if you are going out into the sun.
- Windows protect against UVB, but do not filter UVA.
- Even on cloudy days up to 80% of the sun's UV rays pass through clouds.
- Sand reflects 25% and snow reflects 80% of the sun's UV rays.

How much sunscreen should be used and how often should it be applied?

- Sunscreen should be applied to dry skin 15-30 minutes before going outdoors.
- 1 ounce of sunscreen, enough to fill a shot glass, is enough to cover the exposed areas of the body.
- Sunscreen should be reapplied at least every 2 hours or after swimming or sweating heavily.
- Even “water-resistant” sunscreens lose their effectiveness after 40 minutes in the water.

What type of sunscreen should be used?

- Sunscreen should protect against both UVA and UVB.
- UVA protection sunscreen ingredients include:
 - Avobenzone (Parsol 1789)
 - Ecamsule (Mexoryl SX)
 - Titanium dioxide
 - Zinc oxide

Will sunscreens limit the amount of vitamin D I get?

- Since sun exposure is responsible for vitamin D production in the skin, wearing sunscreen will decrease the skin's production of vitamin D.
- Individuals concerned about not getting enough vitamin D should discuss with their doctor the options for obtaining vitamin D through foods and/or a vitamin supplement.

Is there a safe way to tan?

- There is no safe way to tan.
- Every time you tan, you damage your skin and this damage accumulates over time.
- Accumulated damage accelerates the aging process (wrinkles and age spots) and also increases your risk for all types of skin cancer.

Tanning Facts

- Tanning occurs when the skin produces pigment to protect from UV radiation
- Indoor tanning devices can emit UV radiation levels up to 15x greater than what one is exposed to outdoors
- Indoor tanners are particularly susceptible to skin burning because of concentrated UV

Indoor Tanning Regulation

- Federal govt. regulates manufacture and labeling of tanning devices
- States regulate indoor tanning facilities

AADA Position Statement: Indoor Tanning

- No minor should be permitted to use tanning devices
- A Surgeon General's warning should be placed on all tanning devices
- "UV radiation can cause skin cancer and other nonreversible forms of damage to the skin"
- Regular inspections for defects by the health dept.
- Adequate training for tanning device operators to recognize skin injury and skin type
- Operators should limit exposure times according to manufacturer recommendations
- No person or facility should advertise "safe tanning" or similar wording

Skin Cancer Prevention

- **Protect Your Skin With Clothing**
 - Dark colors and tightly woven fabrics provide better sun protection
- **Wear a Hat**
 - A hat with at least a 2- to 3-inch brim all around is best
- **Wear Sunglasses**

Skin Cancer Prevention

- **Use Sunscreen**

- Use sunscreen and lip balm with an SPF of 15 or higher.
- Reapply every 2 hours and after swimming or sweating.
- Use sunscreen even on hazy or overcast days.
- Apply 20 to 30 minutes before you go outside.
- Don't stay out in the sun longer because you're using sunscreen.

- **Protect Children**

Skin Cancer Prevention

- **Seek Shade**
 - However, sunlight (and UV rays) can come through clouds, can reflect off water, sand, concrete, and snow, and can reach below the water's surface.
- **Avoid Other Sources of UV Light**
 - Don't use tanning beds and sun lamps.
 - Sunless tanners are okay
- **Avoid Harmful Chemicals**
 - Arsenic can be found in well water, pesticides and herbicides, some medicines, and even herbal remedies.

Skin Cancer Prevention

- **Get Vitamin D safely through healthy diet**
 - That may include vitamin supplements
- **Check your birthday suit on your birthday**
 - Self skin examinations
 - See a dermatologist if you notice anything changing, growing or bleeding

The End