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### Dermoscopy in Family Medicine

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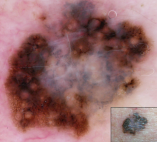
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## **Dermoscopy in Family Medicine**

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## Dermoscopy in Family Medicine

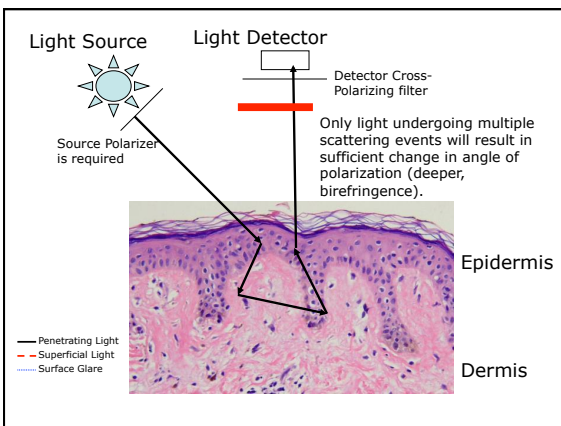
Alex Verdieck-Devlaeminck, M.D.  
James Holt, M.D.  
Richard Usatine, M.D.

### Goal - Increase the use of dermoscopy throughout FM

- Seminar objectives:
  - Introduce dermoscopy as a method for dermatologic diagnosis
  - Teach methods to identify melanoma using dermoscopy
  - Introduce other methods to identify additional skin conditions
  - Provide resources for learning dermoscopy

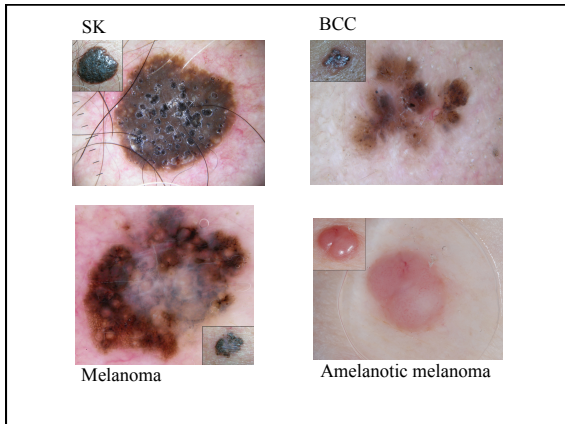
### Dermoscopy: Definition

- Use of handheld light-source with magnification to examine surface and **subsurface** morphology of cutaneous lesions
  - Correlates with histology



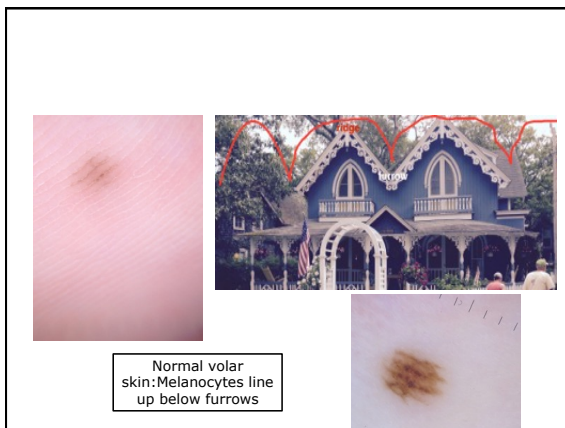
### Why Use Dermoscopy?

- Advantages
  - Aids in diagnosis of skin cancer and other skin conditions
  - Increases sensitivity and specificity of skin cancer diagnoses
  - Allows digital surveillance and monitoring of patients with many nevi
  - Enhances confidence in clinical diagnosis
  - Reassures patients and physicians
  - Lowers total cost of lesion management by improving accuracy of diagnoses, smarter biopsies



- Parallel pattern (volar skin = palms/soles)

Benign – furrows      Melanoma - ridges



### How dermoscopy helps

### Dermoscopic features of melanoma

### Research evidence

- Higher diagnostic odds ratio for melanoma of 4.7 (49%) and 3.7 (56%) and 15.6
  - Kittle H, et al. Lancet Oncol 2002;3:159-65
  - Bafounta ML, et al. Arch Dermatol 2001;137:1343-50.
  - Vestergaard M, et al. Br J Dermatol 2008;159:669-76
- Reduce benign to malignant excision ratio from 18:1 to 4:1 (Carli P, et al. Br J Dermatol 2004;150:687-92.)
- Reduced rate among PCPs for benign pigmented lesions excised or referred by 42% (Carli P, et al. J Am Acad Dermatol 2004; 150:687-92)
- Sensitivity for diagnosing melanoma 38% naked eye vs. 72% with dermoscopy (Menzies SW, et al. Br J Dermatol 2009; 161: 1270-7)

## Dermoscope features

10x magnification

Polarized: Non-contact OK

- Pigment/lesion characteristics without light reflection, deeper penetration into dermis

Non polarized view: Must use contact

- Fluid interface: Alcohol or U/S gel
- Surface structures seen best
- Best approach is to have hybrid scope so both views can be used.

## Benign or Bad

- Benign or biopsy
- Need to know characteristics of benign and malignant lesions by some method

## Methods of Learning Dermoscopy

- Three Point Checklist
- Two-Step Algorithm
- TADA
- Chaos and Clues
- Elephant Method (Pure Pattern Recognition)

## Learning

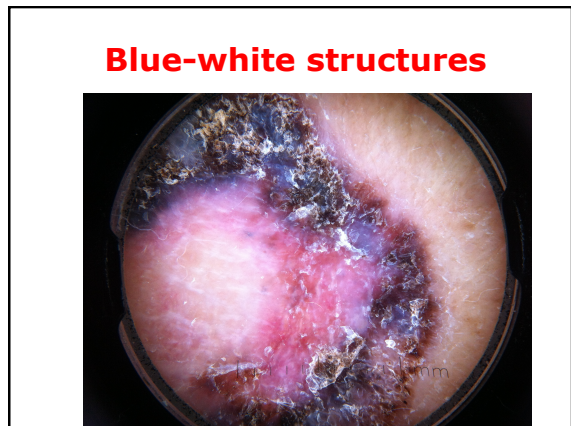
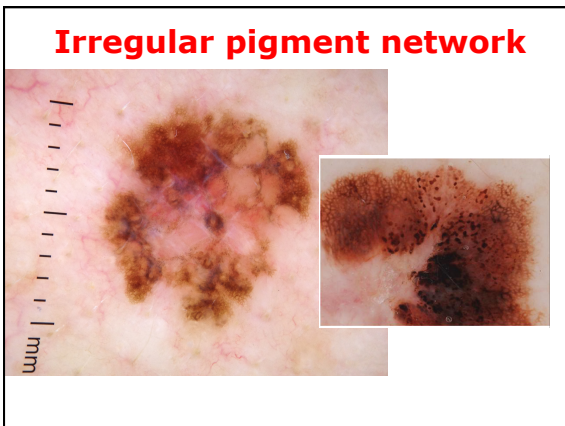
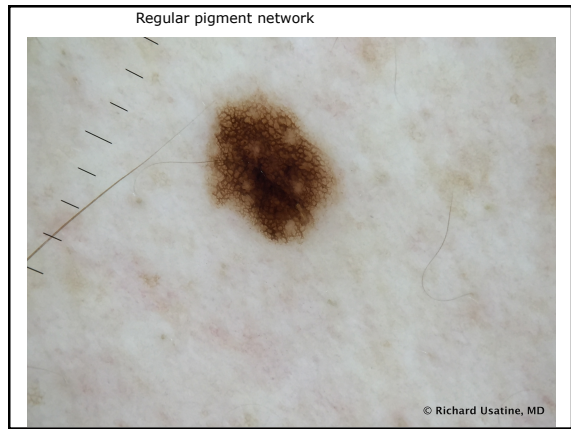
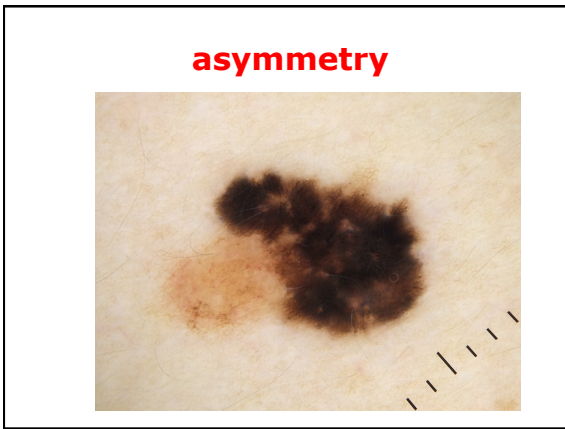
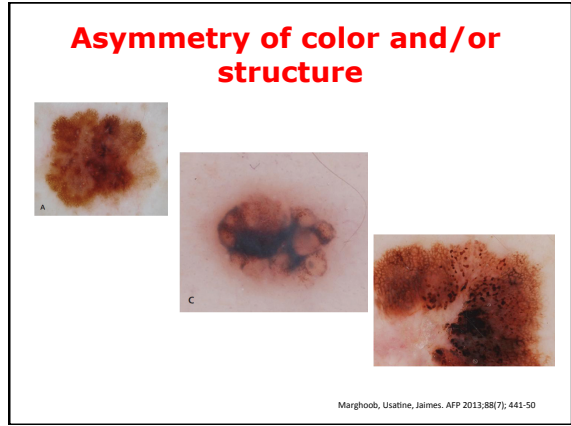
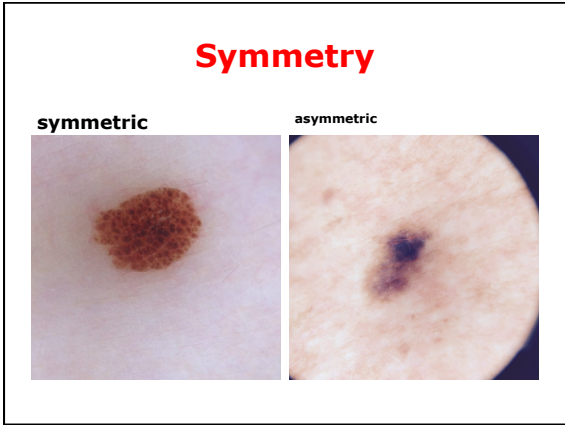
- Learning DERMOSCOPY requires learning a new set of terminology and recognizing new structures.
- While there are many algorithms that one starts with, the goal is for immediate pattern recognition.

## Three point checklist to diagnose high risk pigmented lesions

- **Asymmetry in color** and or structures in one or two perpendicular axes
- **Atypical network**: pigmented network with irregular holes and thick lines
- **Blue-White structures**: white scar-like depigmentation and/or blue pepper-like, globular or structure-less areas
- **2 out of 3, 3 out of 3 .... excise/refer**

## Three-point checklist

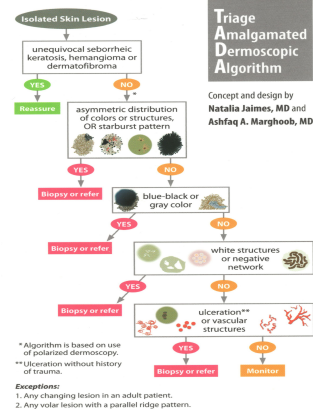
- Soyer HP, Argenziano G, Zalaudek I, Corona R, Sera F, Talamini R, Barbato F, Baroni A, Cicale L, Di Stefani A, Farro P, Rossiello L, Ruocco E, Chimenti S.
- Three-point checklist of dermoscopy. A new screening method for early detection of melanoma. *Dermatology*. 2004;208(1):27-31.



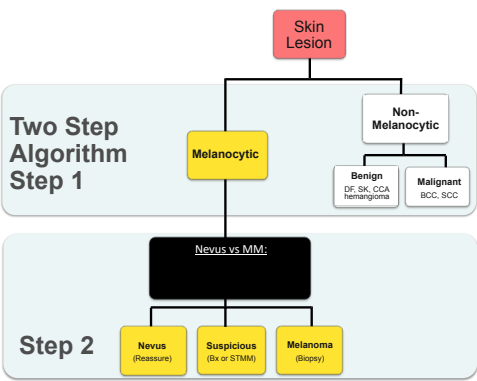
### 3 Point checklist

- In one study 150 participants looked at photographs of 165 lesions:
  - sensitivity 91%
  - novice sensitivity 87%
  - sensitivity for melanoma 94%
  - overall specificity 79%
- Zalaudek I, Argenziano G, DERMOSCOPY WORKING GROUP.. Three-point checklist of dermoscopy: an open internet study. Br J Dermatol. 2006 Mar;154(3):431-7.

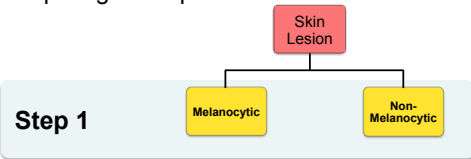
### TADA



### Two Step Algorithm Step 1



### Two-step diagnostic procedure



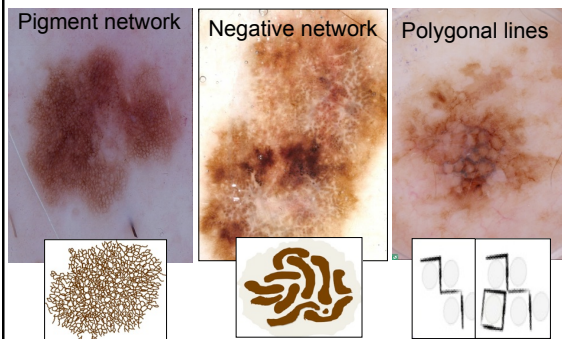
Step 1: Is the lesion a melanocytic tumor?

### I (any location)

Clues to the presence of a significant number of melanocytes are: (enough to make it a melanocytic tumor)


1. Network
2. Aggregated or peripheral rim of globules
3. Streaks
4. Homogeneous blue pigment

### 1. Network




**Exception 1:  
Pattern trumps structure**

fine network  
surrounding  
a scar like  
area



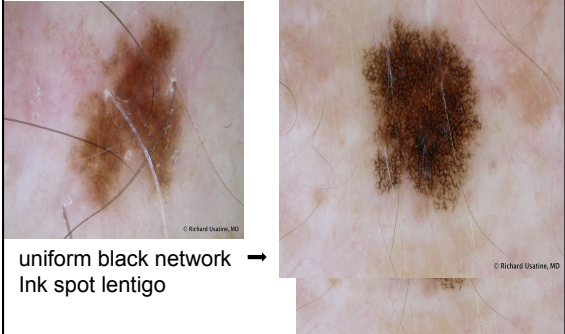
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**DF**



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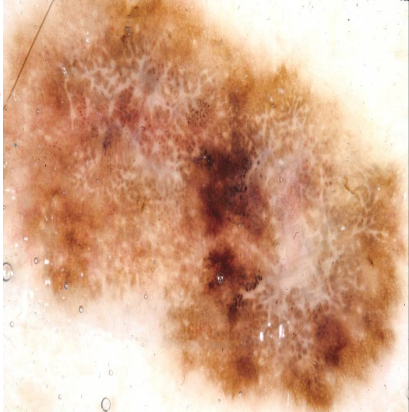
**Exception 2:  
Pattern trumps structure**



uniform black network →  
Ink spot lentigo


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**1b.  
Negative  
network**

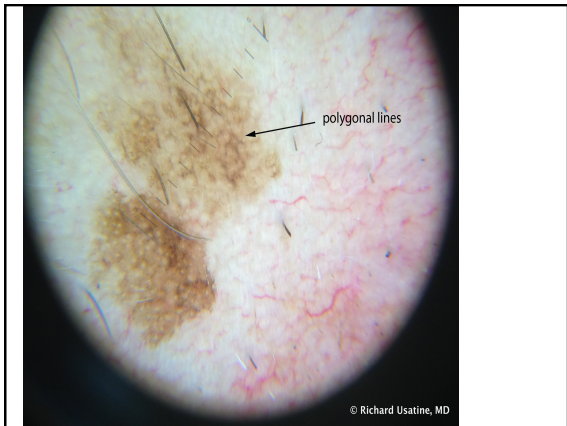


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**1c. Polygonal lines**

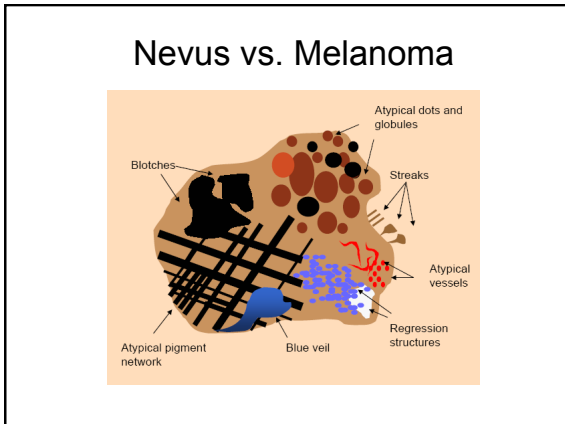
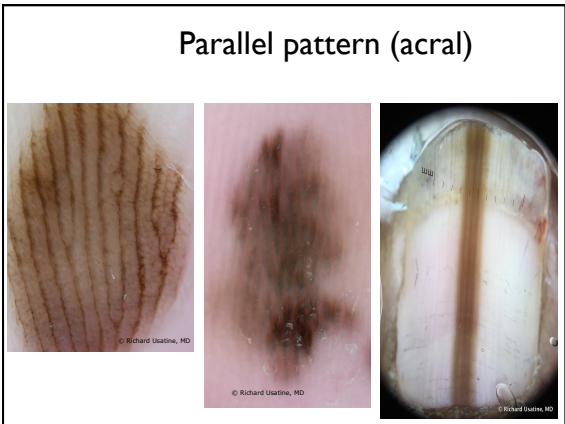
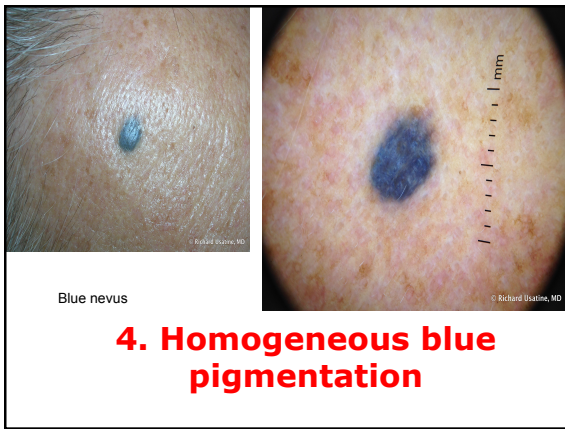
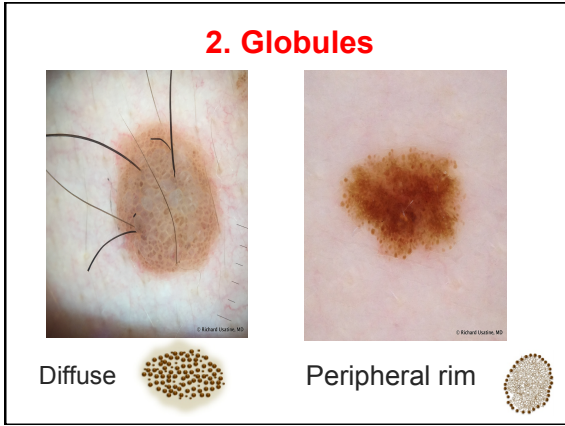
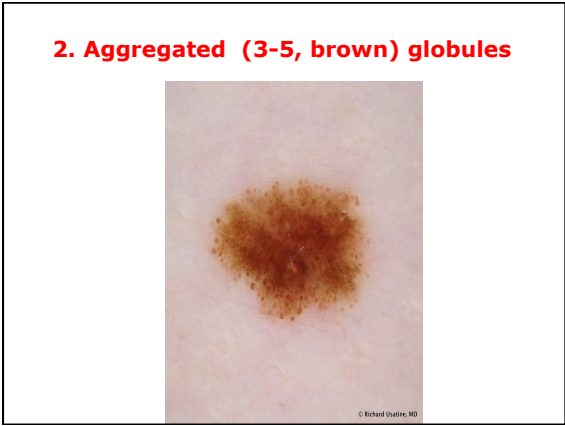


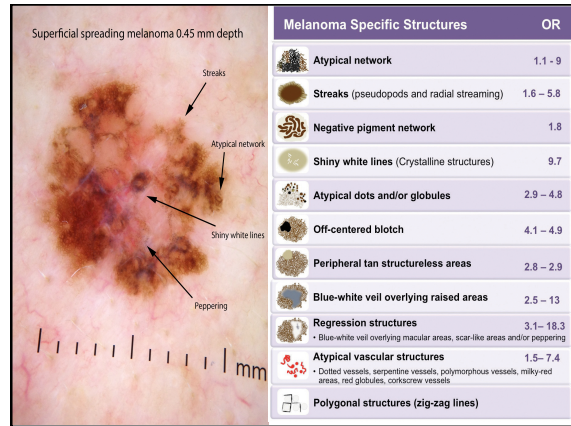
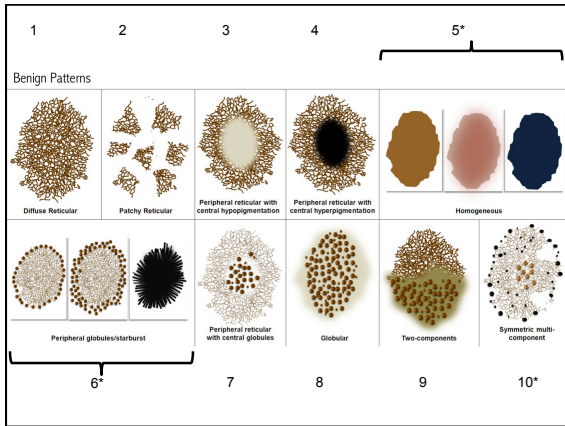
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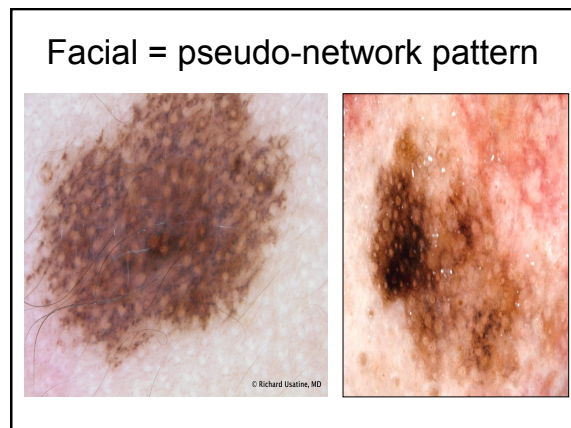
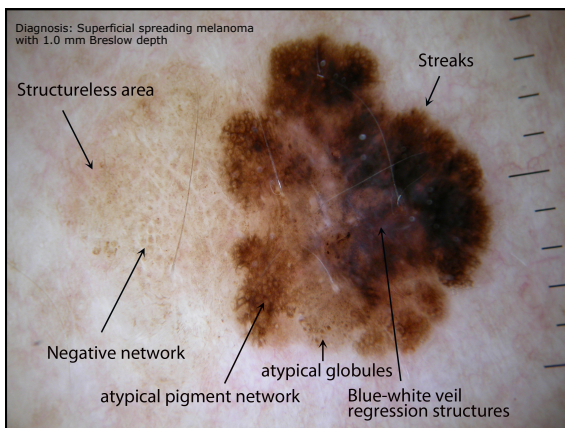


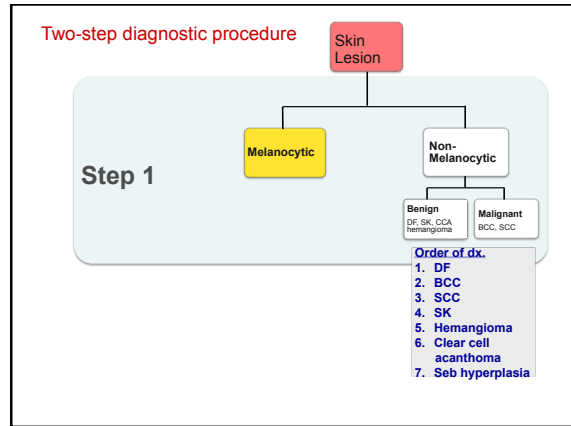
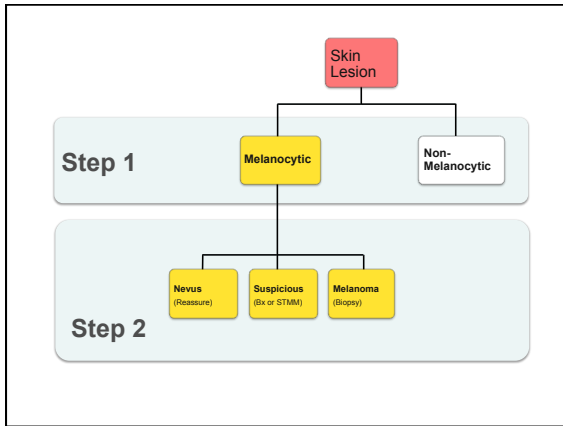


**Melanoma**

- ✓ Usually deviates from global benign patterns (chaos)
- ✓ Usually has at least one of the melanoma specific features (clues)

Melanoma Specific Structures	OR
Atypical network	1.1 - 9
Streaks (pseudopods and radial streaming)	1.6 - 5.8
Negative pigment network	1.8
Shiny white lines (Crystalline structures)	9.7
Atypical dots and/or globules	2.9 - 4.8
Off-centered blotch	4.1 - 4.9
Peripheral tan structureless areas	2.8 - 2.9
Blue-white veil overlying raised areas	2.5 - 13
Regression structures	3.1 - 18.3
• Blue-white veil overlying macular areas, scar-like areas and/or peppering	
Atypical vascular structures	1.5 - 7.4
• Dotted vessels, serpentine vessels, polymorphous vessels, milky-red areas, red globules, corkscrew vessels	
Polygonal structures (zig-zag lines)	





### 1. Dermatofibroma

<i>Delicate network</i>		
<i>Central scar-like/crystalline</i>		
<i>Ring-like globules</i>		
<i>Vessels / blush in center</i>		

### 2. BCC

**Positive features (At least one present):**

<i>Large grey-blue ovoid nests</i>		
<i>Multiple grey-blue globules</i>		
<i>Leaflike areas</i>		
<i>Spoke wheel areas</i>		
<i>Arborizing "tree-like" telangiectasia</i>		
<i>Ulceration</i>		

### Non pigmented BCC

<b>BCC</b>	
<b>Recurrent BCC/SCAR</b>	

### 3. SCC


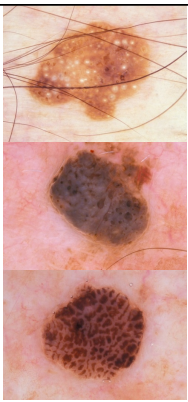
**Focally scaly/keratotic and rough**

<i>Glomerular vessels</i> <i>focally present at periphery</i>		
<i>Hairpin vessels</i> <i>usually with a white halo</i>		
<i>Keratin pearls &amp; white circles</i>		
<i>Rosettes (strawberry pattern)</i>		
<i>Brown dots/globules aligned in a linear fashion at the periphery</i>		

NB: Pigmented AK can also have structures seen in LMM!

### 4. SK


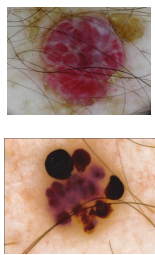
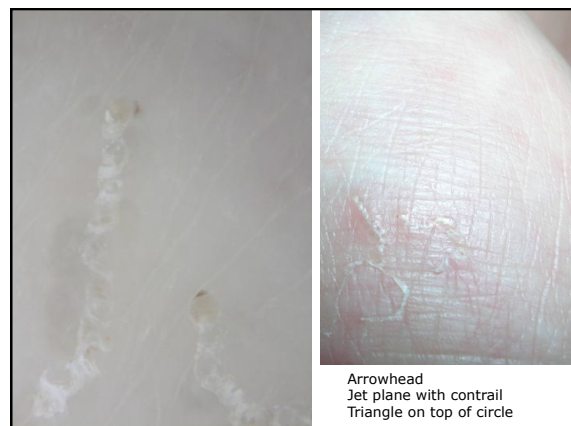
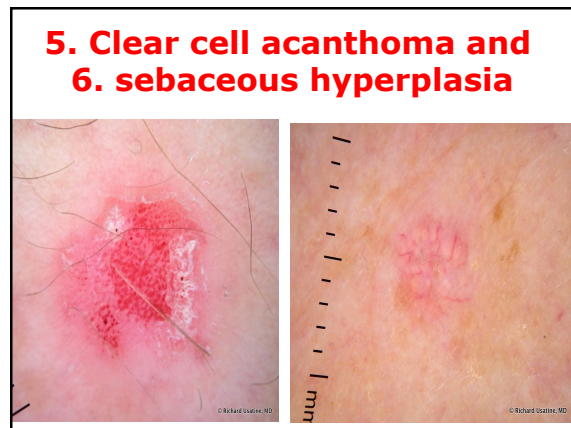
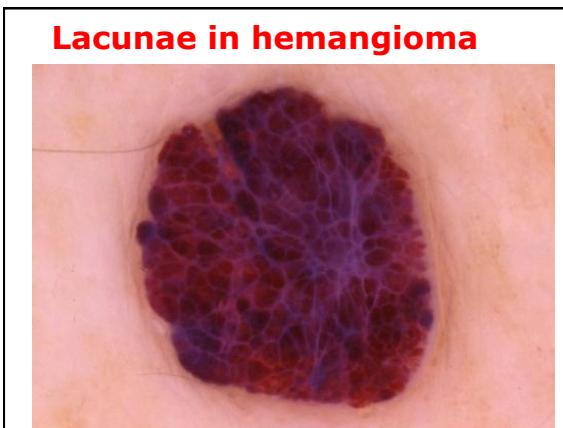
- Milia-like cyst
- Comedo-like opening
- Fissures & ridges (gyri & sulci)
- Fingerprint-like
- Hairpin vessels
- Moth-eaten borders

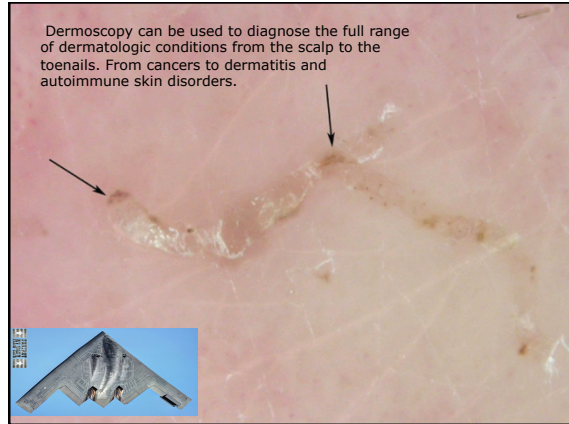



### 4. Vascular lesion

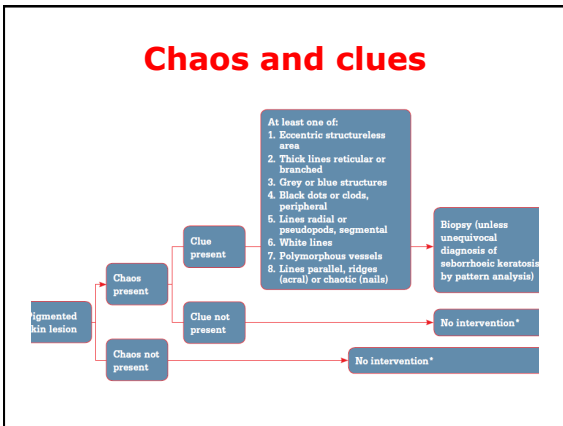
*Lacunae separated by BWV septae*  
Sacculae

red  
 maroon  
 blue  
 black  
 clear



Dermoscopy can be used to diagnose the full range of dermatologic conditions from the scalp to the toenails. From cancers to dermatitis and autoimmune skin disorders.



### Dermoscopy Resources

- Dermoscopy. Website from Italy that includes a free dermoscopy tutorial— <http://www.dermoscopy.org/>
- International Dermoscopy Society, <http://www.dermoscopy-ids.org/>
- Johr R, Stolz W. Dermoscopy: An Illustrated Self-Assessment Guide. New York, NY: McGraw-Hill; 2<sup>nd</sup> edition
- Marghoob AA, Usatine RP, Jaimes N. Dermoscopy for the family physician. Am Fam Physician. 2013 Oct 1;88(7):441-50.
- [www.dermnetnz.org](http://www.dermnetnz.org)
- [www.dermoscopyatlas.com](http://www.dermoscopyatlas.com)
- Atlas of Dermoscopy, Marghoob
- Dermoscopy the Essentials, Soyer
- <https://isic-archive.com/#images> - over 12K images in public domain that are labeled and can be used for teaching and learning

### Electronic teaching options

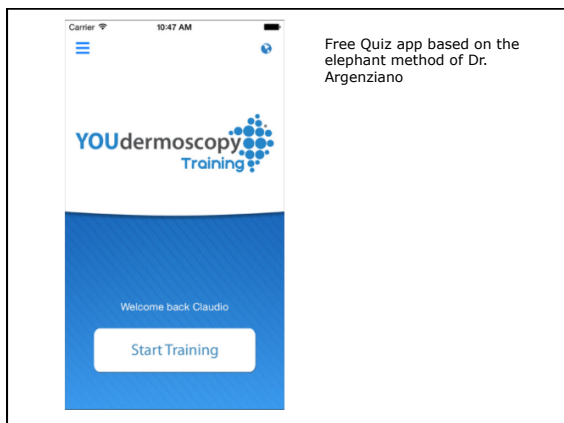
- Videos on [dermlite.com](http://dermlite.com) website: Under "Resources", click on "Videos". Dr. Usatine's "Watch and Learn: Dermoscopy" gives a introduction to dermoscopy, and the Maui Derm series highlights the 2-Step Algorithm.
- "Dermoscopy Made Simple" videos on YouTube provide an overview of the Chaos and Clues system.

### DERMOSCOPY TWO STEP ALGORITHM

Includes:

- Two step algorithm
- All Charts
- 50 Unknown cases
- Many images

dermlite<sup>®</sup> Usatine<sup>®</sup> Medica



## Dermoscopy Courses

### Short:

- American Academy of Family Physicians (AAFP) yearly fall FMX offers three 3 hour dermoscopy workshops: <http://www.aafp.org/>
- AAFP Skin Course yearly offers a three hour Dermoscopy workshop within four days of concentrated dermatology learning

### Longer:

- One day - Vancouver November 20, 2017 [www.stpaulscme.org](http://www.stpaulscme.org)
- Two day - Manhattan every fall
- Three day - National Park every summer

