Body Surface Area (BSA)

- BSA is a commonly used measure of severity of skin disease
- Defined as the percentage of the total body surface area affected by psoriasis

Handprint Method
- Most common method in clinic and clinical trials
- Use patient’s full handprint to estimate 1%

Wallace AB. Some experiences in local burn care. Br J Plast Surg. 1951
Rossiter ND, Chapman P, Haywood IA. How big is a hand? Burns 1996
Thomas CL, Finlay AY. The ‘handprint’ approximates to 1% of the total body surface area whereas the ‘palm minus the fingers’ does not. Br J Dermatol. 2007
Measures for Assessing Psoriasis Severity:

BSA  PASI  PGA

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BSA: 1 handprint is ~ 1% of the total BSA.

This patient would have ~7% BSA (push all lesions together, virtually, to determine total number of handprints of psoriasis.
Psoriasis Area and Severity Index (PASI)

• PASI is the most commonly used severity measure in clinical trials
• Why?
  • PASI assesses plaque qualities and area affected (many global assessments don’t account for area involved)
  • Familiar to investigators and is relatively easy to do
  • Is performed in most trials, enabling ease of comparison across clinical trials
  • Detects change when psoriasis is moderate-severe (higher BSA)
  • Good inter- and intra-observer reliability

Frederiksson and Pettersson, Oral Therapy with a New Retinoid, Dermatologica 1978
Psoriasis Area and Severity Index

PASI 12
BSA 10%

75% reduction of PASI (PASI 75)

90% reduction of PASI (PASI 90)

These scores are usually what define moderate-severe psoriasis for entry in clinical trials.

PASI 75 is considered meaningful improvement by the US FDA and other regulatory agencies.

Many newer drugs have high percentages of patients reaching PASI 90.
### Psoriasis Area and Severity Index (PASI)

<table>
<thead>
<tr>
<th>Region</th>
<th>Erythema (0-4)</th>
<th>Induration (0-4)</th>
<th>Scaling (0-4)</th>
<th>Sum (E+I+S)</th>
<th>Area score**</th>
<th>Weighting Multiplier</th>
<th>Region score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head/Neck</td>
<td>+</td>
<td>+</td>
<td></td>
<td>=</td>
<td>x</td>
<td>x</td>
<td>0.1</td>
</tr>
<tr>
<td>Upper Extremities</td>
<td>+</td>
<td>+</td>
<td></td>
<td>=</td>
<td>x</td>
<td>x</td>
<td>0.2</td>
</tr>
<tr>
<td>Trunk</td>
<td>+</td>
<td>+</td>
<td></td>
<td>=</td>
<td>x</td>
<td>x</td>
<td>0.3</td>
</tr>
<tr>
<td>Lower Extremities</td>
<td>+</td>
<td>+</td>
<td></td>
<td>=</td>
<td>x</td>
<td>x</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Severity score 0-4:**
- 0 = None
- 1 = Slight or Mild
- 2 = Moderate
- 3 = Severe or Marked
- 4 = Very severe or very Marked

**Area score 0-6:**
- Determine percentage of region affected.
- 0 = 0
- 1 = 0 - <10%
- 2 = 10 - <30%
- 3 = 30 - <50%
- 4 = 50 - <70%
- 5 = 70 - <90%
- 6 = 90 - 100%

| Final PASI score (sum of 4 region scores) |
Erythema

- 0 = clear – May have residual hypo/hyperpigmentation
- 1 = mild – pink to light red
- 2 = moderate – darker pink to red
- 3 = marked – darker red
- 4 = very marked – beefy red to violaceous
Scaling

- 0 = clear – no scale
- 1 = mild – mainly fine scale, some lesions partially covered
- 2 = moderate - coarser thin scale, most lesions partially covered
- 3 = marked – coarser thick scale, nearly all lesions covered,
- 4 = very marked – coarse thick scale, lesions entirely covered
Induration

- Elevation of lesions relative to normal surrounding skin
- 0 = clear – no induration
- 1 = mild – slight elevation above normal skin
- 2 = moderate - easily palpable with rounded edges
- 3 = marked – elevated with hard, sharp borders
- 4 = very marked – Very elevated with very hard, sharp borders
PASI: Area Scoring 0-6

Asks: What percentage of the body region being scored is affected with psoriasis?

For example, if you were scoring the Upper Extremities:

1. Estimate percentage of upper extremities affected. Answer: ~20%

2. Translate percentage affected to a score. Answer: 2

0= 0
1= >0 - <10%
2= 10 - <30%
3= 30 - <50%
4= 50 - <70%
5= 70 - <90%
6= 90 – 100%
Tools for doing PASI: GRAPPA APP
For each of the 4 body regions:

1. Slide the bar to select a score 0-4 for erythema, scale, and induration (will pop up photos to guide you)

2. Enter Area score (either number of handprints or percentage involved)

3. Final PASI and BSA calculated for you.

The app will be available soon for free on iPhone and Android.
Physician Global Assessment (PGA)

The PGA, or Physician Global Assessment, is a scoring system used to rate the severity of psoriasis. In clinical trials, it is a primary endpoint (most studies look at % of patients who achieve clear/almost clear). There are many different PGA versions (most are 0-5 or 0-4).
Physician Global Assessment (PGA)

E = Erythema averaged over all lesions (0-5)

I = Induration averaged over all lesions (0-5)

S = Scale averaged over all lesions (0-5)

PGA = \( \frac{E + I + S}{3} \) rounded to whole number 0-5