A novel wound dressing, formulated from natural oils, promotes effective healing, protects periwound skin and leads to an impressive induction of granulation tissue, even in deep wounds (Tables 1 and 2). The 105 cases are divided into 37 acute and 68 chronic wounds with an average patient age of 70 years (female: 51 years; male: 54 years; standard deviation ±16). The patients had the typical concomitant diseases associated with their age and primary diagnoses. Table 3 summarises the important parameters for the three most prevalent types of wound in the case studies.

**Results**

- Treatment duration and wound closure
  - The average previous treatment duration was five months
  - The average treatment duration with 1 Primary Wound Dressing® was two months
  - The treatment with 1 Primary Wound Dressing® led to wound closure in 63 of 105 patients (acute: 31, chronic: 32). By the time of the evaluation the treatment of nine cases was still ongoing. The treatment did not result in wound closure in 24 cases over a treatment period of up to 12 weeks.
The treatment was stopped in seven cases because of different reasons (pain, surgical intervention, possible allergic reaction). Two patients died during the course of treatment (no connection to therapy).

Granulation

- The wound care specialists carrying out the evaluations noted that in 57 of 105 cases (54%) the granulation phase was induced faster than what they would have expected from their clinical experience. Granulation was induced fastest in postsurgical wounds (64%) and decubitus (89%).
- Of particular note is a series of nine scalp wounds with exposed bone following skin tumour excision. Treating this type of wound is very challenging because they have no, or only very slow formation of, granulation tissue and are often impossible to heal by secondary intention. The Department of Dermatology of the University Hospital Zurich successfully treated scalp wounds with exposed bone in nine patients after tumour excision with 1 Primary Wound Dressing® (see Box 1). The results confirm the positive effect 1 Primary Wound Dressing® has on the induction of granulation tissue.

Maceration of the periwound skin

- At treatment start the periwound skin of 12.3% (13/105) of wounds were macerated.
- After 50% of treatment the periwound skin of 4% (4/105) of all wounds were macerated; this equates to a reduction of 70%.
- A total of 90 wounds did not macerate during the treatment.

Fibrin

- The removal of fibrin slough from the wound bed is a serious challenge because it can be a painful experience for the patient or it can delay wound healing because granulation tissue might be damaged. The application of 1 Primary Wound Dressing® may positively support the removal of fibrin slough. This was tested in three cases (ulcus cruris) where a reduction of fibrin slough of 80% was observed within the first three days of treatment. 1 Primary Wound Dressing® was applied daily and no additional debridement methods were performed.

Adherence of the secondary dressing

- In 96 cases dressing changes were carried out without complications. In 7 of 105 cases the secondary dressing did adhere to the wound. The reasons for adhering were a smaller amount of 1 Primary Wound Dressing® applied and longer intervals between dressing changes than recommended by the manufacturer. Data were absent for two cases.

Adverse reactions

No serious adverse reactions associated with 1 Primary Wound Dressing® were observed in 102 cases (98%). An allergic reaction to

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### Table 3: Important parameters for the three most prevalent wound types of the survey

<table>
<thead>
<tr>
<th>Number of cases</th>
<th>Postsurgical wounds</th>
<th>Ulcus cruris</th>
<th>Decubitus</th>
</tr>
</thead>
</table>
| Age (years)
1 | 69 ± 17 | 72 ± 14 | 79 ± 10 |
| Previous treatment duration (days)
1 | 23 ± 34 | 230 ± 125 | 116 ± 111 |
| Treatment duration with 1 Primary Wound Dressing® (days)
1 | 47 ± 33 | 68 ± 40 | 80 ± 49 |
| Cases with wound closure
2 | 20
3 | 10
5 | 15
6 | Cases with accelerated granulation if compared with the clinical experience of the treating specialist
7 | 16 (64%)
8 | 11 (37%)
9 | 17 (89%)
| Cases with a reduction of the macerated wound area after 50% of treatment
10 | 0/0 | 4/6 | 2/3 |
| Cases with pain reduction of > 50% after one week's treatment
11 | 1/10
12 | 9/18 | 10/16 |
| Adherence of secondary dressing
13 | 2 | 4 | 0 |

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### Table 4: Summary of the observed pain reductions experienced with 1 Primary Wound Dressing®

<table>
<thead>
<tr>
<th>Number of patients with pain at treatment start</th>
<th>Number of patients with a pain reduction of &gt; 50% after one week of treatment</th>
<th>Number of patients with pain at end of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 105 cases</td>
<td>65</td>
<td>38 (-42%)</td>
</tr>
</tbody>
</table>
| Postsurgical wounds | 10
1 | 9 (-10%) | 8 (-20%) |
| Ulcus cruris | 18 | 9 (-50%) | 9 (-50%) |
| Decubitus | 16 | 6 (-63%) | 3 (-83%) |

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1 Average and standard deviation
2 Limitation of previous treatment duration to maximum of one year for the cases with a value > one year
3 One extreme case with a treatment duration of 500 days was not included in the calculation
4 By the time of the evaluation the treatment of four cases was still ongoing. The treatment was terminated in one case owing to a possible allergic reaction
5 By the time of the evaluation the treatment of four cases was ongoing. The treatment did not result in wound closure in nine cases and was stopped in seven cases for different reasons (pain, surgical intervention, possible allergic reaction)
6 By the time of the evaluation the treatment of one case was still ongoing. The treatment did not result in wound closure in one case. Two patients died during the treatment (unconnected to the therapy)
7 Data are missing for nine cases
8 Five of 10 patients had initial pain of >2 (scale: 1–10)
Postoperative scalp wounds with exposed bone

Background
The treatment of scalp wounds with exposed bone is very challenging. Current conservative treatment options involve moist wound care and additional advanced wound care interventions. Bioengineered skin substitutes or surgical interventions often become necessary when conservative treatment options do not lead to satisfying results. The purpose of this retrospective non-controlled analysis was to evaluate the effectiveness of 1 Primary Wound Dressing® in scalp wounds with exposed bone following skin tumour excision.

Methods
Nine patients whose soft tissue defects following the excision of skin tumors were treated with 1 Primary Wound Dressing® were analysed retrospectively. No additional treatments were used. Time to healing, percentage of wounds with covered bone after four weeks, ease of handling, pain and incidence of complications were evaluated.

Results
The mean age of the patients studied retrospectively was 81.2 years (range 63–90 years), and the mean size of the lesion was 13.2cm² (range 0.4–22.6cm²) for the overall wound and 6.8cm² (range 0.3–20.7cm²) for the exposed bone area.

The postoperative scalp wounds of all patients treated with 1 Primary Wound Dressing® healed by secondary intention. The time to complete healing ranged from 4 to 20 weeks. Within the first four weeks of treatment impressive effects were observed, notably the rapid induction of granulation tissue which covered the entire exposed bone surface in six out of nine cases after this period of 28 days, and a reduction in the mean area of exposed bone of 95% at day 28. The mean wound area was reduced by 74% within four weeks. Dressing changes were easy, and without pain or complications.

Conclusion
This retrospective non-controlled analysis suggests that 1 Primary Wound Dressing® is a very simple to use, safe and potentially effective therapy for the treatment of scalp wounds with exposed bone. Furthermore, the treatment with 1 Primary Wound Dressing® generates significantly less costs compared to most alternative treatment options for these difficult to treat wounds.

Figures 1–4 show the treatment of a 22.6cm² wound with exposed bone at the vertex after excision of a basal cell carcinoma. Figure 3 shows the same wound after three weeks’ treatment with 1 Primary Wound Dressing®. The wound ground is nearly complete, covered with granulation tissue partially reepithelialised. After 14 weeks, 100% of the wound is covered by epithelium.

1 Primary Wound Dressing® was reported in three. All the patients reporting an allergic reaction suffered from multiple allergies.

Pain reduction
Table 4 summarises the observed pain reductions experienced with 1 Primary Wound Dressing®.

Conclusions
Results from extensive case studies in different types of acute and chronic wounds suggest that 1 Primary Wound Dressing® can be used as an effective primary wound dressing that promotes wound healing and protects the periwound skin. 1 Primary Wound Dressing® leads to an impressive induction of granulation tissue, even in very deep wounds. It proved to be simple to use and increases patient comfort greatly.