The *Wellbeing in Wounds Inventory (WOWI)*: A New Way to Measure Outcomes for Patients with Chronic Wounds
QoL as an outcome measure for health

• QoL is a broad concept covering social, economic and health status;
• As a health outcome measure (HRQoL) the focus is on limitations of functioning;
• Deficit model;
• Assumption is that if no problems QoL is good.
For example…

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Not Sure</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel <strong>anxious</strong> about my wound(s)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel <strong>frustrated</strong> with the time it is taking for the wound(s) to heal</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I am confident that the wound(s) I have will heal</td>
<td></td>
<td></td>
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<tr>
<td>I worry that I may get another wound in the future</td>
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</tr>
<tr>
<td>The appearance of the wound site is <strong>upsetting</strong> to me</td>
<td></td>
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</tr>
<tr>
<td>I worry about bumping the wound site</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I worry about the impact of the wound(s) on my family/friends</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
What about well-being?

• Well-being is also a broad concept;
• Focus is on growing psychosocial resources;
• Not just absence of negative affect, but presence of positive emotions;
• **Asset model**;
• **Mediator variables**?
Factors that may influence Well-Being

Wound, treatment pain;
Odour, exudate;
Social isolation;
Psychological consequences

Coping;
Resilience;
Personality;
Optimism;
Social support;
We want to know:

• With all the problems associated with having a wound-why do some people have positive well-being?

• What factors protect well-being?
• Does well-being improve with wound healing?
• How can we improve well-being?

• Can we develop a good, psychometrically sound, measure of well-being?
Do we need a new measure?

**Quality of Life**
- Cardiff Wound Impact Schedule;
- Charing Cross Venous Leg Ulcer Questionnaire;
- SF-36
- EuroQol;
- Nottingham Health Profile;
- Philadelphia Geriatric Centre Multi-level assessment instrument;

**Well-Being**
- Cardiff Wound Impact Schedule, Well-Being scale (but...);
Study: Method

• Questionnaire developed based on literature review, interviews with clinicians and patients;
• Phase 1: 100 patients completed draft questionnaire;
• Phase 2: 50 patients completed refined questionnaire at two time points;
• Psychometric analysis;
Participant characteristics:

- Mean age of 75 years;
- Male/female balance;
- Wound duration 3 weeks to 50 years;
- Treatment time ranged from first occasion to several years.
Results: WOWI Factors

- Items loaded onto 2 factors

- Wound worries
  Concerns about symptoms, treatment & support

- Personal resources
  Personal attributes, coping & social support

= Total well-being score
WOWI: Wound worries

<table>
<thead>
<tr>
<th>The following are problems for me:</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My wound pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The smell from my wound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The leakage from my wound</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My social situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Having a wound makes me feel:</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxious/worried</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed/miserable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WOWI: Personal resources

<table>
<thead>
<tr>
<th>How supported do you feel in your:</th>
<th>Very supported</th>
<th>Supported</th>
<th>Neutral</th>
<th>Little support</th>
<th>No support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life in general</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Wound care or treatment</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How much control do you feel you have in your:</th>
<th>Full control</th>
<th>Some control</th>
<th>Neutral</th>
<th>Little control</th>
<th>No control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life in general</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Social situation</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
Results: Internal Reliability

Cronbach’s Alpha:

- **Wound worries** = 0.82
- **Personal resources** = 0.93

Total well-being score = 0.91
Results: Feasibility

– No missing responses
– No significant floor or ceiling effects

Table 1: Scale descriptive statistics for WOWI

<table>
<thead>
<tr>
<th>Scale</th>
<th>No. items</th>
<th>M</th>
<th>%Floor</th>
<th>%Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound worries</td>
<td>7</td>
<td>77.3</td>
<td>0</td>
<td>2.0</td>
</tr>
<tr>
<td>Personal resources</td>
<td>12</td>
<td>65.3</td>
<td>0</td>
<td>6.1</td>
</tr>
<tr>
<td>Well-being</td>
<td>19</td>
<td>72.9</td>
<td>0</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Results: Test-retest Reliability

• Reproducible across time
  – Good test-retest reliability on all scales (ICC>0.60);

Phase 2
Participants undertake initial WOWI

Phase 2
Participants undertake WOWI for a 2\textsuperscript{nd} time

6-12 weeks
Results: Test-retest Reliability

Wound worries:
- ICC = 0.79 (95% CI = 0.62-0.88)

Personal resources
- ICC = 0.83 (95% CI = 0.70-0.90)

Well-being
- ICC = 0.84 (95% CI = 0.72-0.91)
Results: Responsiveness

• How is your wound compared to the last time you completed the questionnaire?

• Calculate responsiveness ratio
**Results: Responsiveness**

**Wound worries:**
- Highly responsive to perceived changes in wound health (RR=0.78)
- Reflects concerns about wound which change with treatment

**Personal resources**
- Minimally responsive to changes in wound health (RR=0.10)
- Reflects personality attributes & learned skills

**Well-being**
- Moderately responsive to changes in wound health (RR=0.31)
- Reflects combined responsiveness of WW and PR
Results: Discriminant validity

Health status measured using the EQ-VAS
Results: Discriminant validity

– Compared health status with each WOWI subscale

<table>
<thead>
<tr>
<th>WOWI</th>
<th>Health status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound worries</td>
<td>Good</td>
</tr>
<tr>
<td>Personal resources</td>
<td>Moderate</td>
</tr>
<tr>
<td>Well-being</td>
<td>Poor</td>
</tr>
</tbody>
</table>
Results: Discriminant validity

**Wound worries:**
- More wound worries associated with poorer health status
- Difference significant at p<0.05

**Personal resources**
- More personal resources associated with better health status
- Difference significant at p<0.01

**Well-being**
- Better well-being associated with better health status
- Difference significant at p<0.01
Study limitations

• Participants all had chronic leg wound;
• Respondents were generally older;
• All were being treated in a non-medical, community-based setting.
What now?

• Phase 3: Australian study in larger sample and relate outcomes to wound healing;
• Currently working with colleagues at TCH to establish the validity and reliability of the measure with a range of wounds over the longer term.
For more information see:


OR

http://www.wellbeingofwounds.info/resources.html